LAS POSITAS COLLEGE ATHLETIC OUTDOOR COURTS
SOCCER SCOREBOARD PROJECT

LIVERMORE, CA

DSA Application #01-123035

PROJECT SPECIFICATIONS

DSA Submittal

05/05/2026

PREPARED BY:

VERDE DESIGN

Project No. 2501500

Las Positas College Athletic Outdoor Courts
Soccer Scoreboard Project

Livermore, CA

DSA Application #01-123035

DSA SIGNATURE PAGE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-123035 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 06/01/2026

DIVISION OF THE STATE ARCHITECT

REGISTERED PROFESSIONAL ENGINEER
TIM D. HYDE
No. S3260
Exp. 3-31-27
STRUCTURAL
STATE OF CALIFORNIA

STRUCTURAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
DEVIN CONWAY
No. C-56494
Signature
EXPIRATION DATE:
June 30, 2027
STATE OF CALIFORNIA

CIVIL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
STEPHEN R. ZAJICEK
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Exp. 09-30-26
ELECTRICAL
STATE OF CALIFORNIA
04/16/2026

ELECTRICAL ENGINEER

DOCUMENT 00 01 10

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END OF DOCUMENT

SECTION 01 11 00

SUMMARY OF WORK

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Work of this Contract consists of installation of one DSA Pre-Checked scoreboard.

B. The Work specifically includes all work as represented by the Drawings and Specifications issued for construction and subsequent approved revisions and addenda. The Work shall include all work shown and specified except for work indicated "N.I.C.", "Not in Contract", or "By Others."

C. If certain features are not fully shown or called for on the Drawings, their construction shall be of the same character, quality and level of performance as for similar conditions that are shown, called for, or reasonably inferred.

D. During construction, all buildings will remain in service and be occupied during normal campus hours as this campus will remain active throughout the entire project. The contractor will perform up to 60% of work during "off-hours" in order to avoid interfering with instruction.

E. The Contractor must maintain access to the existing buildings at all times during the project. The contractor is to provide secure fencing and/or barricades to keep the general public from entering exterior work areas. Fencing is required to have a privacy screen. Work hours for this project shall be 60% off-hours. Many classrooms remain in use until 10:00 p.m.

F. Unless provided otherwise in the Contract Documents, all risk of loss of Work covered by the Contract Documents shall rest with the Contractor until Final Completion and Acceptance of the Work.

G. Bid Items:
   1. Base Bid: Furnish and install all work shown on Drawings and described in Specifications and all other Contract Documents, including connections to existing systems for a complete and operational product.
   2. Allowance – An Owner's unspecified allowance is as noted in Paragraph 1.1 of the Bid Proposal.

H. Section 01 42 00 - References.

1.02 PROJECT LOCATION

A. Las Positas College: 3000 Campus Hill Drive, Livermore, CA 94551

B. The general nature and extent of the work and the appurtenant facilities are shown on the Drawings under the title: Las Positas College Athletic Outdoor Courts – Soccer Scoreboard Project.

C. Perform work within the Limit of Work line indicated on the Drawings and per the discretion of the Owner.

1.03 SPECIFICATIONS AND DRAWINGS

A. The General Conditions, Supplementary Conditions, and Division 01 - General Requirements apply to the Work of all Sections.

B. Drawings, such as irrigation plans, utility plans, and other utility Drawings, are diagrammatic. Actual runs indicated on the Drawings shall be followed as closely as coordination with the work of other trades will permit. The exact routing of such improvements and locations of equipment shall be governed by site conditions, obstructions, and locations of other utilities as acceptable to the Owner.

C. In the event that discrepancies arise over dimensions, product references, omissions, or written statements, these conflicts shall be immediately brought to the Owner's attention by the Contractor. If available, this may be accomplished with the use of a "Request for Information" (RFI) form. While awaiting direction or clarification from the Owner, the Contractor shall re-direct work as necessary so as not to cause delay to the project.

D. If discrepancies arise between the Drawings and Specifications, the order of descending precedence shall be:

1. Specifications.
2. Details on the Drawings.
3. Plans on the Drawings.

E. Products, materials, labor, etc., installed or performed without proper clarification, or prior to Owner acceptance shall be the Contractor's sole responsibility and shall be removed, repaired, replaced, and/or reinstalled per the Owner's direction at no additional cost to the Owner or its agents.

1.04 CONTRACTOR'S DUTIES

A. Provide and pay for:
1. Labor, materials, equipment, tools, construction equipment machinery, and other facilities and services necessary for proper execution and completion of the Contract.
2. Water and temporary utilities required for construction excluding any metering and connection fees or charges.
3. Subject to the discretion of the Owners Representative as verified by the Contractor, utilities which are in place and/or are in use by the Owner at the site, excluding telephone, may be utilized by the Contractor, to the extent available, at no cost.
4. Other facilities and services necessary for proper execution and completion of work to provide a facility capable of operation.
5. Legally required sales, consumer, and use taxes.

B. Permits:
1. The Owner shall obtain and pay for the building permits, utility cut-offs and hook-ups including, but not limited to: water, gas, and electrical meters, sanitary and storm sewer connection fees.
2. The contractor shall obtain and pay for other permits required by Owner, County and other agencies, including but not limited to business licenses and hauling and dumping permits as applicable.
3. Provisions of required permits and licenses, whether obtained by the Owner's Representative or the contractor, shall become a part of the Contract Documents and shall be adhered to by the contractor.

C. Comply with latest adopted edition of the governing building code and other codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of the work. Nothing in the Drawings or Specifications shall be construed to permit work not conforming to these applicable laws, ordinances, rules, and regulations. In case of conflicts between code requirements, the most restrictive shall apply; except that where the requirements of these Specifications exceed code requirements, the Specifications shall govern.

D. Attend pre-scheduled on-site job conference meetings and/or any special meetings as may be required by the Owner's Representative.

E. Promptly submit written notice to the Owner's Representative of any observed variance in Contract Documents from legal requirements. Appropriate modifications to Contract Documents will be performed by the Owner's Representative to incorporate such necessary modifications.
   1. Contractor shall assume responsibility for work performed and known to be contrary to such requirements.

F. Enforce strict discipline and good order among the contractor's or sub-contractor's employees per the discretion of the Owner's Representative.

G. The Contractor shall be held to have examined the site and to have compared it with the Drawings and Specifications, to have carefully examined all of the Contract Documents and to have satisfied itself as to the conditions under which the work is to be performed before entering in this Contract.
   1. No allowance shall subsequently be made on behalf of the Contractor on account of an error on its part or its negligence or failure to acquaint itself with the conditions of the site.

H. Examine site and verify that site conditions are acceptable to begin any work. Verify that work specified elsewhere has been completed to an appropriate stage to begin any applicable work. This includes, but is not limited to, lines, grades and surfaces prepared by others. Notify the Owner's Representative in writing of any irregularities or unacceptable conditions. Start of work by Contractor shall indicate Contractor's acceptance of site conditions.

I. Throughout the job the Contractor shall be responsible for the general safety of the public and shall take appropriate means at no extra cost to Owner to provide a safe and secure job site to the satisfaction of the Owner's Representative.

J. Verify all measurements, materials and systems taken from the Drawings and Specifications. Contractor shall be responsible for all investigations, field measurements layouts, and coordination necessary to properly fit, install and complete the work required, including integration of new work into, and with existing.

K. Contractor shall deliver, receive, store, protect, install and apply materials in accordance with manufacturer's and/or industry specifications and instructions unless specifically modified and shown otherwise in the Contract Documents. Installations shall be tight, smooth, level, straight, true to line, and secure.

1.05 PROTECTION OF PROPERTY, MATERIALS AND WORK

A. Contractor shall be held responsible insofar as its operations are concerned for the care, protection, and preservation of the adjoining premises, buildings, trees, landscaping, utilities, walks, streets, and adjacent properties from damage resulting from or incidental to this Contract.

B. Protect existing structures, planted areas and improvements not designated for removal. Damage to existing structures including asphalt paving, utilities, and fixtures shall be replaced to an "as was" or better condition, at Contractor's expense, to the satisfaction of the Owner's Representative.

C. Materials and equipment, both before and after installation, shall be properly protected by the contractor from the weather and other hazards and kept in a clean and orderly manner.

D. Utility piping and conduit stub-outs, and parts or equipment left unconnected shall be capped, plugged, or otherwise properly protected by the contractor to prevent damage or the intrusion of dirt or other foreign matter.

E. Materials and equipment damaged or containing defects developed before acceptance of the work shall be replaced with new at the Contractor's expense.

1.06 WORK SEQUENCE AND SCHEDULE

A. The sequence and scheduling of the work to be performed by the Contractor shall be subject to review and acceptance by the Owner's Representative. The Contractor shall submit a Submittal Progress Log and Schedule in accordance with Section 01 33 00 - Submittal Procedures prior to starting work. Project schedules shall conform to Specification Section 01 33 00.

B. Work will be performed on an active college campus. Campus buildings are generally in use from 7:30AM to 10:00PM Monday through Friday. Contractor shall presume interior work in classrooms must be performed at times other than when a campus building is in use. Exterior work can occur during normal working hours.

1.07 CONTRACTOR'S USE OF PREMISES

A. Confine operations to areas immediately within the proposed project sites.
   1. Develop and utilize construction access and haul routes as per the rules and regulations pertaining to the locale in which the work is to be performed and in accordance with the discretion of the Owner's Representative.
   2. Do not encumber site with materials or equipment.

B. Limit use of premises for work and construction operations to allow for work by other contractors.
   1. Conduct operations so as not to cause unnecessary delay or hindrance to other contractors.
   2. Conduct, adjust, correct, and coordinate work with others to prevent project discrepancies and/or delays.

C. Assume full responsibility for protection and safekeeping of products stored on premises and work performed until Final Acceptance of the work.

D. Move stored products under Contractor's control which interfere with operations of the Owner.

E. Obtain and pay for use of additional storage or work areas needed for construction operations.

1.08 WORK HOURS AND WORK DURING ONGOING ACTIVITIES

A. Carry on the work as quietly as possible to prevent possible annoyance to adjacent properties. Avoid unnecessary noise at all times. Comply with local noise regulations or requirements. No work, delivery of equipment or materials shall take place between the hours of 5:00 PM and 8:00 AM, or during non-working hours and days without written authorization by the Owner's Representative.

B. When connecting new utilities to existing, and similar operations, the contractor shall time and coordinate with Owner's Representative, facility operators, and utility companies such operations to minimize interference with existing activities and operations.

1.09 MATERIALS

A. Unless otherwise noted or scheduled, materials and equipment specified and used in the work of this Contract shall be new, in first class condition, and suited to the intended use.

B. Materials shall be delivered to the site and stored in original containers sheltered from the elements, but readily accessible for inspection by the Owner's Representative until installed.

C. Materials of the same general type shall be of the same make and quality throughout the work to provide uniform appearance, operation, and maintenance ease.

D. Equipment specified by manufacturer's number shall include all controls and accessories listed in catalog as standard equipment. Furnish optional or additional accessories as specified.

E. Where no specified make of material or equipment is specified, any product by a reputable manufacturer which conforms to the requirements of the Contract Documents may be used with the Owner's Representative's acceptance.

F. Materials and equipment shall be current products by manufacturers regularly engaged in the production of such products.

G. Equipment items shall be supported by service organizations, which are reasonably convenient to the equipment installation in order to render satisfactory service to the equipment on a regular and emergency basis during the Specified Warranty Period.

1.10 NUISANCE WATER

A. The Contractor shall protect the work, at all times, from damage and shall take measures to prevent delays in the progress of the work caused by nuisance water, such as rainfall, irrigation water and groundwater.

B. The Contractor shall dispose of nuisance water using appropriate mechanical means at their sole expense and without adverse effects upon the Owner's, or any other property.

C. The Contractor shall comply with all applicable non-point source pollution regulations required by the Owner.

1.11 REFERENCE POINTS

A. The Contractor shall leave existing stakes and reference points in their existing locations unless directed or authorized otherwise by the Owner's Representative. The Contractor shall set additional stakes and reference points as necessary to properly establish horizontal and vertical controls required for the work.

1.12 COORDINATION

A. The Contractor shall coordinate all items of its work to assure efficient and orderly sequence of installation of construction elements.
   1. The Contractor shall make provisions for accommodating items installed by the Owner or under separate contracts.
   2. The Contractor shall coordinate and cooperate fully with all other agencies, sub-contractors, or utility company personnel furnishing labor, materials, or services, so that the work, as a whole, shall be executed in the most efficient manner and without conflict or delay.

B. The Contractor shall verify that characteristics of interrelated operating equipment are compatible and coordinate work having interdependent responsibilities for installing of mechanical, irrigation, or electrical work, which may be indicated diagrammatically on Drawings.

C. The Contractor shall coordinate space requirements and installation of work, which is indicated diagrammatically on Drawings.
   1. Follow routing shown for pipes and conduits as closely as possible, run lines parallel with lines of construction edges whenever possible.
   2. Utilize spaces efficiently for other installations, for maintenance, and for repairs.
   3. Work out all conditions involving work of all trades in advance of installation. If necessary, and before work proceeds in areas with constricted clearances, prepare supplementary drawings for Owner's Representative review, showing all work in "tight" areas. Provide supplementary drawings and additional work necessary to overcome spatially constricted conditions.

D. Differences or disputes concerning coordination, interference or extent of work between divisions shall be decided by the Owner's Representative.

E. Access Doors and Panels: Coordinate access door and panel requirements with each trade installing work to which access must be available to the Owner's Representative from time to time.

F. Should construction work, or work of any other nature, be underway by other forces or by other contractors within or adjacent to the limits of the Work at the time the Work was advertised for bids, the Contractor shall cooperate with all such other contractors or forces to the end that any delay or hindrance to their work will be avoided. The cost of such cooperation will be considered as included in the prices bid and no direct or additional payment will be made therefore. Contractor shall coordinate with such other contractors and forces as required by General Conditions.

G. CLPCCD reserves the right to perform other or additional work, within or adjacent to the limits of the work specified, at any time by the use of other forces. Contractor shall coordinate with CLPCCD and any CLPCCD forces, or other forces, engaged by CLPCCD, as required by General Conditions. In the event that the performance of such other or additional work materially increases or decreases Contractor's costs, the work and the amount to be paid therefore will be appropriately adjusted as determined by the Construction Manager.

H. Limit use of the Site for Work and for construction operations to allow for:
   1. CLPCCD Operation
   2. Work by other contractors and tenants

I. Coordinate use of the Site and access to site with other contractors, utilities, and CLPCCD forces, as required by General Conditions. Construction Manager has final authority over coordination, use of the Site, and access to site.

J. Cooperate with CLPCCD and others who may occupy and begin work on site and inside building prior to completion of Work of this Contract

K. Cooperate with contractors for other area work, not included in Contract, but which may take place during construction period.

1.13 CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting, or patching of work which may be required to make its several parts come together properly and fix it to receive or be received by work of other trades.

B. Costs incurred by defective or poorly timed work shall be borne by the responsible party, as determined by the Owner's Representative. Contractor shall not endanger any work, persons or construction by cutting, digging, or otherwise, and shall not alter the work of any other contractor except as acceptable to the Owner's Representative.

C. Patching of openings for new installations and openings resulting from the removal or relocation of an installation shall be done with material of the same type adjoining openings and as acceptable to the Owner's Representative.

1.14 MAINTENANCE

A. Cost of maintenance of systems and equipment prior to Final Acceptance will be considered as included in prices bid and no direct or additional payment will be made therefore.

1.15 CLEANING DURING CONSTRUCTION

A. Execute weekly cleaning operations to keep the work, site, streets, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris resulting from construction operations.

B. Provide on-site containers for the collection of waste materials, debris and rubbish.

C. Remove hazardous waste materials, debris, and rubbish from the site periodically and properly dispose of such materials at legal disposal areas.
   1. Location of legal disposal sites and all costs incurred from waste disposal and transportation shall be the responsibility of the contractor.
   2. Waste material or debris shall not be buried or burned on the site.

D. The Owner's Representative may, at any time during construction, order general clean-up of the site at no additional cost to the Owner.

1.16 OCCUPANCY REQUIREMENTS

A. Whenever, in the opinion of Construction Manager, Work or any part thereof is in a condition suitable for use, and the best interest of CLPCCD requires such use, CLPCCD may take beneficial occupancy of and connect to, open for public use, or use the Work or such part thereof. In such case, CLPCCD will request Architect/Engineer to inspect the Work or part thereof, and issue a Certificate of Substantial Completion for that part of Work.

B. Prior to date of Final Acceptance of the Work by CLPCCD, all necessary repairs or renewals in Work or part thereof so used, not due to ordinary wear and tear, but due to defective materials or workmanship or to operations of Contractor, shall be made at expense of Contractor, as required in General Conditions.

C. Use by CLPCCD of Work or part thereof as contemplated by this section shall in no case be construed as constituting acceptance of Work or any part thereof. Such use shall neither relieve Contractor of any responsibilities under Contract, nor act as waiver by CLPCCD of any of the conditions thereof.

D. CLPCCD may specify in the Contract Documents that portions of the Work, including electrical and mechanical systems or separate structures, shall be substantially completed on milestone dates prior to substantial completion of all of the Work. Contractor shall notify Architect/Engineer in writing when Contractor considers any such part of the Work ready for its intended use and substantially complete and request Architect/Engineer to issue a Certificate of Substantial Completion for that part of the Work.

1.17 PROJECT COMPLETION

A. Conform to Section 01 77 00 - Contract Closeout.

B. The Contractor shall, at completion of the project, leave the installed work properly operating and in a thoroughly clean condition.

C. Thoroughly instruct the Owner's Representative and any applicable operation and maintenance personnel in the contents of the "operations and maintenance manual." Refer to Section 01 33 00 – Submittal Procedures.

PART 2 – PRODUCTS

2.01 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with requirements of standard, except where more rigid requirements are specified or are required by applicable codes.

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

SECTION 01 25 00

SUBSTITUTION PROCEDURES

1.01 SUMMARY

A. Section Includes: Specific requirements for submission and approval of products other than those specified or noted on the Drawings.

B. Related Requirements:
   1. Section 01 26 00 – Contract Modification Procedures
   2. Section 01 33 00 – Submittal Procedures
   3. Other applicable Sections of the Specifications

1.02 CONTRACTOR'S OPTIONS

A. For products specified only by reference standard:
   1. Select any product meeting that standard.

B. For products specified by naming one or more products or manufacturers:
   1. Select products of any named manufacturer meeting specifications.
   2. For any alternative product or manufacturer, which is not specifically named, submit a Request for Substitution (RFS).

C. For products indicated or specified by naming only one product and manufacturer, followed by the words "no substitution allowed", there is no option.

1.03 DEFINITIONS

A. Substitutions - General: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

B. 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.

C. 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.

1.04 INTENT OF SPECIFICATIONS – PRODUCT SELECTION

A. When a material, article, or process is indicated or specified by trade, patent, proprietary name, or name of manufacturer, the Specification shall be deemed to be followed by the words "**or equal, as accepted in writing by the Owner's Representative**" and a request for substitution shall be submitted as specified in this Section. Provide only the named product or products where products are specified followed by the words "no substitution." Substitutions are not allowed without an approved substitution request.

B. The naming of more than one manufacturer in a Section does not imply that all products produced by the listed manufacturers are acceptable for use on the project. Where more than one proprietary name, process, and product is specified, the Contractor may provide materials or equipment of any one of the manufacturers specified if it is in full compliance with the Contract Documents and is acceptable to the Owner's Representative.

C. Costs incurred due to requests, changes or revisions resulting from substitutions requiring Design, Drawings, DSA submittal and/or coordination or services of the Owner's Representative or Project Consultants to facilitate purchase, installation or erection of any portion of the work shall be borne by the Contractor. A flat hourly rate, as agreed upon, shall be paid by the Contractor whether the change is accepted or not. This fee shall be deducted, and paid, from Contract moneys due to the Contractor as determined by the Owner's Representative.

1.05 ACTION SUBMITTALS

A. Procedures: In accordance with Section 01 33 00 – Submittal Procedures

B. Conditions:

1. The Contractor's substitution request will be received and considered by the Owner's Representative when the following conditions are satisfied, as determined by the Owner's Representative; otherwise, requests will be returned without action except to record noncompliance with these requirements. The burden of proof of the merit of the proposed substitution is upon the proposer.
    a. Extensive revisions to the Contract Documents are not required.
    b. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    c. The request is timely, fully documented and properly submitted.
    d. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
    e. The specified product or construction method cannot be provided within the contract time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
    f. The specified product or construction method cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
    g. A substantial advantage is offered the Owner, in cost, time, energy conservation or other considerations of merit, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to the Architect for redesign and evaluation services, increased cost of other construction by Owner or separate Contractors, and similar considerations.
    h. The specified product of construction method cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the requested substitution will overcome the incompatibility.
    i. The specified product or construction method cannot be coordinated with other materials, and where the Contractor certifies that the requested substitution can be coordinated.
    j. The specified product or construction method cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the requested substitution provides the required warranty.
    k. 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.

C. Substitution Requests:
1. Include sufficient data, drawings, samples, literature, and other detailed information which demonstrates to the Owner's Representative that the proposed substitute is equal in quality, operating efficiency, and durability of the material specified.
2. Substitution Request Form: Facsimile of form provided in Project Manual.

3. Documentation:
    a. Submit a detailed side-by-side 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.
    b. Sufficient data, drawings, samples, literature, and other detailed information which demonstrates to the Owner's Representative that the proposed substitute is equal in quality, operating efficiency, and durability of the material specified.
    c. Statement indicating why specified product, fabrication, or installation cannot be provided, if applicable or requested.
    d. Samples for review, if applicable.
    e. Certificates and qualification data.
    f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
    g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    h. Research reports evidencing compliance with building code in effect for Project.
    i. Cost information, including a proposal of change, if any, in the Contract Sum.
    j. 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.
    k. 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.

D. Submittal Timing:
1. Prior to Bidding:
    a. A request for substitutions will be considered if received within 10 calendar days from the bid opening date.
    b. Approval of substitutions shall be accepted or denied by the District at least 3 calendar days before bid opening.
    c. If a decision on use of a substitute cannot be made within these time limits, the product specified shall be used.
2. Following Award of Contract:
    a. Within fifteen (15) calendar days after Start Date of the Contract Time, submit two (2) copies and one (1) electronic PDF of the complete list of substitutions of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
    b. Substitutions for Cause: Submit requests immediately on discovery of need for change, but not later than 15 working days prior to time required for preparation and review of related submittals.
    c. Substitutions for Convenience: Submit within 35 days after Award of Contract. Requests received after that time may be considered or rejected at discretion of Owner's Representative.

1.06 CONSIDERATION OF SUBSTITUTIONS

A. General:
1. Materials and equipment for the work shall be the standard product of a manufacturer regularly engaged in the production of such materials and equipment. Product options or substitutions shall not be the basis for any price increase above the original Contract Sum.
2. Substitutions which are equal in quality, efficiency, durability and utility to those specified will be permitted, subject to the following conditions.
3. The Owner's representative shall review such proposed substitutions and determine if a substitution is acceptable. If the following conditions are not satisfied, Owner's Representative will return requests without action, except to record noncompliance with these requirements.

4. Failure of the Contractor to submit proposed substitutions for review in the manner specified shall be sufficient cause for rejection by the Owner's Representative of any substitutions otherwise proposed.
5. Failure to place orders for specified equipment or material sufficiently in advance of the scheduled date of installation shall not be considered a valid reason upon which the Contractor may base a request for any substitutions or for any deviations from the Contract Documents.

B. Substitutions for Cause: Owner's Representative will consider Contractor's request for substitution for cause when the following conditions are satisfied. If the following conditions are not satisfied, Owner's Representative will return requests without action, except to record noncompliance with these requirements:
1. Substitution request is fully documented and properly submitted.
2. Requested substitution will not adversely affect the Project Construction Schedule.
3. Requested substitution has received necessary approvals of authorities having jurisdiction, if applicable.
4. Requested substitution provides specified warranty.
5. 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.

C. Substitutions for Convenience: Owner's Representative will consider Contractor's request for substitution for convenience when, in addition to the conditions specified for a substitution for cause, under the following conditions.
1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.

D. Action by Owner's Representative:
1. Substitutions shall be favorably reviewed and accepted by the Owner's representative in writing prior to implementation. Favorable review shall not relieve the Contractor from complying with the requirements of the Contract Documents, and the Contractor shall be responsible for all expenses for any changes resulting from acceptable substitutions which affect other parts of the work.
2. If necessary, Owner's Representative will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution.
3. Owner's Representative will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
4. Forms of Acceptance: Change Order, Construction Change Directive, or Supplemental Instructions for minor changes in the Work.

E. The first or only named manufacturer is the basis for the project design and the use of alternative-names, second-names, or unnamed manufacturer's products may require modifications in the project design and construction.
1. Costs incurred due to requests, changes or revisions resulting from substitutions requiring drawings or services of the Owner's representative or project consultants to facilitate purchase, installation or erection of any portion of the work, shall be borne by the contractor. A flat hourly rate, as agreed upon, shall be paid by the contractor whether the change is accepted or not. This fee shall be deducted, and paid, from Contract moneys due to the contractor as determined by the Owner's representative.
2. Should the requested substitution require DSA review and approval, such as review of an alternate PC package, Contractor is responsible for design and coordination fees as well as DSA fees incurred.

F. Contractor shall furnish full information concerning the material or articles being proposed for substitution.
   1. Testing of a proposed substitute material to assure compliance with the Specifications may be required by the Owner's representative at the contractor's expense.
   2. Samples shall be submitted for review as specified in Section 01 33 00 – Submittal Procedures.
   3. Equipment, material, and articles installed or used by the contractor without required review, shall be at the contractor's risk.

G. Substitutions shall comply with or exceed all requirements of size, function, structure, durability, and appearance without exception.
   1. Use of accepted substitutions shall in no way relieve the contractor from responsibility for compliance with the Contract Documents after installation.
   2. The contractor shall assume all extra costs caused using such substitutions where they affect other work or trades.

H. Substitutions will not be considered for acceptance when:
   1. They will result in delay meeting construction milestones or completion dates.
   2. They are indicated or implied on submittals without formal request from Contractor.
   3. They are requested directly by subcontractor or supplier.
   4. Acceptance will require substantial revision of Contract Documents.
   5. They disrupt Contractor's job rhythm or ability to perform efficiently.

I. Substitute products shall not be ordered without written acceptance of Construction Manager and Architect/Engineer.

J. Construction Manager and Architect/Engineer will determine acceptability of proposed substitutions and reserve right to reject proposals due to insufficient information.

K. Accepted substitutions will be evidenced by a change order or Supplemental Instruction. All Contract requirements apply to Work involving substitutions.

1.07 CONSTRUCTION MANAGER'S AND ARCHITECT/ENGINEER'S DUTIES

A. Review Contractor's RFS within seven (7) working days.

B. Notify Contractor in writing of decision to accept or reject requested substitution within seven (7) working days.

1.08 COST OF REVIEW

A. Construction Manager and Architect/Engineer will record time required in evaluating substitutes proposed or submitted by Contractor. Whether or not Construction Manager or Architect/Engineer accepts the substitution so proposed or submitted by Contractor, Contractor shall reimburse CLPCCD for the charges of Architect/Engineer and Construction Manager for evaluating each such proposed substitution.

B. CLPCCD reserves the right to waive the requirement of paragraph A above.

1.09 SUBSTITUTION REQUEST FORM

A. For proposed substitutions, the Contractor shall complete the following Substitution Request Form, attach substantiating back-up literature, and submit to the Owner's representative within time limit specified.

SUBSTITUTION REQUEST FORM

DATE: _____

TO: OWNER'S REPRESENTATIVE

PROJECT NAME: _____

_____

_____

SPECIFIED ITEM: Section _____ Page _____ Item Number_____ Paragraph _____

DESCRIPTION:

_____

_____

_____

_____

_____

_____

_____

_____

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: (put N/A where not appropriate)

Manufacturer: _____ Color:_____

Model Number: _____ Material: _____

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the requests; applicable portions of the data are clearly identified.

Attached data also includes description of changes to Contract Documents which the proposed substitution requires for proper installation.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitution does not affect dimensions shown on Drawings. If, in fact, it does affect dimensions, the contractor shall provide shop drawings, accurately showing changes to documents.
2. The undersigned shall pay for changes to the design, including engineering design, detailing, and construction costs caused by the requested substitution.
3. The proposed substitution shall not adversely affect other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts are locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item.

Submitted by:

Signature: _____ Title: _____

License Category: _____ License Number: _____

Firm: _____ Phone No.: _____

Address: _____ Fax No.:_____

Telephone: _____

OWNER'S REPRESENTATIVES REVIEW:

☐ NO EXCEPTIONS TAKEN ☐ EXCEPTIONS TAKEN (SEE ATTACHED COMMENTS)

☐ FURNISH AS CORRECTED ☐ REVISE AND RESUBMIT

By: _____

Date: _____

Comments:

_____

_____

_____

_____

Attachments:

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

1.01 SUMMARY

A. This section describes general procedural requirements for alterations, modifications and extras.

B. Related Requirements:
   1. Section 01 11 00: Summary of Work
   2. Section 01 33 00 – Submittal Procedures
   3. Other applicable Sections of the Specifications

1.02 GENERAL

A. Any change in scope of work or deviation from Drawings or Specifications shall be accomplished only when authorized in writing by Construction Manager. As appropriate, change orders are subject to approval by the Division of the State Architect. Refer to section 4-338, Part 1, Title 24, California Code of Regulations.

B. Changes in scope of Work or deviation from Drawings or Specifications may be initiated only by the Contractor or the Construction Manager.
   1. Contractor may initiate changes by submitting Requests for Information (RFI), Requests for Substitution (RFS), Notice of Concealed or Unknown Conditions, or Notice of Hazardous Waste
      a. RFI's shall be submitted to seek clarification of Contract Documents.
      b. RFS's shall be submitted in accordance with paragraph 4.8.2 of General Conditions to request substitution of materials or methods of execution.
      c. Notices of concealed or unknown conditions shall be submitted to make Owner aware of a potential change in scope of the work.
      d. Notices of Hazardous Waste Conditions shall be submitted in accordance with paragraph 4.17 of General Conditions.
      e. Notices of Changes shall be submitted in accordance with paragraph 9.6 of General Conditions.
   2. Contractor shall be responsible for its costs to implement and administer RFI's and RFS's throughout the Contract duration. Regardless of the number of RFI's submitted, Contractor will not be entitled to additional compensation. Contractor shall be responsible for both CLPCCD's and Architect's administrative costs for answering its RFI's where the answer could reasonably be found by reviewing the Contract Documents, as determined by CLPCCD; such costs will be deducted from progress payments.
   3. Architect/Engineer may initiate changes by issuing a Supplemental Instruction (which shall require written approval of the Construction Manager).
   4. Construction Manager may initiate changes by issuing Requests for Proposal (RFP) or a Field Change Notice (FCN) to Contractor. Such RFP's or FCN's will detail all proposed changes in the Work and request a quotation of changes in Contract Sum and Contract Times from Contractor. A RFP or FCN may require Contractor to expedite the work and proceed on a time and material (force account) basis.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.01 PROCEDURE

A. Contractor shall submit RFI to Construction manager. Contractor shall reference each RFI to an activity on its Progress Schedule and note the time criticality of the RFI, indicating the time in which the response is required. Architect/Engineer shall respond by issuing a Clarification.
   1. If Contractor is satisfied with the Clarification and does not request change in Contract Sum or Contract Times, then the Clarification shall be executed without a change.
   2. If Contractor believes that the Clarification results in change in Contract Sum or Contract Times, Contractor shall notify Construction Manager who may then deny request for change or issue RFP.

B. Contractor shall submit RFS to Construction Manager who may then deny request or issue RFP.

C. Contractor shall submit Notices of Changes to resolve unanticipated conditions incurred in the execution of the Work. Procedures in Paragraph 9.6 of General Conditions shall be followed. If Construction Manager determines that a change in Contract Sum or contract Times is justified, Construction Manager shall issue RFP.

D. Contractor shall submit Notices of Hazardous Waste Conditions to resolve problems regarding hazardous materials encountered in the execution of the Work. Procedures in Paragraph 4.17 of General Conditions shall be followed. If Construction Manager determines that a change in Contract Sum or contract Times is justified, Construction Manager shall issue RFP.

E. Architect/Engineer shall issue Supplemental Instruction to the Construction Manager who shall forward onto Contractor. Contractor shall not proceed with Supplemental Instruction until Construction Manager approves it in writing.
   1. If Contractor is satisfied with Supplemental Instruction and does not request change in Contract Sum or Contract Times, then Supplemental Instruction shall be executed without a Change Order.
   2. If Contractor believes that Supplemental Instruction results in change in Contract Sum or Contract Times, Contractor shall notify Construction Manager. Construction Manager may then deny request for change, cancel Clarification or issue RFP.

F. Responses by recipients shall be within a reasonable time.

G. Contractor shall respond to Construction Manager's RFP within fifteen (15) working days by furnishing a complete breakdown of costs of both credits and extras; itemizing materials, labor, taxes, overhead and profit. Subcontract work shall be so indicated.

H. Upon approval of RFP, Construction Manager will issue a Change Order directing Contractor to proceed with extra work.

I. Payment shall be made as follows:
   1. Change Orders which increase Contract Sum or Contract Times shall be included in next Contract Modification Form, signed by Construction Manager, accepted by Contractor.
   2. Payment shall be made for Change Order work along with other work in progress payment following completion of Change Order work. Partial completion of Change Order work shall be paid for that part completed during the period covered by the monthly payment request.

3.02 COST DETERMINATION

A. Total cost of extra work shall be the sum of labor costs, material costs, equipment rental costs and specialist costs as defined herein plus overhead and profit as allowed herein. This limit applies in all cases of claims for extra work, whether calculating Change Orders, RFIs, or calculating claims of all types, and applies even in the event of fault, negligence, strict liability, or tort claims of all kinds, including misrepresentation, concealment, strict liability or negligence. No other costs arising out of or connected with the performance of extra work, of any nature, may be recovered by Contractor. No special, incidental or consequential damages may be claimed or recovered against CLPCCD, its representatives or agents, whether arising from breach of contract, negligence or strict liability, unless specifically authorized in the Contract Documents.

B. Overhead:
   1. Overhead shall be as defined in Article 1.08.

C. Taxes:
   1. Alameda County Sales Tax should be included.
   2. Federal and Excise Tax shall not be included.

D. Owner Operated Equipment: When owner-operated equipment is used to perform extra work, Contractor will be paid for equipment and operator as follows:
   1. Payment for equipment will be made in accordance with Paragraph 1.05. C.
   2. Payment for cost of labor will be made at no more than rates of such labor established by collective bargaining agreements for type of worker and location of work, whether or not owner-operator is actually covered by such an agreement.

3.03 COST BREAKDOWN

A. Labor - Contractor will be paid cost of labor for workers (including fore persons when authorized by Construction Manager) used in actual and direct performance of extra work. Labor rate, whether employer is Contractor, subcontractor or other forces, will be sum of following:
   1. Actual Wages - Actual wages paid shall be limited to the applicable prevailing wage rate for the classification of labor actually and reasonably necessary to complete a Change. Prevailing wage rates shall be deemed to include all direct payment of wages to workers completing a Change and all employer burdens thereon, including without limitation all employer payments to or on behalf of workers for Workers Compensation, health and welfare, pension, vacation and other similar labor burdens. Contractors and subcontractors are required to provide their corresponding wage rate breakdown for the classification of labor under which they will complete a Change and on the form provided by the Owner for review and approval by the Owner and Construction Manager prior to processing and approval of payment for any completed Change.

B. Material - Only materials furnished by Contractor and necessarily used in performance of extra work will be paid for. Cost of such materials will be cost, including sales tax, to purchaser (Contractor, subcontractor or other forces) from supplier thereof, except, as the following are applicable:
   1. If cash or trade discount by actual supplier is offered or available to purchaser, it shall be credited to CLPCCD notwithstanding fact that such discount may not have been taken.
   2. For materials salvaged upon completion of extra work, salvage value of materials shall be deducted from cost, less discount, of materials.
   3. If cost of a material is, in opinion of Construction Manager, excessive, then cost of material shall be deemed to be lowest current wholesale price at which material is available in quantities concerned delivered to Site, less any discounts as provided in subparagraph 1 above.

C. Equipment Rental - For Contractor or subcontractor-owned equipment, payment will be made at the lesser of actual rental rates or the rental rates listed for equipment in California Department of Transportation official equipment rental rate schedule which is in effect on date upon which extra work is accomplished and which schedule is incorporated herein by reference as though fully set forth herein. For rented equipment, payment will be made based on actual rental invoices. Equipment used on extra work shall be of proper size and type. If, however, equipment of unwarranted size or type and cost is used, cost of use of equipment shall be calculated at rental rate for equipment of proper size and type. Rental rates paid shall be deemed to cover cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals. Unless otherwise specified, manufacturer's ratings, and manufacturer-approved modifications, shall be used to classify equipment for determination of applicable rental rates. Individual pieces of equipment or tools not listed in said publication and having a replacement value of five hundred dollars ($500) or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore as payment is included in payment for labor. Rental time will not be allowed while equipment is inoperative due to breakdowns.
   1. For equipment on Site, rental time to be paid for equipment shall be the time equipment is in operation on extra work being performed. The following shall be used in computing rental time of equipment:
      a. When hourly rates are listed, less than thirty (30) minutes of operation shall be considered to be one-half (1/2) hour of operation.
      b. When daily rates are listed, less than four (4) hours of operation shall be considered to be one-half (1/2) day of operation. Anything over four (4) hours and not more than eight (8) hours is considered one (1) full day of operation.
   2. For equipment which must be brought to Site to be used exclusively on extra work, cost of transporting equipment to Site and its return to its original location shall be determined as follows:
      a. CLPCCD will pay for costs of loading and unloading equipment.
      b. Cost of transporting equipment in low bed trailers shall not exceed hourly rates charged by established haulers.
      c. Cost of transporting equipment shall not exceed applicable minimum established rates of California Public Utilities Commission.
      d. Payment for transporting, and loading and unloading equipment as above provided will not be made if equipment is used on Work in any other way than upon extra work.
   3. Rental period shall begin at time equipment is unloaded at Site of extra work and terminate at end of day on which Construction Manager directs Contractor to discontinue use of equipment. Excluding Saturdays, Sundays, and legal holidays, unless equipment is used to perform extra work on such days, rental time to be paid per day shall be four (4) hours for zero (0) hours of operation, six (6) hours for four (4) hours of operation and eight (8) hours for eight (8) hours of operation, time being prorated between these parameters. Hours to be paid for equipment, which is operated less than eight (8) hours due to breakdowns, shall not exceed eight (8) less number of hours equipment is inoperative due to breakdowns.

D. Work Performed by Special Forces or Other Special Services - When Construction Manager and Contractor, by agreement, determine that special service or item of extra work cannot be performed by forces of Contractor or those of any subcontractors, service or extra work item may be performed by specialist. Invoices for service or item of extra work on basis of current market price thereof may be accepted without complete itemization of labor, material, and equipment rental costs when it is impracticable and not in accordance with established practice of special service industry to provide complete itemization. In those instances wherein Contractor is required to perform extra work necessitating a fabrication or machining process in a fabrication or machine shop facility away from Site, charges for that portion of extra work performed in such facility may, by agreement, be accepted as a specialist billing. Construction Manager must be notified in advance of all offsite work. To specialist invoice price, less credit to CLPCCD for any cash or trade discount offered or available, whether or not such discount may have been taken, will be added 15 percent (15%) in lieu of overhead and profit provided in Paragraph 1.04.B.

3.04 FORCE ACCOUNT

A. If it is impracticable because of nature of work, or for any other reason, to fix an increase or decrease in price definitely in advance, Change Order may fix a maximum price which shall not under any circumstances be exceeded, and subject to such limitation, such alteration, modification or extra shall be paid for at actual necessary cost as determined by CLPCCD Authority, which cost shall be determined pursuant to Article 1.04, and shall be known as Force-Account work.

B. Whenever any Force-Account work is in progress, definite price for which has not been agreed on in advance, Contractor shall report to Construction Manager each day in writing in detail amount and cost of labor and material used, and any other expense incurred in Force-Account work on preceding work day, and no claim for compensation for Force-Account work will be allowed unless report shall have been made. Daily report(s) shall be delivered to Construction Manager within one (1) business day of the day the work was performed. No late reports will be accepted. The intent is to have daily agreement on hours expended for labor and equipment on Force-Account work.

C. Above described methods of determining payment for work and materials shall not apply to performance of work or furnishings of material, which, in judgment of Construction Manager, may properly be classified under items for which prices are established in Contract.

3.05 CLPCCD FURNISHED MATERIALS

A. CLPCCD reserves right to furnish materials, as it deems advisable, and Contractor shall have no claims for costs and overhead and profit on such materials.

3.06 OVERHEAD DEFINED

A. The following constitutes charges that are included in overhead for all contract modifications, including Force-Account work:
   1. Drawings: field drawings, shop drawings, etc. including submissions of drawings
   2. Routine field inspection of work proposed
   3. General Superintendence
   4. General administration and preparation of change orders
   5. Computer services
   6. Reproduction services
   7. Salaries of project engineer, Construction Manager, superintendent, timekeeper, storekeeper and secretaries
   8. Janitorial services

9. Temporary on-site facilities
    a. Offices
    b. Telephones
    c. Plumbing
    d. Electrical: Power, lighting
    e. Platforms
    f. Fencing, etc.
10. Home office expenses
11. Insurance Premium
12. Procurement and use of vehicles and fuel used coincidentally in base bid work
13. Surveying
14. Estimating
15. Protection of work
16. Final cleanup
17. Other incidental work
18. Record Drawings
19. Warranty
20. Transportation expense to site for labor

3.07 RECORDS AND CERTIFICATION

A. Force-Account (cost reimbursement) charges shall be recorded daily upon Cost Breakdown for Contract Modification Form obtained from Inspector. Contractor or authorized representative shall complete and sign form. Inspector shall sign form for approval. Contract Modification Form shall provide names and classifications of workers and hours worked by each, itemize materials used, and also list size type and identification number of equipment, and hours operated, and shall indicate work done by specialists.

B. No payment for Force-Account work shall be made until Contractor submits original invoices substantiating materials and specialist charges.

C. CLPCCD shall have the right to audit all records in possession of Contractor relating to activities covered by Contractor's claims for modification of Contract, including Force-Account work, as set forth in General Conditions.

D. Further, CLPCCD shall have right to audit, inspect, or copy all records maintained in connection with this Contract, including financial records, in possession of Contractor relating to any transaction or activity occurring or arising out of, or by virtue of, Contract. If Contractor is a joint venture, right of CLPCCD shall apply collaterally to same extent to records of joint venture sponsor, and of each individual joint venture member.

END OF SECTION

SAMPLE ONLY
COST BREAKDOWN FORM FOR CONTRACT MODIFICATION

One separate form shall be used by Contractor, each first tier subcontractor and each lower tier subcontractor. One form for each shall be used for each change order. One form for each, for each day shall be used for Force-Account work.

(Remainder of this Page is Blank)

COST BREAKDOWN FOR CONTRACTOR PRICE PROPOSAL

SHEET 1 OF 3

GENERAL CONTRACTOR FORM

PROJECT NUMBER: _____

PROJECT NAME: _____

CONTRACTOR : _____

CHANGE ORDER NUMBER : _____ **DATE:** _____

CHANGE ORDER DESCRIPTION: _____

SUMMARY OF TOTAL COSTS					
1. TOTAL LABOR COSTS		$ -			
2. Fifteen percent (15%) of Line 1		$ -			
3. Sum of Lines 1 & 2			$ -		
4. TOTAL MATERIAL COSTS		$ -			
5. Fifteen percent (15%) of Line 4		$ -			
6. Sum of Lines 4 & 5			$ -		
7. TOTAL EQUIPMENT RENTAL COSTS		$ -			
8. Fifteen percent (15%) of line 7		$ -			
9. Sum of lines 7 & 8			$ -		
10. TOTAL OF SUBCONTRACTED COST		$ -			
11. Five percent (5%) of line 10 (excluding subcontractor markup)		$ -			
12. Sum of Lines 10 & 11			$ -		
SUBTOTAL OF DIRECT COSTS & MARK-UP				$ -	
COST OF BONDS (does not apply to subcontractors)				$ -	
TOTAL OF CONTRACT MODIFICATION				**$ -**	

COST BREAKDOWN FOR CONTRACTOR PRICE PROPOSAL

SHEET 2 OF 3

CONTRACTOR : _____

CHANGE ORDER NUMBER : _____ DATE: _____

CHANGE ORDER DESCRIPTION: _____

LABOR				
NAME	**CLASSIFICATION**	**HOURS**	**RATE**	**TOTAL**
				$ -
				$ -
				$ -
				$ -
TOTAL LABOR COSTS (Transfers to Line 1 of Sheet 1)				$ -

MATERIALS	
DESCRIPTION	**COST**
SUBTOTAL MATERIAL COSTS (Without Sales Tax)	$ -
SALES TAX ON MATERIAL AT 9.00%	$ -
TOTAL MATERIAL COSTS (Transfers to Line 4 of Sheet 1)	$ -

EQUIPMENT				
SIZE AND TYPE	**I.D. #**	**HOURS**	**RATE**	**TOTAL**
				$ -
				$ -
				$ -
				$ -
TOTAL EQUIPMENT RENTAL COSTS (Transfers to Line 7 of Sheet 1)				$ -

COST BREAKDOWN FORM FOR CONTRACT MODIFICATION

SHEET 3 OF 3

CHANGE ORDER NUMBER : _____ DATE: _____

CHANGE ORDER DESCRIPTION: _____

SUBCONTRACTED WORK		
SUBCONTRACTOR	**DESCRIPTION OF WORK SUBCONTRACTED**	**COST**
TOTAL COST OF SUBCONTRACTED WORK (Transfers to Line 10 of Sheet 1)		$ -

CONTRACTOR: _____ Date: _____

VERIFIED BY INSPECTOR: _____ Date: _____

SECTION 01 31 00

PROJECT COORDINATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Project Coordination

B. Field Engineering

C. Coordination drawings

D. Workmanship

E. Incidental costs

F. Correspondence and notices

G. Miscellaneous provisions

H. Damage and restoration

1.02 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work

B. Section 01 45 00 – Quality Control

C. Section 01 50 00 – Temporary Facilities

D. Section 01 70 00 – Contract Closeout

1.03 PROJECT COORDINATION

A. Coordination scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Coordinate space requirements and installation of mechanical and electrical work, which are indicted diagrammatically on drawings. Follow route shown for pipes, ducts, and conduit, as closely as practicable: place runs parallel with line of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finished elements.

E. Submit a copy of site drawing and certificate signed by the Civil Engineer that the elevations and locations of the Work of separate Sections in preparation for Substantial Completion.

F. Coordinate completion and cleanup of Work of separate Sections in preparation for Substantial Completion.

G. After Owner occupancy of the Site, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.04 FIELD ENGINEERING

A. Contractor shall locate and protect survey control and reference points.

B. Control datum for survey is that shown on drawings.

C. Contractor shall verify setbacks and easements; confirm drawing dimensions and elevations.

D. Provide field engineering services. Contractor shall establish lines, and levels, utilizing recognized engineering practices

1.05 COORDINATION DRAWINGS

A. Contractor is to prepare the coordination drawings as necessary for review by the Architect.

B. Review drawings prior to submission to Architect.

1.06 WORKMANSHIP

A. Work shall be performed by craftsmen well experienced and competent in their particular trade.

B. Workmanship shall be thorough, finished and complete in every detail for finest quality installations as intended under these specifications.

1.07 INCIDENTAL COSTS

A. In addition to cost associated with GC Article 6: Insurance; Indemnity; Bonds:
   1. Utilities: Refer to Section 01 50 00.
   2. Contractors and Subcontractors shall furnish at their own cost and expense all tools, consumable supplies, appliances, equipment, etc., necessary for execution of their work; and shall be responsible for care and guarding thereof.
   3. Contractors and Subcontractors shall be entirely responsible for professional, trade, business or other licenses required by state statute or local government.

1.08 CORRESPONDENCE AND NOTICES

A. Clearly identify correspondence, notices and submittals with project name, subject and detailed references to drawings and specifications.

B. Notify Inspector or the Construction Manager two (2) working days in advance of required inspection.

C. The District's project management system (ProjectTeam) shall be utilized for document controls for RFI, Submittals, Daily Logs, etc.

D. The District has a paid subscription. No cost is to be incurred by the Contractor, Architect/Engineer or other.

1.09 MISCELLANEOUS PROVISIONS

A. Contractor shall immediately refer to the Construction Manager any requirement shown or specified which Contractor in their experience and background finds or believes:
   1. Is not equal to industry standards for achieving a first quality installation as intended;
   2. Is excessive in cost or effort to effect the intended results;
   3. Is below standard for proper enforcement of the guarantees required;
   4. Or, is at variance with governing laws, regulations, codes or standards.

B. Work operations relative to any matter referred to Architect for consideration shall not proceed until receipt of appropriate instructions from Architect.

C. Inspection of Work and Materials: Contractor shall immediately make a close and thorough inspection of all materials as delivered and all work in progress; shall promptly reject and return all defective materials and re-do; and shall check and verify adequate performance or satisfactory results of all tests and inspections before allowing sub-work to proceed.

D. Warranty Period: During warranty periods, supervise investigation and correction of deficiencies found or occurring in the work.

E. Shop Fabricate and pre-assemble interrelated parts where possible.

F. Closing up of walls, partitions or furred spaces, backfilling and other covering up operations shall not proceed until all enclosed or covered work and inspections have been completed. Verify before proceeding.

G. Provide holes, slots, cutouts, blocking, screeds, nailers, chases and similar preparation as the work progresses, as required to receive or pass subsequent work without damage to previously completed work.

H. Exterior Work shall be made tight against direct or indirect entry of water into the concealed or interior spaces of the building. Seal joints or penetrations below grade or behind exterior trim and other conditions where water might enter the structure, as for exposed exterior work.

I. Structural Connections and Fasteners: Include as required for complete fabrication and installation of the work; of materials, types and sizes adequate for the purposes.
   1. Place in concealed or obscured locations where possible.
   2. Include suitable welding or brazing where required.

J. Powder Activated Fasteners: Limited to uses particularly shown, specified or approved by Architect. Operators shall be certified in accordance with California Industry Safety orders.

K. Ferrous Work permanently exposed to exterior or below grade shall be galvanized; related accessory members and fastening non-ferrous, galvanized or made rustproof by approved methods.

L. Galvanizing, prime painting and related touch-up and repair shall comply with requirements for metal fabricating and painting in Section 13125 - Relocatable Buildings.

M. Isolation: Provide between ferrous and non-ferrous or dissimilar metal components to protect the work against electrolysis, as follows:
   1. For architectural work, provide cork fillers, asphaltic coatings, neoprene gaskets or similar separation as necessary; and use stainless steel fastenings only where interconnecting dissimilar parts.
   2. For mechanical and electrical work, provide dielectric unions or similar separation. In particular, provide isolation as necessary between exterior underground systems and interior above-grade systems where they meet dissimilar metals.

N. Prior to starting a particular type or kind of work, examine for relevant information, all contract documents and subsequent data issued to the project.

1.10 DAMAGE AND RESTORATION

A. Damage to previously existing or newly placed facilities caused by movement of equipment or other operations, whether accidental or made necessary by reason of Contract requirements, shall be restored or replaced as specified or directed by Architect or Construction Manager.

B. Restoration shall be equal to the structural qualities or performance capacities of the original work, and finishes shall match the appearance of, as nearly as possible, like existing adjacent work. Restorations shall be subject to approval by Architect and shall be made as necessary at no added expense to Owner unless otherwise particularly provided for.

C. Work not properly restored or where not capable of being restored as intended under these Specifications shall be removed and replaced as directed by Architect at no added expense to Owner.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.01 CUTTING AND PATCHING

A Employ skilled and experienced installer to perform cutting and patching.

B. Submit written request in advance of cutting or altering elements, which affects:
1. Structural integrity of element.
2. Integrity of weather-exposed or moisture-resistant elements.
3. Efficiency, maintenance, or safety of element.
4. Visual qualities of sight-exposed elements.

C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install or correct ill-timed work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute work by methods, which will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.

E. Cut rigid materials using masonry saw or core drill.

F. Restore Work with new products in accordance with requirements of Contract Document.

G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

J. Identify any hazardous substance or condition exposed during the Work to the Construction Manager for decision or remedy.

END OF SECTION

SECTION 01 31 19

PROJECT MEETINGS

PART 1 - GENERAL

1.01 SUMMARY

A. This section describes the required meetings for this work. These meetings include:
   1. Pre-construction Conference
   2. Schedule meetings
   3. Progress Meetings
   4. Special Meetings

B. Related Sections
   1. Section 01 11 00: Summary of Work
   2. Section 01 32 00: Progress Schedules and Reports
   3. Section 01 33 00: Submittals

1.02 PRECONSTRUCTION CONFERENCE

A. Construction Manager will call for and administer Pre-construction Conference at time and place to be announced. Conference will occur as soon after award as can be reasonably scheduled.

B. Contractor, all subcontractors, and major suppliers shall attend Pre-construction Conference.

C. Agenda will include, but not be limited to, the following items:

   1. Schedules
   2. Personnel
   3. Use of the Site
   4. Temporary Utilities
   5. Location of Contractor's on-site facilities
   6. Project access
   7. Employee parking
   8. Security/Safety
   9. Housekeeping
   10. Submittals
   11. Inspection and testing procedures, on-site and off-site
   12. Utility shutdown procedures
   13. Control and reference point survey procedures
   14. Injury and Illness Prevention Program
   15. Contractor's Initial CPM Schedule
   16. Contractor Invoicing, Schedule of Values, Approval Procedures

D. Construction Manager will distribute copies of minutes to attendees. Attendees shall have five (5) working days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of the Pre-construction Conference.

1.03 SCHEDULING MEETINGS

A. Meet with Construction Manager and Start Date of Contract and Conduct initial review of Contractor's draft shop Drawing and Sample Submittal Schedule of Values and Initial Construction Schedule ("Schedule Review Meeting").

B. Authorized representative in Contractor's organization, designated in writing, who will be responsible for working and coordinating with Construction Manager's representative(s) and Architect relative to preparation and maintenance of Progress Schedule shall attend initial Schedule Review Meeting.

C. Contractor shall, within thirty (30) days from the Notice to Proceed date, meet with Construction Manager and Architect to review the Original CPM Schedule submittal.

1. Contractor shall have its manager, superintendent, scheduler, and key subcontractor representatives, as required by CLPCCD, in attendance. The meeting will take place over a continuous one-day period.
2. CLPCCD's review of Schedule Submittals will be limited to conformance to Contract requirements, including, but not limited to, coordination requirements. However, review may also include:
    1) Clarifications of Contract Requirements
    2) Directions to include activities and information missing from submittal
    3) Requests to Contractor to clarify its schedule
3. Within five (5) days of the initial Schedule Review Meeting, Contractor shall respond in writing to all questions and comments expressed by CLPCCD at the meeting.

D. Construction Manager will administer scheduling meetings and shall distribute minutes of scheduling meetings to attendees. Attendees shall have five (5) working days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of the scheduling meetings.

1.04 PROGRESS MEETINGS

A. Construction Manager and Architect will schedule and administer Progress Meetings throughout duration of Work. Progress meetings will be held weekly unless otherwise directed by Construction Manager.
1. Meetings shall be held at Construction Manager's on-site office unless otherwise directed by Construction Manager.
2. Construction Manager will prepare agenda and distribute to Contractor, Inspector and Architect/Engineer 24 hours in advance of meeting.
3. Construction Manager will preside at meeting.
4. Architect will record and distribute minutes to Contractor, Inspector, Construction Manager, all other participants, and those affected by decisions made at meeting, within three (3) working days after meeting. Attendees shall have five (5) working days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of progress meetings.

B. Progress Meetings shall be attended by Contractor's job superintendent, major subcontractors and suppliers, when requested by Construction Manager or as appropriate, Construction Manager, Architect/Engineer, Inspector and others as appropriate to agenda topics for each meeting.

C. Agenda will contain the following items as appropriate:
1. Review of work progress
2. Status of Construction Schedule, adjustments
3. Submittals
4. Delivery schedules
5. Utility shutdowns, traffic disruptions, and interferences with public scheduled during the subsequent 2 weeks
6. Quality control
7. Pending changes
8. Substitutions
9. Review of Contractor's safety program activities and results, including report on all serious injury and/or damage accidents
10. Safety
11. Other items affecting progress of work

D. A separate meeting will be held on approximately the 25th of each month to review the schedule, update submittal, and progress payment application.
   1. At this meeting, at a minimum, the following items will be reviewed:
      a. percent complete of each activity
      b. time impact evaluations for Change Orders and Time Extension Request
      c. actual and anticipated activity sequence changes
      d. actual and anticipated duration changes
      e. actual and anticipated contractor delays
   2. These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by Contractor's General Superintendent and Scheduler.
   3. shall plan on progress meetings taking no less than four (4) hours.

1.05 SPECIAL MEETINGS

A. Special meetings may be called by any party by notifying all desired participants, Construction Manager, Architect, and Inspector four (4) working days in advance, giving reason for meeting. Special Meetings may be held without advance notice in emergency situations.

B. At any time during the progress of the Work, CLPCCD shall have authority to require Contractor to attend conference of any or all of the contractors engaged in the Work or in other work and notice of such conference shall be duly observed and complied with by Contractor.

C. Contractor shall schedule and conduct coordination meetings as necessary to discharge coordination responsibilities in the General Conditions. Construction Manager shall be given five (5) days' written notice of coordination meetings. Contractors shall maintain minutes of coordination meetings. Attendees shall have five (5) working days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of the meetings.

D. Pre-installation meetings of manufacturers' warranty scope of work, i.e., roofing, water-proofing, curtain wall, etc.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

SECTION 01 32 00

PROGRESS SCHEDULES AND REPORTS

PART 1 - GENERAL

1.01 SUMMARY

A. Scheduling of Work under this Contract shall be performed by Contractor in accordance with requirements of this Section.
   1. Development of schedule, cost and manpower loading of the schedule and schedule updates, monthly payment requests and project status reporting requirements of the Contract shall employ computerized Critical Path Method (CPM) scheduling
   2. Submit schedules and reports as specified in General Conditions.

B. Upon Award of Contract, Contractor shall immediately commence development of Initial and Original CPM Schedules to ensure compliance with CPM schedule submittal requirements.

C. Related Sections:
   1. Section 01 11 00: Summary of work
   2. Section 01 33 00: Submittals

D. Definitions: The following definitions apply to this section:

ACTIVITY: A task, event or other project element on a schedule that contributes to completing the project. Activities have a description, start date, finish date, duration and one or more logic ties.

BASELINE SCHEDULE: The initial schedule representing the Contractor's work plan on the first day of the project.

CRITICAL PATH: The longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the critical path will extend the scheduled completion date.

CRITICAL PATH METHOD (CPM): A network based planning technique using activity durations and the relationships between activities to mathematically calculate a schedule for the entire project.

DATA DATE: The day after the date through which a schedule is current. Everything occurring earlier than the data date is "as-built" and everything on or after the data date is "planned".

EARLY COMPLETION TIME: The difference in time between an early scheduled completion date and the contract completion date.

FLOAT: The difference between the earliest and latest start or finish times for an activity.

MILESTONE: An event activity that has zero duration and is typically used to represent the beginning or end of a certain stage of the project.

NARRATIVE REPORT: A document submitted with each schedule that discusses topics related to project progress and scheduling.

NEAR CRITICAL PATH: A chain of activities with total float exceeding that of the critical path but having no more than 14 calendar days of total float.

SCHEDULED COMPLETION DATE: The planned project finish date shown on the current accepted schedule.

SUBSTANTIAL COMPLETION: The stage in the progress of the work when the work is complete in accordance with the Contract Documents, so that District can occupy or use the work for its intended purpose.

TIME IMPACT ANALYSIS: A schedule and narrative report developed specifically to demonstrate what effect a proposed change or delay has on the current scheduled completion date.

TIME-SCALED NETWORK DIAGRAM: A graphic depiction of a CPM schedule comprised of activity bars with relationships for each activity represented by arrows. The tail of each arrow connects to the activity bar for the predecessor and points to the successor.

TOTAL FLOAT: The amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.

UPDATED SCHEDULE: A current schedule developed from the baseline or subsequent schedule through regular monthly review to incorporate as-built progress and any planned changes.

1.02 QUALIFICATIONS

A. Contractor shall employ experienced scheduling personnel qualified to use the latest version of Primavera Project Planner or Microsoft Project scheduling software. Experience level required is set forth below. Contractor may employ such personnel directly or may employ a consultant for this purpose. After bid opening, the apparent successful low bidder shall provide CLPCCD a written verification that Contractor has the required personnel under its employ or that Contractor will employ the required CPM scheduling consultant.
   1. The written statement shall identify individual who will perform CPM scheduling.
   2. Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM.
   3. Required level of experience shall include at least two projects of similar nature, scope and value not less than three-fourths the Total Bid Price of this Project. The written statement shall provide contact persons for referenced projects with current telephone and address information.

B. CLPCCD reserves right to approve Contractor's scheduler, or consultant, and right to reject them at any time. CLPCCD also reserves right to refuse replacement of Contractor's scheduler or consultant, if it believes such replacement will negatively affect Contract.

1.03 GENERAL

A. Progress Schedule shall be based on and incorporate milestones and completion dates specified in Contract Documents. Submit to the Owner baseline, monthly updated, and final updated schedules, each consistent in all respects with the time and order of work requirements of the contract. Work must be executed in the sequence indicated on the current accepted schedule. Schedules must show the order in which you propose to execute the work with logical links between time-scaled work activities and calculations made using the critical path method to determine the controlling activities. You are responsible for assuring that all activity sequences are logical and that each schedule shows a coordinated plan for complete performance of the work.

B. Overall time of completion and time of completion for each milestone shown on Progress Schedule shall adhere to times as stated in Contract Agreement, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by CLPCCD. Any such agreement shall be formalized by a Change Order.
   1. CLPCCD is not required to accept an earlier (advanced) schedule, i.e., one that shows early completion dates for the Contract Times.
   2. Contractor shall not be entitled to extra compensation in the event agreement is reached on an earlier (advanced) schedule and Contractor completes its Work, for whatever reason (excepting approved changes with added time components) beyond completion date shown in earlier (advanced) schedule but within the Contract Times.
   3. A schedule showing the work completed in less than the Contract Times, which has been accepted by CLPCCD, shall be considered to have Project Float. The Project Float is the time between the scheduled completion of the work and Contract Substantial Completion. Project Float is a resource available to both CLPCCD and the Contractor.

C. Float Ownership: Neither CLPCCD nor Contractor owns float. The Project owns the float. As such, liability for delay of the Substantial Completion Date rests with the party whose actions, last in time, actually cause delay to the Substantial Completion Date.
   1. For example, if Party A uses some, but not all of the float and Party B later uses remainder of the float as well as additional time beyond the float, Party B shall be liable for the time that represents a delay to the Substantial Completion Date.
   2. Party A would not be responsible for the time since it did not consume the entire float and additional float remained; therefore, the Substantial Completion Date was unaffected.

D. Progress Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests associated with the changes. Responsibility for developing Contract CPM schedule and monitoring actual progress as compared to Progress Schedule rests with Contractor.

E. The Owner's review and acceptance of schedules does not waive any contract requirements and does not relieve Contractor of any obligation or responsibility for submitting complete and accurate information. Correct rejected schedules and resubmit corrected schedules to the Owner within seven (7) days of notification by the Owner, at which time a new review period of seven (7) days will begin.

   Errors or omissions on schedules do not relieve Contractor from finishing all work within the time limit specified for completion of the contract. If, after a schedule has been accepted by the Owner, either the Contractor or the Owner discovers that any aspect of the schedule has an error or omission, it must be corrected on the next updated schedule.

F. Use Microsoft Project for Windows or Primavera P6. Such software shall be compatible with Windows operating system. Contractor shall transmit contract schedule files to CLPCCD on CD-ROM or flash drive at times requested by CLPCCD.

G. Transmit each item under form approved by CLPCCD.
   1. Identify Project with CLPCCD Contract number and name of Contractor and file by date, project, and update number.
   2. Provide space for Contractor's approval stamp and CLPCCD's review stamps.
   3. Submittals received from sources other than Contractor will be returned to the Contractor without CLPCCD's review.

1.04 INITIAL CRITICAL PATH METHOD (CPM) SCHEDULE

A. Initial CPM Schedule submitted for review at the pre-construction conference shall serve as Contractor's schedule for up to ninety (90) calendar days after the Notice to Proceed.

B. Indicate detailed plan for the Work to be completed in first sixty (60) days of the Contract; details of planned mobilization of plant and equipment; sequence of early operations; and procurement of materials and equipment. Show Work beyond sixty (60) calendar days in summary form.

C. Initial CPM Schedule shall be time-scaled.

D. Initial CPM Schedule shall be cost and manpower loaded. Accepted cost and manpower-loaded schedule will be used as basis for monthly progress payments until acceptance of the Original CPM Schedule. Use of Initial CPM Schedule for progress payments shall not exceed sixty (60) calendar days.

E. CLPCCD and Contractor shall meet to review and discuss the Initial CPM Schedule within seven (7) calendar days after it has been submitted to CLPCCD.
   1. CLPCCD's review and comment on the schedule shall be limited to Contract conformance (with sequencing, coordination, and milestone requirements) and accepted CPM principals.
   2. Contractor shall make corrections to schedule necessary to comply with Contract requirements and shall adjust schedule to incorporate any missing information requested by CLPCCD. Contractor shall resubmit Initial CPM Schedule if requested by CLPCCD.

F. If, during the first sixty (60) days after Notice-to-Proceed, the Contractor is of the opinion that any of the Work included on its Initial CPM Schedule has been impacted, the Contractor shall submit to CLPCCD a written Time Impact Evaluation (TIE) in accordance with Article 1.09 of this Section. The TIE shall be based on the most current update of the Initial CPM Schedule.

1.05 ORIGINAL CRITICAL PATH METHOD (CPM) SCHEDULE

A. Submit a detailed proposed Original CPM Schedule presenting an orderly and realistic plan for completion of the Work, in conformance with requirements as specified herein.

B. The baseline schedule must not extend beyond the number of contract days. The baseline schedule must have a data date of the first working day of the contract and not include any completed work to date. The baseline schedule must not attribute negative float or negative lag to any activity.

C. Progress Schedule shall include or comply with following requirements:
1. Time scaled, cost and manpower loaded CPM schedule.
2. activity on schedule shall have duration longer than twenty-one (21) calendar days, with exception of submittal, approval, fabrication and procurement activities, unless otherwise approved by CLPCCD.
   a. Activity durations shall be total number of actual days required to perform that activity.
   b. Activity coding capabilities to sort by responsibility, location, phase and CSI division.
3. The start and completion dates of all items of Work, their major components, and milestone completion dates, if any.
4. CLPCCD-furnished materials and equipment, if any, identified as separate activities.
5. Completion of the last activity in the schedule shall be constrained by the contract completion date. Schedule calculations shall result in a negative float when the calculated early finish date of the last activity is later than the contract completion date. The Contractor shall include as the last activity in the project schedule an activity called “Final Completion”. The “Final Completion” activity shall have an “LF” constraint date equal to the contract completion date for the project, and with a zero day duration or by using the “project must finish by” date in the scheduling software. The schedule shall have no constrained dates other than those specified in the contract. The use of artificial float constraints such as “zero free float” or “zero total float” are typically prohibited. There shall only be two (2) open ended activities: Start Project (or NTP) with no predecessor logic and Final Completion with no successor logic.
6. Processing/approval of submittals and shop drawings for all Contract-required material and equipment. Activities that are dependent on submittal acceptance or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.
   a. Include time for submittals, resubmittals, and reviews by CLPCCD. Coordinate with accepted schedule for submission of shop drawings, samples and other submittals.
   b. Contractor shall be responsible for all impacts resulting from resubmittal of shop drawings and submittals.
7. Procurement of all contract required material and equipment, identified as separate activity.
   a. Include time for fabrication and delivery of manufactured products for the Work.
   b. Show dependencies between procurement and construction.
8. Complete activity description; what Work is to be accomplished and where.
9. The total cost of performing each activity shall be total of labor, material, equipment, excluding overhead and profit of Contractor. Total overhead and profit of the General Contractor shall be shown on a separate activity in the schedule. Sum of cost for all activities shall equal total Contract value.
10. Resources required (labor) to perform each activity.
11. Responsibility code for each activity corresponding to Contractor or Subcontractor responsible for performing the Work.
12. Identify the activities, which constitute the controlling operations or critical path. No more than twenty-five (25%) of the activities shall be critical or near critical. Near critical is defined as float in the range of one (1) to ten (10) days.

13. At least twenty-eight (28) calendar days for developing punch list(s), completion of punch list items and final clean-up for the Work or any designated portion thereof. No other activities shall be scheduled during this period.
14. Interface with the work of other contractors, CLPCCD, and agencies such as, but not limited to, utility companies.
15. Show detailed Subcontractor Work activities. In addition, furnish copies of Subcontractor schedules upon which CPM was built.
    a. Also furnish for each Subcontractor, as determined by CLPCCD, submitted on Subcontractor letterhead a statement certifying that Subcontractor concurs with Contractor's Original CPM Schedule and that Subcontractor's related schedules have been incorporated, including activity duration, cost and resource loading.
    b. Subcontractor schedules shall be independently derived and not a copy of Contractor's schedule.
    c. In addition to Contractor's schedule and resource loading, obtain from electrical, mechanical and plumbing Subcontractors, and other Subcontractors as required by CLPCCD, productivity calculations common to their trades, such as units per person day, feet of pipe per day per person, feet of wiring per day per person, and similar information.
    d. Furnish schedule for Contractor/Subcontractor CPM Schedule meetings which shall be held prior to submission of Original CPM Schedule to CLPCCD. CLPCCD shall be permitted to attend scheduled meetings as an observer.
16. Activity durations shall be in calendar days.
17. Submit with the schedule a list of anticipated non-Work days, such as weekends and holidays.

D. Original CPM Schedule Review Meeting: Contractor shall, within thirty (30) calendar days from the Notice to Proceed date, meet with CLPCCD to review the Original CPM Schedule submittal.
    1. Contractor shall have its Construction Manager, Project Superintendent, Project Scheduler, and key Subcontractor representatives, as required by CLPCCD, in attendance. The meeting will take place over a continuous one-day period.
    2. CLPCCD's review will be limited to submittal's conformance to Contract requirements, including, but not limited to, coordination requirements. However, review may also include:
        a. Accepted critical path method principles and tenets.
        b. Clarifications of Contract Requirements.
        c. Directions to include activities and information missing from submittal.
        d. Requests to Contractor to clarify its schedule.
    3. Within five (5) days of the Schedule Review Meeting, Contractor shall respond in writing to all questions and comments expressed by CLPCCD at the Meeting.

1.06 ADJUSTMENTS TO CRITICAL PATH METHOD (CPM) SCHEDULE

A. Adjustments to Original CPM Schedule: Contractor shall have adjusted the Original CPM Schedule submittal to address all review comments from original CPM Schedule review meeting and resubmit network diagrams and reports for CLPCCD's review.
    1. CLPCCD, within fourteen (14) days from date that Contractor submitted the revised schedule, will either:
        a. accept schedule and cost and resource loaded activities as submitted, or
        b. advise Contractor in writing to review any part or parts of schedule which either do not meet Contract requirements or are unsatisfactory for CLPCCD to monitor Project's progress, resources and status or evaluate monthly payment request by Contractor.
    2. CLPCCD may accept schedule with conditions that the first monthly CPM schedule update be revised to correct deficiencies identified.
    3. When schedule is accepted, it shall be considered as the "Original CPM Schedule" which will then be immediately updated to reflect the current status of the work.
    4. CLPCCD reserves the right to require Contractor to adjust, add to, or clarify any portion of schedule which may later be discovered to be insufficient for monitoring of Work or approval of partial payment requests. No additional compensation will be provided for such adjustments, additions, or clarifications.

B. Acceptance of Contractor's schedule by CLPCCD will be based upon schedule's compliance with Contract requirements and accepted CPM principles.
   1. By way of Contractor assigning activity durations and proposing sequence of Work, Contractor agrees to utilize sufficient and necessary management and other resources to perform work in accordance with the schedule.
   2. Upon submittal of schedule update, updated schedule shall be considered "current" CPM schedule.
   3. Submission of Contractor's schedule to CLPCCD shall not relieve Contractor of total responsibility for scheduling, sequencing, and pursuing Work to comply with requirements of Contract Documents, including adverse effects such as delays resulting from ill-timed work.

C. Submittal of Original CPM Schedule, and subsequent schedule updates, shall be understood to be Contractor's representation that the Schedule meets requirements of Contract Documents and that Work shall be executed in sequence indicated on the schedule.

D. Contractor shall distribute Original CPM Schedule to Subcontractors for review and written acceptance, which shall be noted on Subcontractors' letterhead to Contractor and transmitted to CLPCCD for the record.

1.07 MONTHLY CPM SCHEDULE UPDATE SUBMITTALS

A. Following acceptance of Contractor's Original CPM Schedule, Contractor shall monitor progress of Work and adjust schedule each month to reflect actual progress and any pre-approved changes to planned activities or logic.
   1. Each schedule update submitted shall be complete, including all information requested for the Original CPM Schedule submittal.
   2. Each update shall continue to show all work activities including those already completed. These completed activities shall accurately reflect "as built" information by indicating when activities were actually started and completed.

B. A meeting will be held on approximately the twenty-fifth (25th) of each month to review the schedule update submittal and progress payment application.
   1. At this meeting, at a minimum, the following items will be reviewed: Percent complete of each activity; time impact evaluations for Change Orders and Time Extension Request; anticipated activity sequence changes; anticipated duration changes; actual and anticipated contractor delays.
   2. These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by Contractor's General Superintendent and Scheduler.
   3. Contractor shall plan on the meeting taking no less than four (4) hours.

C. Within seven (7) calendar days after monthly schedule update meeting, Contractor shall submit the updated CPM Schedule update.

D. Within seven (7) calendar days of receipt of above noted revised submittals, CLPCCD will either accept or reject monthly schedule update submittal.
   1. If accepted, percent complete shown in monthly update will be basis for Application for Payment by the Contractor. The schedule update shall be submitted as part of the Contractor's Application for Payment.
   2. If rejected, update shall be corrected and resubmitted by Contractor before the Application for Payment is submitted.

E. Updating, changing or revising of any report, curve, schedule or narrative submitted to CLPCCD by Contractor under this Contract, nor CLPCCD's review or acceptance of any such report, curve, schedule or narrative shall not have the effect of amending or modifying, in any way, the Contract Substantial Completion date or milestone dates or of modifying or limiting, in any way, Contractor's obligations under this Contract.

F. Final Updated Schedule. Submit final updated, as-built schedule with actual start and finish dates for the activities, within 30 days after completion of contract work. Provide a written certificate with this submittal signed by your Project Manager or an officer of the company stating, "To my knowledge and belief, the enclosed final update schedule reflects that actual start date and finish dates of the actual activities for the project contained herein". An officer of the company may delegate in writing the authority to sign the certificate to a responsible manager.

1.08 SCHEDULE REVISIONS

A. Updating the Schedule to reflect actual progress shall not be considered revisions to the Schedule. Since scheduling is a dynamic process, revisions to activity durations and sequences are expected on a monthly basis.

B. To reflect revisions to the schedule, the Contractor shall provide CLPCCD with a written narrative with a full description and reasons for each Work activity revised. For revisions affecting the sequence of work, the Contractor shall provide a schedule diagram which compares the original sequence to the revised sequence of work. The Contractor shall provide the written narrative and schedule diagram for revisions two (2) working days in advance of the monthly schedule update meeting.

C. Schedule revisions shall not be incorporated into any schedule update until the revisions have been reviewed by CLPCCD. CLPCCD may request further information and justification for schedule revisions and Contractor shall, within three (3) days, provide CLPCCD with a complete written narrative response to CLPCCD's request.

D. If the Contractor's revision is still not accepted by CLPCCD, and the Contractor disagrees with CLPCCD's position, the Contractor has seven (7) calendar days from receipt of CLPCCD's letter rejecting the revision, to provide a written narrative providing full justification and explanation for the revision. The Contractor's failure to respond in writing within seven (7) calendar days of CLPCCD's written rejection of a schedule revision shall be contractually interpreted as acceptance of CLPCCD's position, and the Contractor waives its rights to subsequently dispute or file a claim regarding CLPCCD's position.

E. At CLPCCD's discretion, the Contractor can be required to provide subcontractor certifications of performance regarding proposed schedule revisions affecting said subcontractors.

1.09 RECOVERY SCHEDULE

A. If the Schedule Update shows a substantial completion date fourteen (14) calendar days beyond the Contract Substantial Completion date, or individual milestone completion dates, the Contractor shall submit to CLPCCD the proposed revisions to recover the lost time within seven (7) calendar days. As part of this submittal, the Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.

B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by CLPCCD.

C. If the Contractor's revisions are not accepted by CLPCCD, CLPCCD and the Contractor shall follow the procedures in paragraph 1.08.C, 1.08.D and 1.08.E above.

D. At CLPCCD's discretion, the Contractor can be required to provide subcontractor certifications for revisions affecting said subcontractors.

1.10 TIME IMPACTS EVALUATION (TIE) FOR CHANGE ORDERS, AND OTHER DELAYS

A. Time Impact Analysis (TIA). Submit a written TIA to the Owner with each request for adjustment of contract time, or when the Contractor or the Owner considers that an approved or anticipated change may impact the critical path or contract progress.

The TIA must illustrate the impacts of each change or delay on the current scheduled completion date or internal milestone, as appropriate. The analysis must use the accepted schedule that has a data date closest to and before the event. If the Owner determines that the accepted schedule used does not appropriately represent the conditions before the event, the accepted schedule must be updated to the day before the event being analyzed. The TIA must include an impact schedule developed from incorporating the event into the accepted schedule by adding or deleting activities, or by changing durations or logic of existing activities. If the impact schedule shows that incorporating the event modifies the critical path and scheduled completion date of the accepted schedule, the difference between scheduled completion dates of the two schedules must be equal to the adjustment of contract time. The Owner may construct and use an appropriate project schedule or other recognized method to determine adjustments in contract time until the Contractor provide the TIA.

B. Contractor shall be required to comply with the requirements of Paragraph 1.09.A for all types of delays such as, but not limited to, Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.

C. Contractor shall be responsible for all costs associated with the preparation of Time Impact Evaluations, and the process of incorporating them into the current schedule update. The Contractor shall provide CLPCCD with 4 copies of each TIE.

D. Once agreement has been reached on a TIE, the Contract Times will be adjusted accordingly. If agreement is not reached on a TIE, the Contract Times may be extended in an amount CLPCCD allows, and the Contractor may submit a claim for additional time claimed by Contractor.

1.11 TIME EXTENSIONS

A. The Contractor is responsible for requesting time extensions for time impacts that, in the opinion of the Contractor, impact the critical path of the current schedule update. Notice of time impacts shall be given in accord with Articles 1.12 and 1.15 of Contract Document General Conditions.

B. Where an event for which CLPCCD is responsible impacts the projected Substantial Completion date, the Contractor shall provide a written mitigation plan, including a schedule diagram, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor; equipment and material the Contractor would expend to mitigate CLPCCD caused time impact. The Contractor shall submit its mitigation plan to CLPCCD within fourteen (14) calendar days from the date of discovery of said impact. The Contractor is responsible for the cost to prepare the mitigation plan.

C. Failure to request time, provides TIE, or provides the required mitigation plan will result in Contractor waiving its right to a time extension and cost to mitigate the delay.

D. No time will be granted under this Contract for cumulative effect of changes.

E. CLPCCD will not be obligated to consider any time extension request unless requirements of Contract Documents are complied with.

F. Failure of the Contractor to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.

G. If the Contractor does not submit a TIE within the required fourteen (14) calendar days for any issue, it is mutually agreed that the Contractor does not require a time extension for said issue.

1.12 SCHEDULE REPORTS

A. Submit four (4) copies of the following reports with the Initial CPM Schedule, the Original CPM Schedule, and each monthly update.

B. Required Reports:
1. Two (2) activity-listing reports: one sorted by activity number and one by total float. These reports shall also include each activity's early/late and actual start and finish dates, original and remaining duration, float, responsibility code and the logic relationship of activities.
2. Cost report sorted by activity number including each activity's associated cost, percentage of Work accomplished, earned value to-date, previous payments and amount earned for current update period.
3. Schedule plots presenting time scaled network diagram showing activities and their relationships with the controlling operations or critical path clearly highlighted.
4. Cash flow report calculated by early start, late start and indicating actual progress. Provide an exhibit depicting this information in graphic form.

C. Furnish CLPCCD with report files in CD ROM and containing all Microsoft Project .mpp or Primavera .xer schedule files along with report files.

1.13 PROJECT STATUS REPORTING

A. In addition to submittal requirements for CPM scheduling identified in this Section, Contractor shall provide a monthly project status report (i.e., written narrative report) to be submitted in conjunction with each CPM Schedule as specified herein. Status reporting shall be in form specified below.

B. Contractor shall prepare monthly written narrative reports of status of Project for submission to CLPCCD. Written status reports shall include:
1. Transmittal letter
2. Work completed during the period, percent complete of activities
3. Identification of unusual conditions or restrictions regarding labor, equipment or material: including multiple shifts, 6-day work weeks, specified overtime or work at times other than regular days or hours
4. Description of the current critical path
5. Changes to the critical path and scheduled completion date since the last schedule submittal
6. Description of problem areas
7. Current and anticipated delays:
   a. Cause of delay
   b. Impact of delay on other activities, milestones and completion dates
   c. Corrective action and schedule adjustments to correct the delay
8. Contractor may include any other information pertinent to status of Project. Contractor shall include additional status information requested by CLPCCD at no additional cost.
9. Status reports, and the information contained therein, shall not be construed by the Contractor as claims, notice of claims, notice of delay, or requests for changes or compensation.

1.14 WEEKLY SCHEDULE REPORT

A. At the Weekly Progress Meeting, the Contractor shall provide and present a time scaled four (4) week schedule one (1) week behind and three (3) week look ahead schedule that is based and correlated by activity number to the current schedule (i.e., Initial, Original CPM, or Schedule Update).

1.15 DAILY CONSTRUCTION REPORTS

A. On a daily basis, Contractor shall submit a daily activity report to CLPCCD for each workday, including weekends and holidays, when worked. Contractor shall develop the daily construction reports on a computer generated database capable of sorting daily Work, manpower and man-hours by Contractor, Subcontractor, area, sub area, and change order work. Upon request of CLPCCD, furnish computer disk of this database. Obtain CLPCCD's written approval of daily construction report database format prior to implementation. Include in report:

B. Project name and Project number.

C. Contractor's name and address.

D. Weather, temperature and any unusual site conditions.

E. Brief description and location of the day's scheduled activities and any special problems and accidents, including Work of Subcontractors. Descriptions shall be referenced to CPM scheduled activities.

F. Worker quantities for its own Work force and for Subcontractors of any tier.

G. Equipment, other than hand tools, utilized by Contractor and Subcontractors.

1.16 PERIODIC VERIFIED REPORTS

A. The Contractor shall complete and submit the Final Verified Report required by DSA. In addition to other conditions precedent to Final Payment, the Contractor's completion and submission of the Final Verified Report is an express condition precedent to the District's obligation to make the Final Payment. In addition to completion and submission of the Final Verified Report, as a material obligation under the Contract Documents, the Contractor shall comply all DSA requests for reports or other data relating to the Work, the status thereof or conformity of the Work to the Contract Documents.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Procedures to be followed in preparing and submitting the following supplementing and superseding those included in the General Conditions.
      a. Photographic documentation.
      b. Construction Schedule.
      c. Submittal Schedule.
      d. Project directory.
      e. Product list.
      f. Shop drawings.
      g. Design-build engineering design and drawings.
      h. Product data.
      i. Samples.
      j. Procedures for:
         1) Action Submittals.
         2) Informational submittals.
         3) Deferred submittals.
         4) Delegated design services.
      k. Colors and patterns submittals.
      l. Operating and maintenance manuals.
      m. Field samples and mockups, including on-site review of materials, colors, and textures.
      n. Requests for Information (RFI's).
   2. Final distribution of submittals.

B. Related Sections:
   1. Section 01 11 00 – Summary of Work
   2. Section 01 25 00 – Substitution Procedures
   3. Section 01 26 00 – Contract Modification Procedures
   4. Section 01 32 00 – Project Schedules and Reports
   5. Section 01 70 00 – Contract Closeout
   6. Section 01 78 00 – Project Record Drawings

C. Related Requirements
   1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections.

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Owner's Representative's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.

B. Informational Submittals: Written and graphic information and physical samples indicated in individual Specification Sections as informational submittals that do not require Owner's Representative's responsive action.

C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.03 GENERAL

A. Comply with the requirements specified in addition to submittal review procedures and requirements of the General Conditions.

B. Do not commence any portion of the Work requiring submission of a shop drawing, product datum, or sample until the submittal has been reviewed by Owner's Representative and appropriate consultant. Such portions of the Work shall be in accordance with reviewed submittals.

C. Shop drawings, product data, and samples are in no case to be considered Contract Documents but are to be treated only as instruments of convenience and facility to further the progress of the Work.

D. Shop drawings, product data, samples and supporting data shall be prepared by Contractor or its suppliers but shall be submitted to Owner's Representative by Contractor as the instruments of the Contractor.
   1. Contractor shall check the drawings of its suppliers as well as its own drawings before submitting them to Owner's Representative.
   2. Contractor shall ascertain that shop drawings, product data, and samples meet all requirements of the Contract Documents and also conform to the structural and space conditions. If shop drawings, product data, and samples show variations from Contract Documents, whether because of standard shop practice or other reasons, Contractor shall make special mention thereof in its letter of transmittal and describe the reasons why there are variations.
   3. Contractor shall be fully responsible for observing the need for and making changes in arrangement and manner of installation of piping, connections, wiring, and similar items that may be required by equipment it proposes to supply, both as pertains to its own work and work affected under other parts, headings, or Divisions of the Contract Documents.
   4. Prior to submittal to Owner's Representative, each shop drawing, product datum, and sample submitted for review shall be stamped, dated, and signed by Contractor, verifying that it has been checked by Contractor to be in accordance with the Contract Documents. Submittals not signed by Contractor will be returned without review by the Owner's Representative.

E. Miscellaneous systems not specifically specified but installed to meet code requirements or for other reasons are subject to Owner's Representative's review prior to installation.

F. Contractor shall be responsible for and make all submissions.
   1. Submit all submittals through the Construction Manager's Electronic Submittal Program.
   2. Contractor shall develop, for maintenance by the Construction Manager, a schedule of all submittals and their status. Refer to paragraph 2.02, below.
      a. The schedule will be reviewed each week at the project meeting.

G. 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.

H. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of 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.
   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.

I. Favorable review will not constitute acceptance by CLPCCD or Architect/Engineer of any responsibility for the accuracy, coordination and completeness of the submittals. Accuracy, coordination, and completeness of Submittals shall be sole responsibility of Contractor, including responsibility to back check comments, corrections, and modifications from CLPCCD's or Architect's/Engineer's review before fabrications.
   1. Submittals may be prepared by Contractor, subcontractors, or suppliers, but Contractor shall ascertain that submittals meet requirements of Contract Documents, while conforming to structural space and access conditions at point of installation.
   2. Architect/Engineer's review will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
   3. Favorable review of submittal, method of work, or information regarding materials and equipment Contractor proposes to furnish shall not relieve Contractor of responsibility for errors therein and shall not be regarded as assumption of risks or liability by Architect/Engineer or CLPCCD, or any officer or employee thereof, and Contractor shall have no claim under Contract on account of failure or partial failure or inefficiency or insufficiency of any plan or method of work or material and equipment so accepted.
   4. Favorable review shall be considered to mean merely that Architect/Engineer or CLPCCD has no objection to Contractor using, upon his own full responsibility, plan or method of work proposed, or furnishing materials and equipment proposed.

J. Architect's/Engineer's review will not extend the means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

1.04 COORDINATION OF SUBMITTALS

A. Prior to submittal, use all means necessary to fully coordinate all material, including, but not necessarily limited to:
   1. Determine and verify all interface conditions, catalog numbers and other data.
   2. Coordinate with other trades as required.
   3. Clearly indicate all deviations from requirements of the Contract Documents.
   4. Verify that each item and the submittal conform in all respects with the requirements of the Contract Documents.

B. The following products do not require further review except for interface within the Work, unless indicated otherwise:
   1. Products specified by reference to standard specifications such as ASTM and similar standards.
   2. Products specified by manufacturer's name and catalog model number.

C. By affixing the Contractor's signature to each submittal, the Contractor certifies that this coordination has been performed.

D. Contractor shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

1.05 GROUPING OF SUBMITTALS

A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
   1. Partial submittals may be rejected as not complying with the provisions of the Contract.
   2. The Contractor may be held liable for delays so occasioned.

1.06 IDENTIFICATION OF SUBMITTALS

A. Identify each transmittal using the 6-digit specification number, ie: aggregate base would be numbered 32 11 00, along with an individual submittal number for each section number.

B. Consecutively number all submittals.
   1. When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new transmittal number.
   2. On resubmittals, reference the original submittal number.
      a. If returning submittal "32 11 00-12" for re-submission, second submittal would be identified as "32 11 00-12A."
      b. It is considered reasonable that Contractor shall make a complete and acceptable submittal at least by second submission.
         1) CLPCCD reserves the right to deduct monies from payments due Contractor to cover additional costs of Architect's/Engineer's review beyond the second submission.

C. Illegible submittals will be rejected and returned to Contractor for resubmission.

D. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.

E. On at least the first page of each copy of each submittal, and elsewhere as required for positive identification, clearly show the submittal number in which the item was included.

F. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times. Make the submittal log available to the Owner's Representative for review.

G. Quality Control Set: Maintain returned final set of submittals at project site, in suitable condition and available for quality control comparisons by Owner's Representative.

1.07 TIMING OF SUBMITTALS

A. Make submittals far enough in advance of scheduled dates for installation to provide all time required for reviews, necessary approvals, possible revisions, resubmittals, and for placing orders and securing delivery. At a minimum, allow the following time:
   1. Initial Review: Allow 15 work days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Construction Manager will advise Contractor when a submittal being processed must be delayed for coordination.
      a. Normally, submittals will be processed and returned to Construction Manager within fifteen (15) working days of receipt by Architect. The processing time spent to review submittals by Construction Manager shall be in addition to the fifteen (15) days.
   2. 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.

B. In scheduling, allow for review by the Owner's Representative in a timely manner following receipt of the submittal by the Owner's Representative.

C. No extension of Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.

D. Start of work which requires submittals, prior to return of submittals with Architect/Engineer's or Owner's stamp indicating review and approval, is at Contractor's risk.

1.08 SUBSTITUTIONS

A. Substitution requests shall be written, timely and submitted in accordance with the procedures specified in Section 01 25 00 - Substitution Procedures.

PART 2 - PRODUCTS

2.01 PROJECT DIRECTORY

A. After execution of the Contract but prior to commencement of Work, Contractor shall submit to Owner's Representative a Project Directory listing subcontractors and vendors on the Project and giving a brief description of their scope of work, firm name, contact person, address, phone number, and fax number.

2.02 SUBMITTAL SCHEDULE

A. Contractor shall prepare and submit to Owner's Representative a "Submittal Schedule" when required by the General Conditions showing scheduled dates of submittals and date required for return of submittals to Contractor.
   1. Submit two (2) paper copies and one (1) electronic PDF of final and accepted schedule of submittals of shop drawings and samples as required by General Conditions, and in no event later than thirty (30) days following Notice of Award.

B. Contractor shall provide in schedule a minimum of 10 working days for Owner's Representative to review and check submittals as may be necessary provided it is not a deferred approval item. Based on the number and complexity of submittals at any one time, Owner's Representative's review period may be longer than 10 days.
   1. Schedule of Shop Drawing and Sample Submittals will be used by Architect/Engineer to schedule their activities relating to review of submittals. Schedule of submittals shall indicate a spreading out of submittals and early submittals of long lead-time items and of items, which require extensive review.

C. Dates on "Submittal Schedule" shall be agreed upon by both Owner's Representative and Contractor.
   a. Schedule of Shop Drawing and Sample Submittals shall be reviewed by Construction Manager and shall be revised and resubmitted until accepted by Construction Manager.

D. Submit Shop Drawings, Samples and other submittals to Construction Manager for review and approval by Architect/Engineer in accordance with accepted schedule of Shop Drawings and Samples submittals. If no such schedule is agreed upon, then all Shop Drawing, Samples and product data submittals shall be completed within ninety (90) days after receipt of Notice to Proceed from CLPCCD.
   1. Delay of submittals by Contractor is considered avoidable delay. Liquidated damages incurred because of late submittals will be assessed to the Contractor.

E. DSA Deferred Approval Submittals shall be prepared for review by the Architect/Engineer within 30 days of receipt of Notice to Proceed. Contractor shall promptly make corrections to documents for Architect to submit to DSA for approval. Contractor shall have the sole responsibility for obtaining DSA approval via the Architect's office for all deferred approval submittals in a timely manner. There will be no time extensions granted for delay in obtaining such approval.

2.03 PRECONSTRUCTION PHOTOGRAPHS

A. Before commencement of work on the site, take digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by the Owner's Representative.

B. Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as cracking or other damage caused by demolition, site preparation, and building construction operations.

C. Submit digital file as specified for Construction Photographs.

D. Submit before Work begins.

2.04 CONSTRUCTION PHOTOGRAPHS

A. Provide digital photographs taken weekly of site and construction from beginning of demolition to completion of exterior work. Photographs shall be produced by the contractor in a manner deemed acceptable to Owner's Representative.

B. Photographs shall:

1. Provide factual presentation.
2. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

C. Views:

1. Consult with Owner's Representative for instructions on views required.
2. View and location for each orientation shall be maintained throughout Project.

D. Digital File:

1. File Format: Joint Photographic Experts Group (JPEG), unless otherwise directed by Owner's Representative.
2. Minimum Resolution: 2400 x 3000 pixels.
3. Provide digital date/time information in each image file (EXIF metadata).
4. Digital images shall be exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

E. Submit digital file of photographs on USB flash drive or cloud storage folder with each Application for Payment to Owner with Project Record Documents.

1. Deliver USB flash drive with Project Record Documents. The USB flash drive shall contain digital files of the Project photographs.
2. Provide digital files with dated folders and appropriate descriptions.
3. Prints are not required.

2.05 CONSTRUCTION SCHEDULE

A. In accordance with the General Conditions, prepare a comprehensive schedule of basic operations of the entire Project in the form of a Critical Path (CPM) network or other appropriate method acceptable to Owner's Representative.

1. Indicate critical dates for submission of specified shop drawings, product data, samples, and certificates. Provide in Schedule a minimum of 10 working days for Owner's Representative to review and check submittals as may be necessary. No extension of time will be granted because of Contractor's failure to make submittals to allow for review and processing by Owner's Representative in accordance with the accepted milestones. Specific submittals considered by the Contractor to be on the "critical path" shall be indicated on the Schedule.
2. Include decision dates for products specified by allowance and for selection of colors/finishes.

B. The schedule shall be the basis for establishing starting and completing dates of Work for the Project.

C. Conform to accepted schedule, and arrange work in such a manner that it will be installed in accordance with the schedule.

D. Establish a program to reevaluate and update the schedule periodically in accordance with requirements of the Project. Submit first schedule 2 weeks after Notice to Proceed.

E. Coordinate letting of subcontracts, material purchases, delivery of materials, sequence of operations, and similar activities to conform to accepted schedule, and furnish proof of conformance as may be required by Owner.

F. In case Owner determines, after consultation with Owner's Representative, that Contractor fails or refuses to take appropriate and necessary measures to complete the Work in accordance with the accepted schedule or within time to which such completion may be extended, the Contract, or any part thereof, may be terminated under the provisions of the General Conditions.

G. Submit to the Owner's Representative for review, within 45 calendar days after date of the Contract or as allowed by the Schedule, all submittals for equipment, fabrications, and specialty items as listed in each Section of the Specifications.

H. Schedule all items requiring Architect action for submission during first 25 percent of construction period.
1. See Section 01 32 00 "Progress Schedules and Reports" for schedule and report requirements.
2. Submit (3) print copies, one (1) electronic report file in PDF format, and either Microsoft Project .mpp or Primavera .xer schedule program files:
    a. Initial CPM Schedule at the Pre-construction Conference.
    b. Original CPM Schedule within thirty (30) days of Notice to Proceed (NTP).
    c. Adjustments to the CPM Schedule as required.
    d. CPM Schedule updates monthly, five (5) days prior to monthly progress meeting.
3. Submit three (3) copies and one (1) electronic PDF copy of the reports listed in Section 01 32 00 "Progress Schedules and Reports" with:
    a. Initial CPM Schedule
    b. Original CPM Schedule
    c. Each monthly Schedule update
    d. Each weekly three (3) week look ahead Schedule
4. Progress Schedules and Reports shall be submitted electronically, in addition to hard copies as specified above.

2.06 SHOP DRAWINGS

A. Shop drawings shall be drawn to a scale, be completely dimensioned, and be sufficiently large to show all pertinent aspects of the item and its method of connection to the Work, or as specifically indicated elsewhere in other Sections of these Specifications.

B. The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to show Architect/Engineer the materials and equipment Contractor proposes to provide and to enable Architect/Engineer to review the information for the limited purposes specified below. Samples shall be identified clearly as to material, supplier, pertinent data such as catalog numbers and the use for which it is intended and otherwise as Architect/Engineer may require enabling Architect/Engineer to review the submittal. The number of each Sample to be submitted will be as specified in the Specifications.

C. Entitle shop drawings with name of the Project and list applicable divisions, sections, article, or reference on each sheet.
   a. Identify drawings with manufacturer, item, use, type, project designation, specification section or drawing detail reference.

D. Shop Drawings submittals shall conform to the following, at a minimum:
   a. Minimum Sheet Size: 8-1/2 inches by 11 inches. All others: Multiples of 8-1/2 inches by 11 inches, 34 inches by 44 inches maximum.
   b. For 8-1/2 inch by 11 inch and 11 inch by 17-inch sheets, submit number of copies, which contractor requires plus three (3) copies, which will be retained by Construction Manager.
   c. For 17 inch by 22 inch through 34 inch by 44-inch sheets, submit one [1] electronic and a minimum of three [3] prints. After review, reproduce and distribute.
   d. Original sheet or reproducible transparency will be marked with Architect's/Engineer's review comments and returned to Contractor.
   e. Each sheet/copy must include project name and project number and bid number on all sheets.
   f. Mark each copy to identify applicable Products, models, options, and other data; supplement manufacturers' standard data to provide information unique to Work.
   g. Include manufacturers' installation instructions when required by specification section.
   h. Submit a copy of the Shop Drawing Transmittal Form with each submittal and resubmittal.

E. Submit separate items on separate sheets.

F. The reproduction of any Contract Documents for use in a shop drawing submittal is not permitted.
   1. If the Contractor requires, it may request drawings/backgrounds from the Owner's Representative to use in its preparation of shop drawings. The Owner's Representative will send drawings, via e-mail, only after the following is completed:
      a. Contractor to complete a "CAD Release & Indemnity Agreement," or similarly named document, to be provided by Owner's Representative. Sign and return to the Owner's Representative.
      b. Requests for drawings prepared by consultant of Owner's Representative shall be directed to the office of the respective consultant and are subject to each consultant's firm policies.
   2. Review comments of the Owner's Representative or it's consultants will be shown on the copy returned to the Contractor. The Contractor shall make and distribute additional copies as are required for its purposes.
   3. The Owner shall be provided with a copy of shop drawing transmittals only if requested.

2.07 PRODUCT DATA

A. Manufacturer's standard drawings shall be modified to delete information which is not applicable and shall be supplemented to provide additional information where so required.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data shall:
   1. Have each copy clearly marked to identify pertinent materials, products, models, finishes, etc.
   2. Show clearly standard options included.
   3. Show dimensions and clearances required.
   4. Show performance characteristics and capacities.
   5. Show wiring diagrams and controls, and show necessary rough-in requirements for utility services and connections, where applicable.
   6. Include manufacturer's installation instructions on 8.5-inch by 11-inch format.

C. Identify each item of product data by reference to sheet and detail numbers of Contract Drawings and/or specific reference to Articles or paragraphs of a Specification Section.

D. Where product data, as submitted, contains extraneous information, unmarked options, or is incomplete, it will be returned to Contractor without review.

2.08 SAMPLES

A. Contractor shall forward to Owner's Representative, at its own expense, samples designated for use on the Project. Include material, equipment, textures, colors, and fabrics in sizes and quantities as required by the Drawings and Specifications or as requested by Owner's Representative. Where there is an expected range of color or texture variations for the specified item, submit sufficient number of samples to illustrate range.
   1. Submit samples to illustrate functional and aesthetic characteristics of Product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.

B. Sample submittals shall conform to the following, at a minimum:
   1. Identify samples with manufacturer's name, item, use, type, project designation, specification section or drawing detail reference, color, range, texture, finish and other pertinent data.
      a. Submit full range of manufacturers' standard colors, textures, and patterns for Owner's selection.
      b. Submit a minimum of three (3) samples unless otherwise specified in the construction documents.
      c. Sizes: Unless otherwise specified, provide the following:
         1) Paint Chips: Manufacturers' standard
         2) Flat or Sheet Products: Minimum 6 inches square, maximum 12 inches square
         3) Linear Products: Minimum 6 inches, maximum 12 inches long
         4) Bulk Products: Minimum 1 pint, maximum 1 gallon

C. Submit and resubmit samples until accepted by Owner's Representative.

D. No review of a sample shall be taken in itself to change or modify the Contract requirement.

E. Finishes, materials, and workmanship in the completed Project shall match accepted samples.

F. Samples of value will be returned to Contractor, when requested in writing at time of submittal, for its use in the Project after review, analysis, comparison, or testing as may be required by Owner's Representative.

G. No samples shall be incorporated into the Work, unless otherwise specified or specific approval is given by Owner's Representative.
   1. Full size samples may be used in Work upon approval.

H. Reviewed samples submitted or constructed and approved by Architect/Engineer constitute criterion for judging completed work. Finish work or items not equal to samples will be rejected.

2.09 COLORS

A. Unless the color and pattern are shown or specified, whenever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to Owner's Representative for review and selection.

B. Completely describe the relative costs and capabilities of each color and pattern, unless available colors and patterns have identical costs and wearing capabilities.

2.10 FIELD SAMPLES AND MOCKUPS

A. Comply with requirements specified in respective Specification Section.

2.11 QUALITY CONTROL SUBMITTALS

A. Test Reports: Three (3) copies minimum. One (1) copy will be marked with Architect's/Engineer's review comments and returned to Contractor.
   1. Indicate that material or product conforms to or exceeds specified requirements.
   2. Reports may be from recent or previous tests on material or product, but must be acceptable to Construction Manager. Comply with requirements of each individual specification Section.

B. Certificates: Three (3) copies minimum. One (1) copy will be marked with Architect's/Engineer's review comments and returned to Contractor.
   1. Indicate that material or product conforms to or exceeds specified requirements.
   2. Submit supporting reference data, affidavits, and certifications as appropriate.
   3. Certificates may be recent or from previous test results on material or product, but must be acceptable to Construction Manager.

C. Manufacturers' Instructions: Three (3) copies minimum. One (1) copy will be marked with Architect's/Engineer's review comments and returned to Contractor.
   1. Include manufacturer's printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing.
   2. Identify conflicts between manufacturer's instructions and Contract Documents.

2.12 COMPUTER PROGRAMS / APPLICATIONS

A. When any equipment requires operation by computer programs, submit copy of program on CD(s) plus all user manuals and guides for operating the programs and making changes in the programs for upgrading and expanding the databases.

B. Provide required licenses to CLPCCD at no additional cost.
   1. Include at least three (3) years prepaid software license renewals, which includes software upgrades and updates.

2.13 SAFETY PLAN

A. Submit one (1) copies and one (1) electronic PDF of Safety Plan specific to this Contract to Construction Manager within fifteen (15) calendar days after Start Date of the Contract Time.

B. No on-site work shall be started until Safety Plan has been reviewed and accepted by CLPCCD. Acceptance of Safety Plan shall not affect Contractor's responsibility for maintaining a safe working place and instituting safety programs in connection with project in full compliance with local, state and federal regulations.

2.14 REQUESTS FOR INFORMATION (RFI'S)

A. RFIs shall be submitted by the Contractor or by subcontractors to the Contractor who shall then assign the request an RFI number and forward the request on to the Owner's Representative. RFIs from contractors under separate contract with Owner, and performing work concurrently with work under this Contract, shall submit RFIs through the Contractor for coordination.

B. Subcontractors shall not submit RFIs directly to the Owner's Representative.

C. Each RFI shall be given a discrete, consecutive number such as "001," "002," "003," etc. Revisions or resubmittal of the same RFI shall maintain the original RFI number but be otherwise identified with a suffix such as "001A" for first revisions, "001B" for second revision, etc.

D. Contractor shall identify in the RFI the specific issue that the Contractor is requesting information on, where the issue is referred to in the Contract Documents, and what is the Contractor's proposed solution to the apparent conflict. RFIs not addressing these three issues will be rejected.

E. The Owner's Representative's response to RFIs will confirm a stated interpretation or otherwise interpret the design intent and may include furnishing an alternative conflict resolution.

F. The Owner's Representative will review and process RFIs in an average of 10 working days. It is acknowledged and understood that some RFIs will take longer to answer than others.

G. RFI Log: Contractor shall prepare and maintain a log of RFIs, and at any time requested by the Owner's Representative, the Contractor shall furnish copies of the log showing all outstanding RFIs.

PART 3 - EXECUTION

3.01 PROCEDURES FOR ACTION SUBMITTALS

A. General: Submit as specified in the General Conditions and Specification Sections.
   1. Submittals shall be made to Owner's Representative. Submittal of shop drawings via e-mail attachment will be generally accepted, though when requested by Owner's Representative, Contractor shall provide full size and half size shop drawings.
   2. Subcontractors shall make submittals to Contractor.
   3. Submittals shall not be made directly to the Owner, unless specifically requested, or consultants of the Owner's Representative. Even if a submittal is reviewed and returned by a consultant of the Owner's Representative, such submittal shall be considered as not reviewed if not submitted through the Owner's Representative.
   4. If more than one resubmittal of the same item or its component is required, the Contractor will be billed for additional review time and materials at current billing rates of the Owner's Representative.

B. Unless otherwise agreed or requested, Owner shall be provided with a copy of transmittals only.

C. Copies required in each Action Submittal shall be as follows unless otherwise mutually agreed or specified in a respective Specification Section:
   1. Shop Drawings and Product Data: Digital PDF (Portable Document Format) files via email, ftp site, or other secure file transfer protocol.
      a. Digital submittals shall be fully compatible with Adobe Acrobat Reader.
      b. All parties shall view and print with Adobe Acrobat (fully up-to-date) to ensure compatibility, unless agreed upon otherwise.
      c. Owner's Representative reserves the right to request hard copies of submittals as follows:
         1) Shop Drawings: Three sets of bond prints.
         2) Product Data: Three sets.
   2. Samples:
      a. Unless otherwise specified, submit samples in the quantity which is required to be returned, plus 2 which will be retained by the Owner's Representative.
      b. By prearrangement in specific cases, a single sample may be submitted for review and, when reviewed, be installed in the Work at a location agreed upon by the Owner's Representative.

D. Identification:
   1. Properly identify each submittal with name of Project, Contractor, subcontractor, and date.
   2. Accompany each submittal by an acceptable transmittal form referring to Project name and Specifications Section number, and paragraph number, when applicable, for identification of each item.
   3. Consecutively number shop drawings for each Section of work; retain numbering system throughout all revisions.
   4. Allow clear space on each drawing, product datum, and sample for stamp of Contractor and Owner's Representative. Where clear space is not available on samples, submit with tags or stickers attached.

E. Transmittals, shop drawings, or samples submitted to Architect shall have the Contractor's stamp on it with his signature and be marked "approved." Contractor's stamp on these items indicates that Contractor has performed the following:
   1. Verified field dimensions and quantities.
   2. Verified field construction criteria, materials, catalog numbers and similar data.
   3. Checked for completeness and compliance with the requirements of the Work, Project, and Contract Documents.
   4. ITEMS NOT STAMPED BY THE CONTRACTOR WILL BE RETURNED UNREVIEWED.

F. Review by Owner's Representative:
   1. General:
      a. Except for finish, color, and other aesthetic matters left to Owner's Representative's decision by Contract Documents, Owner's Representative's review of shop drawings, product data, and samples is only for Contractor's convenience in following work and does not relieve Contractor from responsibility for deviations from requirements of Contract Documents.
      b. Do not construe review by Owner's Representative as a complete check or relief from responsibility for errors or omissions of any sort in shop drawings or schedules or from necessity of furnishing work required by Contract Documents that may not have been shown on shop drawings.
      c. Review of a separate item by Owner's Representative does not indicate review of complete assembly in which it functions.
      d. Review comments of the Owner's Representative (or its consultants) will be shown when it is returned to the Contractor. The Contractor shall make and distribute such copies as are required for its purposes.
   2. Submittals not stamped by Contractor and submittals which, in opinion of the Owner's Representative, are incomplete, contain numerous errors, or have not been checked or have only been checked superficially will be returned to Contractor for resubmittal.

3. Processing:
   a. Owner's Representative will review shop drawings, product data, and samples in accordance with agreed upon "Submittal Schedule" and will return them to Contractor imprinted with stamp of the Owner's Representative.
   b. Notations by Owner's Representative which increase Contract cost or time of completion shall be brought to attention of the Owner's Representative before proceeding with work. Failure to do so will result in the increased costs being borne by the Contractor.
   c. Each submittal will be stamped indicating appropriate action required of the Contractor.
   d. Actions required by Owner's Representative's stamp are defined as follows:
      1) NO ACTION TAKEN – Submittal is unreviewed.
      2) NO EXCEPTIONS TAKEN - Accepted subject to its compatibility with future submittals and additional partial submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown on the submittal.
      3) FURNISH AS CORRECTED - Same as 2. above, except that minor corrections as noted shall be made by Contractor.
      4) REVISE AND RESUBMIT - Rejected because of major inconsistencies or errors which shall be resolved or corrected by Contractor prior to subsequent review by Architect/Engineer.
      5) EXCEPTIONS TAKEN - Submitted material does not conform to Plans and Specifications in major respect, i.e.: wrong size, model, capacity, or material.
   e. If for any reason the Contractor cannot comply with the notations, Contractor shall re-submit submittal. In the transmittal letter accompanying the re-submittal, clearly describe the reason(s) for not being able to comply with the notations.
   f.

G. Reproduce and distribute submittals that the Architect reviews and stamps as follows, to indicate the action taken - Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.
   1. NO EXCEPTIONS TAKEN: Where submittal is marked "No Exceptions Taken," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
   2. FURNISH AS CORRECTED: When submittal is marked "Furnish As Corrected," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
   3. REVISE AND RESUBMIT: When submittal is marked "Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
      a. Do not permit submittals marked "Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
   4. EXCEPTIONS TAKEN: When submittal is marked "Rejected," information submitted is not in compliance with Contract Documents. Resubmit submittal as required by Contract Documents.
      a. After Architect/Engineer review of submittal, revise and resubmit as required. Identify changes made since previous submittal.

H. Consultants' Review:
   1. Submittals requiring review by Owner's Representative or its consultants shall be sent to the Owner's Representative. Owner's Representative will forward submittal to applicable consultant for their review.
   2. Processing shall be in accordance with consultants stamp.
   3. If action required by consultant's stamp is not clear, Contractor shall immediately notify the Owner's Representative for a clarification.
   4. If returned submittal also includes stamp by the Owner's Representative, processing shall be in accordance with the Owner's Representative's stamp.

I. Revisions:
   1. Make revisions pertinent to by comments noted on the submittal.
   2. If the Contractor considers any required revision to be a change, they shall so notify the Owner's Representative as provided for in the General Conditions.
   3. Show each revision by number, date, and subject in a revision block on the submittal.
   4. If for any reason Contractor cannot comply with the notations, Contractor shall resubmit submittal.

J. Revisions after Review: When a submittal has been reviewed by the Owner's Representative, resubmittal for substitution of materials or equipment will not be considered unless accompanied by an acceptable explanation as to why the substitution is necessary, or unless directed by the Owner.

K. Begin no fabrication or work, which require submittals until return of submittals not requiring resubmittal

3.02 PROCEDURES FOR INFORMATIONAL SUBMITTALS

A. General:
   1. Prepare and submit "Informational Submittals" where required by the Specifications.
   2. Number of Copies: Submit PDF as specified for Action Submittals unless otherwise indicated. Owner's Representative will not return copies.
   3. Certificates and Certifications: Provide a notarized 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.
   4. Test and Inspection Reports: Comply with requirements specified in Section 01 45 00 – Quality Control.

B. The following items shall be considered "Informational Submittals" whether or not identified as such in the respective Specification Sections.
   1. Qualification Data.
   2. Certificates for or from the following:
      a. Installers.
      b. Manufacturers.
      c. Products and materials.
   3. The following Reports:
      a. Material and Product Test Reports.
      b. ICC-ES Reports:
      c. Preconstruction Test Reports.
      d. Compatibility Test Reports.
      e. Field Test Reports.
   4. Maintenance Data.
   5. Design Data.
   6. Manufacturer's Instructions.
   7. Manufacturer's Field Reports.
   8. Insurance Certificates and Bond.
   9. Construction photographs as specified .
   10. Material Safety Data Sheets (MSDSs).

3.03 PROCEDURES FOR DEFERRED SUBMITTALS

A. Deferred Approval submittals shall first be submitted to the Owner's Representative. If the Owner's Representative reviews the submittal with corrections noted, those corrections must be addressed and the submittal returned to the Owner's Representative. Once the Owner's Representative has no comments on a submittal, it will be returned and shall be resubmitted with approval by all government agencies having jurisdiction."

B. The Contractor shall then submit to these agencies and make revisions required by these agencies until approval by all government agencies having jurisdiction is obtained. See Section 01 11 00 - Summary of Work for further requirements.

C. When approval has been obtained by all governing agencies having jurisdiction, the approved submittal shall be resubmitted to the Owner's Representative for final approval. It is the responsibility of the Contractor to verify acceptability of government agency required revisions with the Owner's Representative. If the resubmittal to the Owner's Representative includes revisions that had not been previously approved by the Owner's Representative in writing, the Owner's Representative has the right to reject these revisions. It is then the Contractor's responsibility to resubmit to government agencies having jurisdiction to obtain approval of the Owner's Representative's noted corrections.

3.04 PROCEDURES FOR CLOSEOUT AND MAINTENANCE MATERIAL SUBMITTALS

A. Number of Copies: Two, unless otherwise directed by Owner's Representative.

B. Comply with additional Closeout Procedures specified for the Project.

3.05 FINAL DISTRIBUTION AFTER REVIEW

A. In addition to copies of submittals required by Contractor, subcontractors, suppliers, and fabricators, Contractor shall make distribution to:
   1. Contractor's shall retain 1 copy of each "No Exceptions Taken" or "Furnish as Corrected" submittal on file at the job site.

B. Project Record Documents file; see additional requirements specified in Section 01 78 39 - Project Record Documents.

C. It shall be Contractor's responsibility to copy, conform, and distribute reviewed submittals in sufficient numbers for Contractor's files, subcontractors and vendors.

END OF SECTION

SECTION 01 41 00

REGULATORY REQUIREMENTS

1.01 SUMMARY

A. Section Includes:
   1. The codes and regulations applicable to the Work.
   2. Code and regulatory abbreviations used in the Specifications.

B. Related Requirements:
   1. Section 01 42 00 - References, Abbreviations, and Definitions; requirements relating to industry standard references used in the Specification Sections.

1.02 APPLICABLE CODES AND REGULATIONS

A. Codes which apply to this Project include, but are not limited to, the following including additions, changes, and interpretations adopted by the enforcing agency in effect as of the date of these Contract Documents.
   1. City of Livermore and County of Alameda:
      a. Municipal Codes established by the Building Inspection Commission (BIC) including the Building Code (SFBC), Mechanical Code, Plumbing Code, and Electrical Code.
      b. Noise Ordinance.
      c. Construction debris and waste management regulations.
      d. Green Building Standards of SFBC Chapter 13C.
   2. State of California Code of Regulations (CCR):
      a. Title 8, Industrial Relations.
      b. Title 19, Public Safety.
      c. Title 24, Building Standards Code.
         1) Part 2, California Building Code.
         2) Part 3, California Electric Code.
         3) Part 4, California Mechanical Code.
         4) Part 5, California Plumbing Code.
         5) Part 6, California Energy Code.
         6) Part 9, California Fire Code.
   3. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."
      a. Control of Work: Conform to Section 5.
      b. Control of Materials: Conform to Section 6.
   4. The following additional Codes and Standards:
      a. California Occupational Safety and Health Act Standards (Cal-OSHA).
      b. Occupational Safety and Health Act (OSHA).
      c. Air Quality Standards of the Bay Area Air Quality Management District of the California Air Resources Board including emissions and dust during construction.
      d. Americans with Disabilities Act (ADA) Standards.
      e. Environmental Regulations including:
         1) 22 CCR, Section 66260 et seq.; California Hazardous Waste Management Regulations.
         2) 40 CFR, Part 260 et seq.; Hazardous Waste Management System.
         3) 42 USC, Section 6901 et seq.; Resource Conservation and Restoration Act (RCRA).
         4) National Pollutant Discharge Elimination System (NDPES).
      f. National Fire Protection Association (NFPA): Standards 13, 24, 72, and 80.
      g. National Electrical Code (NEC).

B. All work shall meet or exceed the requirements of the above codes.

C. References in the Specifications to "code" or to "building code," not otherwise identified, shall mean the foregoing specified codes, together with the additions, changes, amendments, and interpretations adopted by the enforcing agency and in effect on the date of these Contract Documents. Nothing on the Drawings or in the Specifications shall be interpreted as requiring or permitting work that is contrary to these rules, regulations, and codes.

D. Where other regulatory requirements are referenced in these Specifications, the affected work shall meet or exceed the applicable requirements of such references.

E. Regulatory requirements referred to shall have full force and effect as though printed in these Specifications.

F. Where the Drawings or Specifications call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by said laws, codes, rules, and regulations, the provisions of the Drawings and Specifications shall take precedence over said laws, codes, rules, and regulations.

1.03 OTHER APPLICABLE LAWS AND REGULATIONS

A. All applicable federal, state, and local laws, regulations of governing utility districts, regulations of the state fire marshal, federal, state and local environmental regulations, and the various other authorities having jurisdiction over the construction of the Project shall apply to the Contract throughout and they shall be deemed to be included in the Contract the same as though printed in these Specifications.

B. Discrepancies between these codes, rules, and regulations and the Contract Documents shall be brought to the attention of the Owner's Representative for resolution.

1.04 REFERENCES TO REGULATORY REQUIREMENTS

A. Codes, laws, ordinances, rules and regulations referred to shall have full force and effect as though printed in full in these specifications.

B. Conform to referenced codes, laws, ordinances, rules and regulations, which are in effect on date of receipt of bids.

1.05 COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT

A. Contractor acknowledges that, pursuant to the Americans with Disabilities Act (ADA), programs, services and other activities provided by a public entity to the public, whether directly or through a contractor, must be accessible to the disabled public. Contractor shall provide the services specified in this Agreement in a manner that complies with the ADA and any and all other applicable federal, state and local disability rights legislation. Contractor agrees not to discriminate against disabled persons in the provision of services, benefits or activities provided under this Agreement and further agrees that any violation of this prohibition on the part of Contractor, its employees, agents or assigns shall constitute a material breach of this Agreement.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

SECTION 01 41 10

REGULATORY REQUIREMENTS – HAZARDOUS WASTE

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes regulatory requirements applicable to Contract work in connection with hazardous waste abatement and disposal, including, but not limited to, asbestos and asbestos containing materials, lead based paint, polychlorinated biphenyls, petroleum contaminated soils and materials, construction and demolition debris and any other hazardous substance or hazardous waste.

B. This section supplements Section 01 41 00 and the work specific listings of applicable regulatory requirements elsewhere in the specifications.

C. Related Sections.
1. Section 01 41 00: Regulatory Requirements.

1.02 REFERENCES TO REGULATORY REQUIREMENTS

A. Codes, laws, ordinances, rules and regulations applicable to the Work shall have full force and effect as though printed in full in these specifications. Codes, laws, ordinances, rules and regulations are not furnished to Contractor, since Contractor is assumed to be familiar with their requirements. The listing herein of applicable codes, laws and regulations for hazardous waste abatement work is supplied to Contractor as a courtesy and shall not limit Contractor's responsibility for complying with all applicable laws, regulations or ordinances having application to the Work. Where conflict among the requirements or with these specifications exists, the most stringent requirements shall be used.

B. Contractor's work shall conform to all applicable codes, laws, ordinances, rules and regulations that are in effect on date of receipt of bids.

1.03 LAWS, ORDINANCES, RULES AND REGULATIONS

A. During prosecution of Work under Contract, Contractor shall comply with applicable laws, ordinances, rules and regulations, including, but not limited to, those listed below.

B. Federal:
1. Statutory Requirements:
   a. Resource Conservation and Recovery Act, 42 U.S.C.. 6901 et seq.
   b. Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986,42 U.S. C" 9601 et seq.
   c. Toxic Substances Control Act of 1976,15 U.S.C.. 2601 et seq.
   d. Hazardous Materials Transportation Act of 1975, 49 U.S. C" 1801 et seq.
   e. Clean Water Act, 33 U.S.C.. 1251 et seq.
   f. Safe Drinking Water Act, 42 U.S. C.. 3001 et seq.
   g. Clean Air Act, section 112, 42 U.S. C.. 7412
   h. Occupational Safety and Health Act of 1970, 29 U.S.C.. 651 et seq.
   i. Underground Storage Tank Law, 42 U.S. C.. 6991 et seq.
   j. The Emergency Planning and Community Right to Know Act of 1986,42 U.S.C.. 11001 et seq.

2. Environmental Protection Agency (EPA):
   a. 40 C.F.R. Parts. 260, 264, 265, 268, 270
   b. 40 C.F.R. Parts 258 et seq.
   c. 40 C.F.R. Part 761
   d. 40 C.F.R. Parts 122-124
3. Occupational Safety and Health Administration (OSHA):
   a. OSHA Worker Protection Standards, Title 29 CFR Part 1926.58, Construction Standards and 29 CFR 1910.1001 General Industry Standard
   b. OSHA, 29 C. F. R. Part 1926.1101, Construction Standards for Asbestos
   c. OSHA, Lead Exposure in Construction: Interim Final Rule, 29 C.F.R. 1926.62
   d. National Emission Standard for Hazardous Air Pollutants, Title 40 CFR Part 61
   e. Asbestos Hazardous Emergency Response Act, Title 40 C.F.R. 763
4. Department of Transportation:
   a. Title 49 C.F.R. 173.1090
   b. Title 49 C.F.R.172
   c. Title 49 C.F.R. 173
   d. DOT, HM 181 and MH126f

C. State of California Requirements:
1. Statutory Law:
   a. The Carpenter-Presley-Tanner Hazardous Substance Account Act, Cal. Health & Saf. Cod~ 25300 et seq.
   b. Health and Safety Cod~ 25359.4
   c. Hazardous Waste Control Law, Health & Safety Code. 25100 § seq.
   d. Porter Cologne Water Quality Control Act, Cal. Water Cod~ 13000 et seq.
   e. Health and Safety Cod~ 25915-25924
   f. Cal. Labor Code Chapter 6, including, without limitation,. 6382, 6501.5-6501.9,6503.5, 9021.5, 9080
   g. Cal. Bus. and Prof. Code, including without limitation,. 7058.5, 7065.01, 7118.5. Underground Storage of Hazardous Substance Act,
   h. Cal. Health & Saf. Cod~ 25280 § seq.
   i. Petroleum Underground Storage Tank Cleanup, Health and Safety Cod~ 25299.10 et seq.
   j. Safe Drinking Water and Toxic Enforcement Act of 1986, Health & Saf. Cod~ 25249.5 et seq. (Proposition 65)
   k. Above Ground Petroleum Storage Act, Health and Safety Code. 25270 et seq.
2. Hazardous Materials Release Response Plans and Inventory, California Health and Safety Code Chapter 6.95.
3. Administrative Code and Regulations:
   a. 22 C.C.R.. 6600 et seq.
   b. Title 22 C.C.R.. Standards for Management of Hazardous and Extremely Hazardous Waste
   c. DTSC Treatment Standard for PCB Wastes, Title 22 C.C.R.,. 66268.110
   d. Cal OSHA Worker Protection Standards, Title 8 C.C.R.. 1529, 5208
   e. Title 8 C. C. R.. 1532.1, Lead in Construction
   f. 22 C.C.R.. 66999(b)
   g. Title 23 C.C.R.. 2610 et seq.
4. Local Agency Requirements:
   a. Bay Area Air Quality Management District, Fugitive Dust Rules
   b. Bay Area Air Quality Management District Regulation 11-2-303
   c. State Water Resource Control Board, General Construction Activity Stormwater Permit Requirements (Order 92-0S DWQ)
5. City Requirements:
   a. Livermore-Pleasanton Fire Department (www.lpfire.org)
   b. Ordinances

1.04 PERMITS

A. Contractor shall comply with, implement or acknowledge effectiveness of all CLPCCD held permits, and initiate and cooperate in securing all required notifications or approvals therefore, including but not limited to permits affecting environmental work and the following:
   1. BAAQMD, Permit to Excavate or Treat Contaminated Soil;
   2. State Water Resources Control Board, General Construction Activity Stormwater Permit

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

SECTION 01 41 13

ADDITIONAL REQUIREMENTS FOR DSA REVIEWED PROJECTS

PART 1 - GENERAL

1.01 DSA DEFERRED APPROVALS

A. Refer to Contract Drawings

1.02 INSPECTION AND SUPERVISION

A. Supervision by DSA shall be in accordance with Section 4-334 of Part 1, Title 24, CCR.

B. District shall employ a full-time Project Inspector approved by DSA. The Project Inspector shall observe construction in accordance with Section 4-333(b) and 4-342 of Part 1, Title 24, CCR.

C. Reports: Project Inspector shall submit the following in accordance with DSA IR A-7.
   1. Start of Project Report: Notify DSA of start of construction in accordance with Section 4-331 of Part 1, Title 24, CCR.
   2. Semi-Monthly Reports: Comply with Section 4-337 of Part 1, Title 24, CCR.
   3. Verified Reports: Comply with Section 4-336 of Part 1, Title 24, CCR.

D. Special Inspection Requirements:
   1. Comply with Section 4-333(c) of Part 1, Title 24, CCR.
   2. Special inspection costs are to be paid by the Owner.
   3. Conduct special inspection as per DSA Structural Tests and Inspections Sheet (SSS 103-1).

1.03 TESTING LABORATORY REQUIREMENTS

A. Comply with Section 4-335 of Part 1, Title 24, CCR.

B. The Owner shall select the testing Laboratory approved by DSA, Architect, and Structural Engineer.

C. Sampling and testing shall be performed by properly qualified persons in accordance with American Society for Testing and Materials (ASTM) standards.

D. Conduct tests as per DSA Structural Tests and Inspections Sheet (SSS 103-1).

E. Submit one copy of test reports to DSA.

1.04 ADDENDA AND CHANGE ORDERS

A. Comply with Section 4-338 of Part 1, Title 24, CCR.

B. Comply with DSA IR A-6.

C. Obtain DSA approval for changes to code-regulated construction and inspection/testing functions prior to start of that work. Code-regulated construction refers to work that is regulated by code provisions applicable to public school construction, including those adopted by DSA Structural Safety (DSA/SS), DSA Access Compliance (DSA/AC) and State Fire Marshal (SFM).

D. Changes can be approved through either the change order (CO) process or preliminary change order (PCO) process. Comply with DSA IR A-6, Sub-paragraph 2.2 - Change Order Process and DSA IR A-6, Sub-paragraph 2.1 - Preliminary Change Order Process.

E. Do not begin any work under addendum or change order until required DSA written approval is obtained.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

SECTION 01 42 00

REFERENCES, ABBREVIATIONS, AND DEFINITIONS

1.01 SUMMARY

A. Section Includes:
1. Requirements for standard references used in the various Specification Sections.
2. Standard reference abbreviations used in the Project Manual.
3. Definitions of terms used in the Project Manual.

B. Related Requirements:
1. Section 01 41 00 - Regulatory Requirements

1.02 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES; REPORTING AND RESOLVING DISCREPANCIES

A. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or laws or regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated in the Contract Documents.

B. If during the performance of the Work, Contractor discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such law or regulation applicable to the performance of the Work or of any such standard, specification, manual or code or of any instruction of any supplier, Contractor shall report it in writing at once to Inspector, with copies to Construction Manager and Architect, and Contractor shall not proceed with the Work affected thereby until consent to do so is given by the Construction Manager.

C. Except as otherwise specifically stated in the Contract Documents or as may be provided by Change Order, or supplemental instruction, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the Contract Documents and:
1. The provisions of any such standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
2. The provisions of any such laws or regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such law or regulation).

D. No provision of any such standard, specification, manual, code or instruction shall be effective to change the duties and responsibilities of CLPCCD, Contractor, Construction Manager, or Architect/Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents, nor shall it be effective to assign to CLPCCD, Architect/Engineer, Construction Manager, or any of their consultants, agents or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

1.03 STANDARD SPECIFICATIONS

A. The Contract Documents contain references to various standard specifications, codes, practices, and requirements for materials, work quality, installation, inspections, and tests published and issued by the organizations, societies, and associations. Such references are hereby made part of the Contract Documents to the extent required.

B. When standard specifications are included by abbreviation and number only, it is assumed that the Contractor is familiar with and has ready access to the specified standards.

C. When the effective date of a reference standard is not given, it shall be understood that the current edition or latest revision thereof and any amendments or supplements thereto in effect on the date of original issue of these Contract Documents, as indicated on the cover, shall govern the Work.

D. Reference standards are not furnished with the Contract Documents, because the Contractor, subcontractors, manufacturers, suppliers, and the trades involved are assumed to be familiar with their requirements.

E. Contractor shall obtain its own copies of required specified referenced publications.

F. The specification or standard referred to shall have full force and effect as though printed in these Specifications.

G. In addition to those standards specifically referenced in the Specifications, comply with the accepted industry standards and trade association recommendations for the respective portions of Work.

H. In the case of difference between referenced standards and the Contract Documents, the most stringent requirements prevail.

1.04 STANDARD SPECIFICATION ABBREVIATIONS

A. In addition to abbreviations indicated on the Drawings, references in the Project Manual to trade associations, technical societies, recognized authorities, and other institutions may include the following organizations, which are sometimes referred to by only the corresponding abbreviations. Not all abbreviations are listed, and not all listed abbreviations are used.

B. Abbreviations:

1.	AA	Aluminum Association
2.	AAP	Affirmative Action Program
3.	AAMA	American Architectural Manufacturer's Association.
4.	AASHTO	American Association of State Highway and Transportation Officials
5.	ACI	American Concrete Institute
6.	ADA	Americans with Disabilities Act
7.	AEIC	Association of Edison Illuminating Companies
8.	AIA	American Institute of Architects
9.	AIEEE	American Institute of Electrical and Electronic Engineers
10.	AISC	American Institute of Steel Construction, Inc.
11.	AJCHN	American Joint Committee on Horticultural Nomenclature
12.	ANSI	American National Standards Institute
13.	APA	The Engineered Wood Association
14.	ASI	Architect's Supplemental Instructions
15.	ASLA	American Society of Landscape Architects
16.	ASSE	American Society of Sanitary Engineering
17.	ASTM	American Society for Testing and Materials
18.	AWMAC	Architectural Woodwork Manufacturers Association of Canada
19.	AWPA	American Wood Protection Association
20.	AWI	Architectural Woodwork Institute
21.	AWS	American Welding Society, Inc.
22.	AWWA	American Water Works Association
23.	BIL	Basic Insulation Level
24.	BHMA	Builder's Hardware Manufacturers Association
25.	CCD	Construction Change Directive

26.	CFR	Code of Federal Regulations
27.	CSI	Construction Specifications Institute
28.	CLFMI	Chain Link Fence Manufacturers Institute
29.	CO	Change Order
30.	CPM	Critical Path Method
31.	CRSI	Concrete Reinforcing Steel Institute
32.	CS	Commercial Standard of National Bureau of Standards, U.S. Department of Commerce
33.	DHI	Door and Hardware Institute
34.	FM	Factory Mutual
35.	FS	Federal Specification of General Services Administration
36.	HVAC	Heating, Ventilating and Air Conditioning
37.	IAPMO	International Association of Plumbing and Mechanical Officials
38.	ICBO	International Conference of Building Officials
39.	ICC-ES	International Code Council Evaluation Service, Inc.
40.	ID	Identification
41.	JATC	Joint Apprenticeship Training Committee
42.	JV	Joint Venture
43.	Kw	Kilowatt
44.	LBE	Local Business Enterprise
45.	MBE	Minority Business Enterprise
46.	M/WBE	Minority and Woman-Owned Business Enterprise
47.	ml	milliliter
48.	mm	millimeter
49.	NAAMM	National Association of Architectural Metal Manufacturers
50.	NAAWS	North American Architectural Woodwork Standards
51.	NBS	National Bureau of Standards
52.	NEC	National Electric Code
53.	NEMA	National Electrical Manufacturers' Association
54.	NFC	National Fire Code
55.	NFPA	National Fire Protection Association
56.	NIST	National Institute of Standards and Technology
57.	NLMA	National Lumber Manufacturers Association
58.	NSF	National Sanitation Foundations
59.	OFCI	Owner Furnished, Contractor Installed
60.	OFOI	Owner Furnished, Owner Installed
61.	PCI	Precast Concrete Institute
62.	PDI	Plumbing and Drainage Institute
63.	PM	Preventative Maintenance
64.	PR	Proposal Request
65.	RFI	Request for Information
66.	RFS	Request for Substitution
67.	RIS	Redwood Inspection Service [Grading Rules]
68.	SFPA	Southern Forest Products Association
69.	SSPC	The Society for Protective Coatings
70.	TCNA	Tile Council of North America
71.	UL	Underwriters' Laboratories, Inc.
72.	WCLIB	West Coast Lumber Inspection Bureau
73.	WDMA	Window and Door Manufacturers Association
74.	WI	Woodwork Institute
75.	WMMP	Wood Moulding & Millwork Producers Association
76.	WMBE	Woman/Minority Business Enterprise
77.	WOBE	Woman-Owned Business Enterprise
78.	WRCLA	Western Red Cedar Lumber Association
79.	WWPA	Western Wood Products Association.

C. State of California:

1.	Cal/OSHA	California Occupational Safety and Health Administration
2.	CBC	California Building Code
3.	CCR	California Code of Regulations
4.	CFC	California Fire Code
5.	CMC	California Mechanical Code
6.	CPC	California Plumbing Code
7.	CPUC	California Public Utilities Commission
8.	DSA	Division of State Architect
9.	SFM	Office of State Fire Marshal

D. Additional abbreviations, used only on Drawings, are listed thereon.

1.05 SYMBOLS

A. Symbols, used only on Drawings, are shown thereon.

1.06 DEFINITIONS

A. Reference to Drawings: Where the words "shown", "indicated", "detailed", "noted", "scheduled". or words of similar import are used, it shall be understood that reference is made to the Drawings accompanying these Specifications, unless otherwise noted.

B. Addendum or Addenda: The word "Addendum" or “Addenda” shall mean written and/or graphic modifications to the Contract documents provided to holders of the Contract Documents prior to the opening of bids. Addenda shall be issued by the Owners Representative.
   1. Addenda shall not include the minutes of the Pre-bid Conference and Site Visit.

C. Additive Bid: The phrase “Additive Bid” shall mean the sum to be added to the Base Bid if the change in scope of work as described in Additive Bid is accepted by CLPCCD.

D. Agreement: The word “Agreement” shall mean the basic contract document that binds the parties to construction Work. Agreement defines relationships and obligations between CLPCCD and Contractor and by reference incorporates Conditions of Contract, Drawings, and Specifications and contains Addenda and all Modifications subsequent to execution of Contract.

E. Alternates: The word "Alternates" shall be understood to mean alternate products, materials, equipment, systems, methods, units of work or elements of the construction, which may, at the Owners option and under the terms established by the Contract Documents, be added to, or deleted from the work.

F. Approvals: The words "approved", "approval", "acceptable", "acceptance", shall mean acceptance by the Owners Representative is required.

G. Approved Equal: The phrase “Approved Equal” shall mean approved in writing by CLPCCD as being of equivalent quality, utility and appearance.

H. Architect or Architect/Engineer: The words “Architect” or “Architect/Engineer” shall mean the person holding a valid California State Architect's license, Landscape Architect’s License, Civil Engineer’s License, Structural Engineer’s License or Electrical Engineer’s License, whose firm has been designated within the Contract Documents as the Architect to provide design services on the project. Refer to C.C.R., Title 24, Part 1, Chapter 4, Article 6, Section 341: Duties of Architect, Structural Engineer or Professional Engineer.
   1. When the Architect is referred to within the Contract Documents and no Architect has in fact been designated, then the matter shall be referred to CLPCCD. The term Architect shall be construed to include all its consultants retained for the project, as well as employees of the Architect. When the designated Architect is an employee of CLPCCD, his authorized representations on the project within the district will be included under the term Architect.

I. Bid: The word “Bid” shall mean the offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

J. Bidder: The word “Bidder” shall mean one who submits a Bid.

K. By Others: The phrase “By Others” shall mean work that is outside scope of Work to be performed by Contractor under this Contract, which will be performed by CLPCCD, other contractors, or other means.

L. CLPCCD: The acronym “CLPCCD” shall mean Chabot-Las Positas Community College District. Unless otherwise expressly indicated or required by the context of usage, the terms "District" and "Owner" as used in the Contract Documents shall be deemed references to CLPCCD.

M. CLPCCD-Furnished, Contractor Installed: This phrase shall mean items furnished by CLPCCD at its cost, for installation by Contractor at its cost under this Contract. Also sometimes referred to as “OFCI” – Owner Furnished, Contractor Installed.

N. CLPCCD Representative(s) / Owner’s Representative: These phrases shall mean the person or persons assigned by CLPCCD to be CLPCCD's representatives or, if so designated, agent(s) at the site.

O. By CLPCCD: This phrase shall mean Work that will be performed by CLPCCD or its agents at the CLPCCD's expense.

P. Contract Change Order or Change Order: The words "Contract Change Order" or “Change Order” shall mean a change order authorization to the Contractor, covering changes to the Contract found by the Owner Representative to be necessary for the proper completion or construction for the whole work required by the Contract, and establishing the basis of payment and/or time adjustments for the work affected by the changes, also sometimes referred to as a "Change Order."
   1. A written instrument prepared by CLPCCD and signed by CLPCCD and Contractor, stating their agreement upon all of the following:
      a. a change in the Work,
      b. the amount of the adjustment in the Contract Sum, if any, and
      c. the amount of the adjustment in the Contract Time, if any.
   2. As appropriate, change orders are subject to approval by the Division of the State Architect. Refer to section 4-338, Part 1, Title 24, California Code of Regulations.

Q. Concealed: The word “Concealed” shall mean work not exposed to view in the finished Work, including within or behind various construction elements.

R. Construction Manager: The phrase “Construction Manager” shall mean CLPCCD's authorized representative, who shall represent CLPCCD in all matters relative to this Contract. Construction Manager may authorize agents and representatives to act in carrying out Construction Manager's duties, including a "Project Manager", to act under the authority of the Construction Manager. As CLPCCD's agent, the Construction Manager is the beneficiary of all contract obligations of Contractor to CLPCCD, including without limitation, all releases and indemnities. Construction Manager shall not have any personal liability arising from this Contract or any activity there under and Contractor releases Construction Manager fully from all loss, cost, damage, expense or liability arising out of or connected with this Project, whether arising from contract, negligence or tort claims of all kinds.

S. Contract Conditions: The phrase “Contract Conditions” shall mean Conditions of Contract define basic rights, responsibilities and relationships of Contractor and CLPCCD and consists of two parts: General Conditions and Supplementary Conditions.
   1. General Conditions are general clauses, which are common to the CLPCCD Contracts.
   2. Supplementary conditions modify or supplement General Conditions to meet specific requirements for this Contract.

T. Contract Documents: The words "Contract Documents" shall mean the documents contained within the General Conditions, Special Provisions of the Contract, the Drawings, the Specifications, Change Orders, and other modifications issued by the Owners Representative prior to and after execution of the Contract and identified as a Contract Document.

U. Contract Modification: The phrase “Contract Modification” shall mean either:
   1. a written amendment to Contract signed by Contractor and CLPCCD; or
   2. a Change Order; or
   3. a written directive for a minor change in the Work issued by CLPCCD.

V. Contract Sum: the phrase “Contract Sum” shall mean the sum stated in the Agreement and, including authorized adjustments, the total amount payable by CLPCCD to Contractor for performance of the Work and the Contract Documents. (Also referred to as the CONTRACT PRICE.)

W. Contract Times: The phrase “Contract Times” shall mean the number or numbers of days or the dates stated in the Agreement (i) to achieve substantial completion of the Work or designated milestones and/or (ii) to complete the Work so that it is ready for final payment and is accepted.

X. Contractor: The word “Contractor” shall mean the person or entity identified as such in the Agreement and referred to throughout the Contract Documents as if singular in number and neuter in gender. The term "Contractor" means the Contractor or its authorized representative.

Y. Contractor’s Employees: The phrase “Contractor’s Employees” shall mean Persons engaged in execution of Work under Contract as direct employees of Contractor, as subcontractors, or as employees of subcontractors.

Z. Date of Substantial Completion: This phrase shall mean Date of Substantial Completion of Work or designated portion thereof is date certified by Construction Manager when construction is sufficiently complete in accordance with Contract Documents for CLPCCD to occupy Work or designated portion thereof for its use for which it is intended.

AA. Day: The word “Day” shall mean one calendar day, unless the word "day" is specifically modified to the contrary.

BB. Deductive Bid: The phrase “Deductive Bid” shall mean the sum to be subtracting to the Base Bid if the change in scope of work as described in Deductive Bid is accepted by CLPCCD.

CC. Defective: The word “Defective” shall mean an adjective which, when modifying the word "Work", refers to Work that is unsatisfactory or unsuited for the use intended, faulty, or deficient, that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents (including but not limited to approval of samples and "or equal" items), or has been damaged prior to final payment (unless responsibility for the protection thereof has been assumed by CLPCCD). Construction Manager is the judge of whether Work is defective.

DD. Directions: The words "directed," "designated," and "selected" shall mean the directions, designations, selection, of the Owners Representative, unless otherwise noted.

EE. Drawings: The word "Drawings" shall mean the official Project bid or construction plans, plan details, profiles, typical cross sections, working drawings, shop drawings, supplemental drawings, and/or reproductions thereof, accepted or issued by the Owners Representative, which show the locations, character, dimensions, and details of work to be performed. All such documents are to be considered as a part of the Drawings.
1. The graphic and pictorial portions of Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

FF. Equals: The words "or equal," "equal to," "approved equal," "or approved equal," “accepted equal,” and "equivalent," shall mean "equal to or acceptable in the opinion of the Owners Representative," unless stated otherwise.
1. Burden of proof of equality is responsibility of Contractor.

GG. Exposed: The word “Exposed” shall mean work exposed to view in the finished Work, including behind louvers, grilles, registers and various other construction elements.

HH. Final Acceptance or Final Completion: These phrases shall mean all Work satisfactorily completed in accordance with Contract Documents. It includes, but is not limited to:
1. All Systems having been tested and accepted as having met requirements of Contract Documents.
2. All required instructions and training sessions having been given by Contractor.
3. All as-built drawings and operations and maintenance manuals and Machine Inventory Sheets having been submitted by Contractor, reviewed by Architect/Engineer and accepted by CLPCCD.
4. All punch list work, as directed by CLPCCD, having been completed by Contractor.
5. Generally all work, except Contractor maintenance after Final Acceptance, having been completed to satisfaction of CLPCCD.

II. Force Account: The phrase “Force Account” shall mean work directed to be performed without prior agreement as to lump sum or unit price cost thereof, and which is to be billed at cost for labor, materials, equipment, taxes, and other costs, plus a specified percentage for overhead and profit.

JJ. Furnish: The word “Furnish” shall mean supply only, do not install, unless otherwise indicated.

KK. Indicated: The word “Indicated” shall mean Shown or noted on the Drawings.

LL. Inspector: The word “Inspector” shall mean the person engaged by CLPCCD to inspect the workmanship, materials, or manner of construction of buildings or portions of buildings, to determine if such construction complies with the Contract Documents and applicable codes. The inspector is subject to approval by the Architect, CLPCCD and, as appropriate, Division of the State Architect, and he will report to CLPCCD. Refer to section 4-333 and section 4-342, Part 1, Title 24, California Code of Regulations. The terms "Inspector" and "Project Inspector" are used interchangeably in the Contract Documents.

MM. Install: The word “install” shall mean install or apply only, do not furnish, unless otherwise indicated.

NN. Language: Words and phrases requiring an action or performance, such as "perform," "provide," "install," "furnish," "connect," "test," "coordinate," and words and phrases of similar import, shall be understood to be preceded by the phrase "The Contractor shall" unless otherwise stated.

OO. Latent: The word “Latent” shall mean not apparent by reasonable inspection, including but not limited to, the inspections and research required as a condition to bidding under the General Conditions.

PP. Material or Materials: These words shall be construed to embrace machinery, manufactured articles, materials of construction (fabricated or otherwise), and any other classes of material to be furnished in connection with Contract, except where a more limited meaning is indicated by context.

QQ. Milestone: The word “Milestone” shall mean a principal event specified in Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all Work.

RR. Modifications: The word "modifications" shall mean a written amendment to the Contract signed by both parties to the Construction Contract, a Change Order, a written interpretation issued by the Owners Representative or a written order for a minor change in the work issued by the Owners Representative.

SS. Not in Contract: The phrase “Not in Contract” shall mean Work that is outside the scope of work to be performed by Contractor under this Contract. Sometimes referred to as “N.I.C.”

TT. Notice of Award: The phrase “Notice of Award” shall mean A written notice given by CLPCCD to lowest responsive, responsible bidder advising that Bidder's bid and other qualifying information is acceptable to CLPCCD, requiring Bidder to fulfill the requirements of Article 1.03 of Document 00600 General Conditions.

UU. Notice To Proceed: A written notice given by CLPCCD to Contractor fixing the date on which the Contract Time will commence to run and on which contractor shall start to perform Contractor's obligations under the Contract Documents.

VV. Off Site: The phrase “Off Site” shall mean Outside geographical location of the Project.

WW. Owner: The word “Owner” shall mean Chabot Las Positas Community College District (CLPCCD).

XX. Owner Furnished / Owner Installed: This phrase shall mean items furnished by the Owner at its cost, for installation by the Owner at its cost under this Contract. Also sometimes referred to as “OFOI”

YY. Perform: The word "perform" shall mean that the contractor, at their expense, shall perform all operations including necessary labor, tools, and equipment and further including the furnishing and installation of materials that are indicated, specified, and required to complete such the conditions of the Contract and Contract Documents.

ZZ. Progress Report: The phrase “Progress Report” shall mean a periodic report submitted by Contractor to CLPCCD with progress payment invoices accompanying actual work accomplished to the Project Schedule. See Section 01310 Progress Schedules and Reports, Document 00600 General Conditions.

AAA. Project: The word "project" shall mean the total construction of the Work performed under the Contract Documents.

BBB. Project Manual: The phrase “Project Manual” shall consist of Bidding Requirements, Agreement, Bonds, Certificates, Contract Conditions, and Specifications. The Project Manual is deemed to include and incorporate all matters noted in any Addenda issued by or on behalf of the District during the bidding for the Work.

CCC. Project Stabilization Agreement: This phrase shall mean that the Contractor or Subcontractor (CONTRACTOR) on this project accepts and agrees to be bound by the terms and conditions of the "Chabot-Las Positas Project Stabilization Agreement", together with any and all amendments and supplements now existing or which are later made by executing the Letter of Assent.

DDD. Provide: The word "provide" shall mean that the Contractor, at its expense, shall furnish and install the work, complete in place and ready for use, including furnishing of necessary labor, materials, tools, equipment and transportation.

EEE. Request for Information (RFI): This phrase shall mean a document prepared by Contractor, CLPCCD or Architect/Engineer requesting information from one of the parties regarding the Project or Contract Documents. The RFI system is also a means for CLPCCD and Architect to submit Contract Document clarifications or supplements to Contractor

FFF. RFI Reply: This phrase shall mean a document consisting of supplementary details, instructions or information issued by the Architect/Engineer, which clarifies or supplements Contract Documents and with which Contractor shall comply. RFI-Replies do not constitute changes in Contract Sum or Contract Times except as otherwise agreed in writing by CLPCCD. RFI-Replies will be issued through the RFI administrative system.

GGG. Required: The word "required" shall mean "as required to properly complete the work and as required and acceptable to the Owner's Representative" unless otherwise noted.

HHH. Samples: The words "samples" or "sample" shall mean physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

III. Shop Drawings: The words "shop drawings" shall mean drawings, diagrams, schedules, and other data specifically prepared for the work by the contractor or their sub-contractor, manufacturer, supplier, or distributor to illustrate some portion of the work.

JJJ. Shown: As indicated on the Drawings.

KKK. Site: The words "Site" or "Sites" shall be understood to mean the property or properties described within the Contract Documents and indicated on the Drawings where the work shall commence.
1. The particular geographical location of Work performed pursuant to Contract, including staging areas, work areas, storage and lay down areas, access and parking.

LLL. Specifications: The word "Specifications" shall mean the written portion of the Contract Documents consisting of requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services; and are contained in Divisions 1 through 32.

MMM. Specified: The word "Specified" shall mean as written in the Specifications.

NNN. Subcontractor: The word "Subcontractor" shall mean a person or entity who has a direct contract with Contractor to perform a portion of the Work at the site. The term "subcontractor" is referred to throughout the Contract Documents as if singular in number and neuter in gender and means a subcontractor or an authorized representative of the subcontractor. The term "subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

OOO. Substantial Completion: The words "substantial completion" shall mean the time and date when the work, or designated portion thereof, is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the work, or designated portion thereof, for the use for which it was intended, as evidenced by the Owner's Certificate of Substantial Completion. The Certificate of Substantial Completion shall set forth the date on which Substantial Completion is deemed by the Owners Representative in its sole discretion to have occurred. This shall occur only when the site improvements are 100 percent complete and shall exclude correction of final punch list items(s) and the execution of the Landscape Maintenance Period. The issuance of a Certificate of Substantial Completion shall signify the date on which the accounting of Contract "Working Days" or "Calendar Days" is terminated insofar as they may relate to Liquidated Damages.

PPP. Supplemental Instruction: The phrase “Supplemental Instruction” shall mean a written work change directive to Contractor from Architect/Engineer, approved by Construction Manager, ordering alterations or modifications which do not result in change in Contract Sum or Contract Times, and do not substantially change Drawings or Specifications.

QQQ. Underground Facilities: The phrase “Underground Facilities” shall mean all pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: Electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

RRR. Verified Report: The phrase “Verified Report” shall mean a periodic verified report submitted to DSA. Refer to sections 4-336, 4-337 and 4-343, Part 1, Title 24, California Code of Regulations.

SSS. Work: The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all is required by the Contract Documents. Wherever the word "work" is used, rather than the word "Work", it shall be understood to have its ordinary and customary meaning.

1. Wherever words "as directed", "as required", "as permitted", or words of like effect are used, it shall be understood that direction, requirements, or permission of CLPCCD or Construction Manager is intended. Words "sufficient", "necessary", "proper", and the like shall mean sufficient, necessary or proper in judgment of CLPCCD or Construction Manager. Words "approved", "acceptable", "satisfactory", "favorably reviewed" or words of like import, shall mean approved by, or acceptable to, or satisfactory to, or favorably reviewed by CLPCCD or Construction Manager.
2. Wherever the word "may" is used, the action to which it refers is discretionary. Wherever the word "shall" is used, the action to which it refers is mandatory.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
1. Testing and inspection requirements.
2. Testing Agency qualifications.
3. Quality assurance and control of installation.
4. References.
5. Mock-Up.
6. Inspection and testing laboratory services.
7. Manufacturer's field services.

B. Related Requirements:
1. Submission of manufacturer's instructions
2. Inspections and Testing Required by Laws, Ordinances, Rules, Regulations, Orders, or Approvals of Public Authorities: Conditions of the Contract.
3. Additional requirements for inspections and testing are included in the General Conditions.

1.02 TESTING LABORATORY SERVICES

A. General:
1. Requirements for testing are included in governing codes and described in various Sections of the Specifications.
2. CLPCCD will appoint, employ and pay for services of an independent firm to perform inspection and testing.
3. The independent firm will perform inspections, tests, and other services specified in individual specification sections and as required by the Architect/Engineer. Promptly notify Construction Manager, Architect/Engineer, DSA, Project Inspector, and Contractor of observed irregularities or deficiencies of work or products.
4. Employment by CLPCCD of the Testing Agency shall in no way relieve Contractor's obligations to perform the Work of the Contract.
5. Reports will be submitted by the independent firm, one copy each, to the Construction Manager, Architect, Engineer, Division of the State Architect, Contractor and Project Inspector. Indicate observations and results of tests and indicate compliance or non-compliance with Contract Documents and Title 24, C.C.R. specifically, each report will include the following:
   a. Date issued; date and time of sampling or inspection; date of test.
   b. Project title and number; testing laboratory name, address and telephone number; name and signature of laboratory inspector.
   c. Location of sampling or test; temperature and weather condition.
   d. Type of inspection or test; identification of product and specification section; results of test and compliance with Contract Documents and Title 24, C.C.R.
   e. Perform additional tests as required by Architect/Engineer and/or Project Inspector; interpret test results, when requested by Architect/Engineer.
   f. Special Inspections: as shown on attached Tests & Inspections (T&I) list for each section.

6. Contractor shall cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
   a. Notify Architect/Engineer 72 hours in advance and/or independent firm 24 hours prior to expected time for operations requiring services.
   b. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
   c. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the work of the contract.
7. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Architect/Engineer and/or Project Inspector. Payment for retesting will be paid by the Contractor by deducting inspection or testing charges from the Contract Sum on the next scheduled payment.
8. Tests required by the Specifications and not specified or required by Code to be performed and paid for by the Owner shall be performed by a testing laboratory employed and paid for by the Contractor and meeting the qualification requirements specified in this Section.
9. Where no testing requirements are described, but the Owner decides that testing is required, the Owner may require such testing be performed under current pertinent standards for testing. Payment for such testing will be by the Owner.
10. Inspections, tests, and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with the Contract Documents.

B. Qualification of Testing Agency:
   1. Meet "Recommended Requirements for Independent Laboratory Qualification," published by American Council of Independent Laboratories.
   2. Meet basic requirements of ASTM E329, "Use in the Evaluation of Testing and Inspection Agencies as Used in Construction."
   3. Authorized to operate in the State of California.

C. Limitations of Authority of Testing Agency: Testing Agencies are not authorized to:
   1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Approve or accept any portion of the Work.
   3. Perform any duties of the Contractor.

D. Testing Agency Duties:
   1. Cooperate, together with Contractor, in notifications, information, scheduling, storage, and access as necessary to meet requirements for service without causing delays on Project.
   2. Perform specified inspections, sampling, and testing of materials and methods of construction.
   3. Comply with specified standards.
   4. Ascertain compliance of materials with requirements of Contract Documents.
   5. Notify Owner’s Representative and Contractor when test or inspection reveals undesirable conditions, nonconformance, or failure to meet requirements.
   6. Promptly submit written report of each test and inspection, with copies to Owner’s Representative, Contractor, and governing agencies as required.
      a. Include all samples taken and tests made, regardless of results.
      b. Include reports to show specified requirements, and state whether or not test results comply with requirements.
   7. Perform additional tests as required by the Owner’s Representative.

1.03 CONTRACTOR'S RESPONSIBILITIES

A. It is the Contractor’s responsibility to coordinate the services of all testing and inspection required by the separate Specification Sections whether or not to be performed by the Owner’s or Contractor’s Testing Agency.

B. Contractor shall furnish promptly, without additional charge, all reasonable facilities; labor and materials necessary for safe, thorough, and convenient inspection; and tests that may be required by the Contract Documents.

C. Prepare and submit to Owner's Representative a schedule of tests required of the Testing Agencies at least 15 working days in advance of first test. In addition, Contractor shall give minimum 48 hours' notice to the Testing Agency prior to required tests and inspections.

D. Furnish, prepare, and deliver test samples and specimens as required by the Testing Agency except where such preparation and handling are to be performed by Testing Agency. Contractor shall be solely responsible for delays due to such samples' not being submitted and resubmitted, if necessary, in the time required for tests or inspections before material is incorporated into the Work.

E. Cooperate with Testing Agency personnel in providing access to materials being tested or inspected.

F. Make necessary repairs to in-place work caused by removal of required test samples.

G. Materials furnished and installed on the Project shall be equal to approved test samples in every respect.

H. Samples which are of value after testing will remain the property of the Contractor, but no such samples shall be incorporated in the Work without written approval of the Owner's Representative.

I. Costs associated with testing, inspections, and observations due to the following shall be the responsibility of the Contractor:
   1. Re-testing due to failure of initial samples.
   2. Unacceptable changes in sources, lots, or suppliers of materials after original testing established compliance.
   3. Changes in methods or materials of construction by contractor that require testing, inspection, or other related services in excess of those required by original design.
   4. Failure to properly notify the Owner's Representative at critical stages of construction.
   5. Requesting testing, inspection, and/or observation of work not ready.

1.04 QUALITY ASSURANCE

A. Materials furnished and work performed under the Contract shall be subject to review by the Owner's Representative. The Contractor shall be held strictly to the requirements of the Contract Documents regarding quality of materials, workmanship, and diligent execution of the Contract. Review by the Owner's Representative may include mill, plant, shop, or field review as deemed necessary.

B. Work performed in the absence of any prescribed inspection or observation may be subject to removal and replacement. In such a case, the entire cost of removal and replacement shall be borne by the Contractor, regardless of whether the work removed is found to be defective or not.

1.05 CONFLICTING REQUIREMENTS

A. If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Owner's Representative for a decision before proceeding.

B. 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 Owner's Representative for a decision before proceeding.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.01 QUALITY ASSURANCE AND CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply fully with manufacturers' instructions, including each step in sequence.

C. If manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of specified quality.

F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

3.02 EXAMINATION OF CONDITIONS

A. Prior to installing any portion of the work, the Contractor shall examine the site and verify that site conditions are acceptable to begin work of each section.

B. Verify that work specified elsewhere has been completed to an appropriate stage to begin work of each section.

C. Materials or products requiring installation under the supervision or inspection of a specific materials manufacturer or manufacturer's representative shall be examined and/or tested, and accepted in writing, by such representative(s) prior to installation of work.

D. Notify the Owner's Representative immediately in writing of any irregularities or unacceptable conditions and re-direct work to avoid delay.

E. Start of work by Contractor shall indicate Contractor's acceptance of site conditions.

3.03 TOLERANCES

A. Tolerances not specifically identified shall meet the written standards and/or recognized commercial tolerances established for the specific materials or product. Refer to Section 01 42 00 - References.

3.04 REQUIRED TESTS AND INSPECTIONS

A. "Special Inspections" as required by the CBC.

B. Additional Tests and Inspections: See the various technical Sections of the Specifications.

3.05 FAILURE TO PASS TESTS

A. Failure of any material or article to pass specified tests will be sufficient cause for refusal to consider any further samples of the same brand or make of that material or article.

B. Where an individual material is to be part of an assembly with other materials for incorporation in the Work, failure of the material to pass specified tests or to conform to indicated standards will be sufficient cause for its rejection and removal and replacement, regardless of whether tests or inspections have been made or not in an assembled or in an unassembled condition.

C. When tests indicate non-compliance, the Contractor shall pay all direct and indirect costs of subsequent re-testing until compliance is established.

3.06 MANUFACTURER'S FIELD SERVICES

A. When specified in respective Specification Sections, Contractor shall require supplier or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, testing, adjusting and balancing of equipment as applicable, and to make appropriate recommendations. Contractor is responsible for proper notification of manufacturer's representative before installation of applicable work and for obtaining necessary inspection certificate stating that installation was observed and approved.

B. Product Performance Verification: The supplier of products specified based on performance criteria shall, at the request of the Agency, inspect the installed product and certify conformance of the product to specified criteria under the installed conditions.

C. Manufacturer's representative shall submit written report to the Owner's Representative listing observations and recommendations.

D. Submit qualifications of observer to Construction Manager thirty (30) calendar days in advance of required observations. Observer shall be subject to approval of Construction Manager and Architect/Engineer.

E. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

F. Refer to Section 01 33 00 - Submittals: Manufacturers' Instructions.

3.07 MOCK-UPS

A. Mock-up and sample panels will be performed under various sections and identified as sample panels or mock-ups.

B. Assemble and erect specified items with specified attachments, anchorage, flashing, seals and finishes.

C. Where mock-up has been accepted by Architect/Engineer and is specified in product specification section to be removed, remove mock-up and clear area as directed.

D. Whereas, mock-up submittals will be submitted until the acceptance by Architect/Engineer and Construction Manager.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Temporary facilities and controls needed for the Work during construction including, but not necessarily limited to:
   1. Temporary utilities.
   2. Sanitary facilities.
   3. Enclosures such as coverings, barricades, and fences.
   4. Site security.

B. Related Requirements:
   1. Equipment normally furnished by individual trades in execution of their portions of the Work shall comply with requirements of pertinent safety regulations.
   2. Permanent installation and hookup of utility lines are included under other Sections.

1.02 SELECTED REFERENCE AND REGULATORY REQUIREMENTS

A. National Fire Protection Association (NFPA):
   1. 10 - Portable Fire Extinguishers.
   2. 241 - Safeguarding Building Construction and Demolition Operations.

B. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 GENERAL

A. Furnish, install, and pay for meters, equipment, wiring, and piping necessary to provide such utilities.

B. Additional requirements for construction facilities and temporary controls are included in the General Conditions.

C. Provide written notification to the Owner to request use of new building equipment for temporary facilities. New building equipment shall not be used for temporary facilities without prior written approval from Owner.

D. Contractor shall obtain permits for, install and maintain in safe condition, whatever scaffolds, hoisting equipment, barricades, walkways, or other temporary structures, which may be required to accomplish the work on the Project. Contractor shall enclose and secure Project Site, including lay down area with a temporary chain link fence. Such structures shall be adequate for the intended use and capable of safely accepting all loads that may be imposed upon them. They shall be installed and maintained in accordance with all applicable State and local codes and regulations.

1.04 REQUIREMENTS FOR REGULATORY AGENCIES

A. Comply with applicable standards referenced in Section 01 42 00 - References, Abbreviations, and Definitions.

B. All facilities shall be provided and maintained by the contractor in accordance with Cal-OSHA and applicable laws and ordinances.

C. Contractor shall:
   1. Take suitable steps to ensure that public utilities encountered in connection with the Work will not be damaged.
   2. Send notices, make necessary arrangements, and provide services required for the care of gas mains, water pipes, sewer pipes, conduits, cables, and other equipment or property.
   3. Arrange with utility companies for fees required to move or remove their meters, poles, cables, guy wires, or equipment in or set under the property which will interfere with the construction work or which will not be required in the new construction.

PART 2 - TEMPORARY FACILITIES AND CONTROLS

2.01 MATERIALS

A. General: Materials may be new or used but shall be adequate in capacity for the required usage, shall not create unsafe conditions, and shall not violate requirements of applicable codes and standards.

B. Tools, extension cords, and electrical equipment shall conform to Underwriters' Laboratory standards and OSHA requirements and shall be in proper working order to preclude hazard to occupants and premises.

C. Contractor shall provide and maintain temporary heat from an approved source whenever in the course of the Work it may become necessary for curing and drying of materials or to warm spaces as may be required for the installation of materials or finishes.

2.02 UTILITY SERVICES

A. Contractor shall provide and maintain all utility services necessary to perform the work under this Contract. These may include, but are not limited to, temporary electricity, water, gas, sewer and telephone, including charges and installation fees. Contractor shall furnish and maintain all means of distribution of utility services required within the site to properly complete the Project

B. Power and Lighting: Furnish, install, and maintain temporary wiring, poles, meter board, service entrance switch, lamps, and equipment as necessary to provide temporary lighting and power for the construction site.
   1. Pay all costs for temporary electrical systems required for construction.
   2. Source of power shall be at location on site acceptable to the Owner’s representative. Required temporary transmission lines shall be arranged by contractor in conjunction with the appropriate utility company.

C. Water:
   1. If water at construction site is determined to be non-potable by Inspector, Contractor shall provide and maintain adequate potable water stations at site until final completion of the Project.
   2. Install temporary piping and valves downstream from permanent (new) meter locations as acceptable to the Owner’s representative. No temporary water services shall be installed prior to meter installation without prior Owner review and acceptance.
   3. Temporary water facilities shall be installed with an acceptable reduced pressure backflow prevention unit furnished and installed by the contractor.
   4. Locate temporary sources of water route, and construct pipelines so that they do not create a hazard or interfere with public access, traffic, or construction operations.
   5. Design and construct such pipelines.

D. Utility Costs for Contractors: Distribution of temporary utility services to sub-contractors shall be Contractor's responsibility and cost.

E. Contractor shall provide and maintain temporary heat from an approved source whenever in the course of the Work it may become necessary for curing and drying of materials or to warm spaces as may be required for the installation of materials or finishes.

F. Contractor shall provide and maintain any and all facilities that may be required for dewatering in order that work may proceed on the Project. If it is necessary for dewatering to occur continually, Contractor shall have on hand whatever spare parts or equipment that may be required to prevent interruption of dewatering.

2.03 CONTRACTOR'S FIELD OFFICE

A. The Contractor shall provide and maintain the following minimum facilities and equipment in the field office:
   1. Door top type jobsite desk or equivalent horizontal desk surface for drawings.
   2. Adequate storage facilities.
   3. A laptop or other portable device for internet access and to transmit and receive information to and from the Architect.
   4. Digital camera, with downloading interface, for purposes of communicating field conditions.
   5. Additional facilities and equipment as required by the Architect.
   6. Any communications delivered to this office shall be considered as delivered to Contractor. Location and size of office shall be such that it will adequately serve the needs of Contractor's superintendent and assistants in the performance of their duties.
   7. Trailer and equipment are the property of the Contractor and must be removed from Site upon completion of the Work.
      a. Contractor shall promptly remove all such Temporary Facilities when they are no longer needed for the work or for completion of the Project, mutually agreed upon by Contractor and CLPCCD.

2.04 TEMPORARY TELEPHONE AND INTERNET SERVICE

A. Contractor shall arrange, provide, and pay for the following temporary service at the site.
   1. A cell phone line and phone for the Contractor's Superintendent.
   2. Internet access for laptop or another acceptable internet access device.

2.05 TEMPORARY SANITARY FACILITIES

A. Provide, pay for, install, and maintain, for duration of the Work, necessary enclosed toilet and sanitary facilities for construction personnel.
   1. Sanitary facilities shall be provided, maintained with supplies as required for the number of construction personnel in compliance to local regulations.
   2. Locate such facilities a reasonable distance from all working areas.

B. New or existing restroom facilities, if available, shall not be used by construction personnel except with written permission from the Owner.

2.06 FIRST AID

A. Provide and maintain first aid supplies as required Cal-OSHA and applicable local ordinances.

B. Make arrangements with local emergency center and nearest hospital to receive personnel requiring medical attention, including emergencies. Information for emergency center shall be conspicuously displayed at the construction office when an office is required on the Project.

2.07 STORAGE ENCLOSURES

A. Materials, tools, accessories, etc., shall be stored only where directed by CLPCCD. Storage area shall be kept neat and clean. Security of stored items shall be Contractor's responsibility.

B. Provide sheds and enclosures necessary for storing applicable materials and equipment.

C. Enclosures shall be conveniently located, substantially and neatly constructed, and weather tight.

D. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible.

E. For exterior storage of fabricated products, place on sloped supports, above ground.

F. Provide off-site storage and protection when site does not permit on-site storage or protection.

G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.

H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent contamination by foreign matter.

I. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

J. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

K. Hazardous or Flammable Materials:
   1. Use and store hazardous or flammable chemicals, liquids, or gases brought into the Project site in approved containers, conforming to local, state, and national fire codes.
   2. Use hazardous materials in a manner that will prevent their accidental release into other areas.
   3. Do not discard hazardous materials into the jobsite waste-disposal facilities.
   4. Remove empty containers from the premises immediately and disposed of in a legal manner.

2.08 STAGING AND HOISTS

A. Furnish and maintain hoists, staging, rigging, and runways required in the execution of the Work.

B. Erect, equip, and maintain temporary work in accordance with the statutes, laws, ordinances, rules, or regulations of the state or other authorities and state-approved insurance companies having jurisdiction.

2.09 SAFETY AND PROTECTION

A. General:
   1. Follow construction procedures necessary to provide a safe working condition through all phases of the Project. Procedures shall conform to the Safety Orders, Division of Industrial Safety, Title 8, California Code of Regulations.
   2. The Owner, Owner's Representative, and field inspectors are not hired to review or approve safety procedures followed by the Contractor.

B. Contractor is solely responsible for outlining safety procedures to be followed by its workers, subcontractors, and related trades working on its Project. Provide for safety of the public both day and night where they are exposed to construction operations.

C. Contractor shall also take whatever care is necessary to avoid damage to existing facilities or utilities to remain, whether on the Project or adjacent to it, and shall be liable for any damage thereto or interruption of service as a result of its operations.

D. Provide fences, barricades, railings, warning lights, lights and other protection required by law, Contract Documents, and common sense to ensure public safety.

E. Give adequate warning to the public at all times whenever a dangerous condition exists as the result of construction work. Furnish Owner's Representative with name, address, pager number and local telephone number of the superintendent responsible and at least one other person for the maintenance of barriers, signs, lights, and other accident prevention devices for evenings and weekends.

F. Protection of Work and Facilities:
   1. Protect adjacent property, roads, streets, curbs, planting areas, erosion control materials and other improvements during construction operations. All damaged materials shall be replaced and/or repaired at the expense of the contractor and to the satisfaction of the Owner's Representative.
   2. Protect installed work and provide special protection where applicable.
   3. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
   4. Contractor shall install temporary construction fencing per contract documents and place signage on the fence stating, "Construction Area – Keep Out" and "No Trespassing". Signs shall be located along fence every 75 feet.

G. Vehicular Safety: Motorized and/or self-propelled construction equipment shall be equipped with a hub-cap type reverse signal alarm.

2.10 WATER CONTROL

A. Furnish and maintain pumps or other devices that may be required by Contractor's work under this Contract.

B. The Work shall be kept free of standing water during construction.

2.11 MAINTENANCE OF TRAFFIC, ACCESS, AND PARKING

A. Contractor shall never block or interfere with use of any existing roadway, walkway or other facility for vehicular or pedestrian traffic, from any party entitled to use it. Wherever and whenever such interference becomes necessary for the proper and convenient performance of the Work, and no satisfactory detour route exists, Contractor shall, before beginning the interference, provide a satisfactory detour, including temporary bridge if necessary, or other proper facility for traffic to pass around or over the interference. Contractor shall maintain the detour in a safe and satisfactory condition as long as the interference continues, all without extra payment unless otherwise expressly stipulated in the Specifications.

B. Throughout progress of work, do not interfere with use of or access to adjacent buildings or property.

C. Construct, designate and maintain specific vehicular access as required for the orderly progress of the work.
   1. Engineer construction access roads and parking areas as necessary to provide suitable support during all weather conditions for anticipated loads, including municipal fire apparatus.
   2. Provide adequate surface drainage without interrupting natural flow of existing drainage.

D. Parking:
   1. Provide temporary on-site parking to accommodate construction personnel and Owner's Representative to the greatest extent possible. Coordinate location with the Owner's Construction Coordinator.
   2. Contractor shall make arrangements for offsite parking, if required, with adjacent public parking facilities to accommodate vehicles of construction personnel. Cost of parking is the responsibility of the Contactor and/or its subcontractor.

E. Restore temporary vehicular access and parking areas to original or specified conditions prior to Project Final Acceptance.

F. Move and relocate traffic signs and signals, controls, power and light poles, and similar utility and public service items obstructed by Project barricades and operations.

G. Maintain accessibility from street at all times to fire hydrants within construction area.

H. Construction traffic shall be routed, whenever possible, to avoid noise impacts on the surrounding neighborhood.

I. Construction period for trucks hauling fill and piling materials shall be restricted to nonpeak hours to minimize impact to rush hour traffic and to avoid noise impacts on the surrounding existing residential areas.

J. Vehicles (wheels in particular) shall be cleaned before leaving site so as to minimize impact on City streets.

K. Clean and sweep all streets muddied or littered from construction activity to the satisfaction of the City.

2.12 HAUL ROUTES

A. Comply with any and all local governing ordinances and guidelines.

2.13 FIRE PROTECTION

A. Take precautions to prevent and eliminate fire hazards. The Contractor shall be responsible for providing, maintaining, and enforcing any necessary or required fire prevention safeguards until project final acceptance.

B. Provide fire extinguishers on the premises during the course of construction of the type and sizes recommended by the NFPA 10 and NFPA 241 to control fires resulting from the particular work being performed. Instruct employees in their use. Place extinguishers in the immediate vicinity of the work being performed, ready for use.

C. Fire Inspection: The Contractor's Superintendent shall inspect the entire project as necessary to make certain the required precautions are being maintained.

D. Combustible and/or flammable Building Materials: Only an appropriate working supply of flammable fuel or building materials shall be located inside storage facilities.

E. During the use of hazardous equipment, such as acetylene torches, welding equipment, bitumen kettles, and similar devices, no work shall start or equipment used unless fire extinguishers of specified type and capacity are placed in the working area and available for use by workmen using such hazardous equipment. Extinguishers shall meet standards established by Underwriter's Laboratory and shall be inspected at regular intervals and recharged by the contractor, as necessary.

F. Combustible and/or flammable Waste Materials. Oil-soaked rags, papers, and other highly combustible materials must be stored in closed metal containers with tightly-hinged lids at all times, and shall be removed from the site at the close of each day's work and more often when necessary.

2.14 TOOL AND ELECTRICAL EQUIPMENT

A. Tools, extension cords, and electrical equipment shall conform to Underwriters' Laboratory standards and OSHA requirements and shall be in proper working order.

2.15 TEMPORARY SIGNS AND NOTICES

A. No signs may be displayed on or about CLPCCD's property (except those required by law) without CLPCCD's specific approval; the size, content, and location to be as specified by CLPCCD.

B. Contractor shall post and maintain all signs and notices required by law or ordinance. No advertisements will be permitted on the premises without approval of the Owner.

C. Project Sign:

1. Contractor shall provide a project sign as directed by the Owner.
2. Sign graphics shall include, as a minimum, the following:
    a. Project name.
    b. Owner's name.
    c. Landscape Architect's name and address.
    d. Contractor's name and address.
3. Full-scale artwork for logos, if required, will be provided.
4. Location of sign shall be as directed by the Owner.

2.16 TRASH REMOVAL

A. Store trash or rubbish resulting from construction within the Contract work area.

B. Provide the necessary on-site containers for the collection of recycling materials, waste materials, and debris.

C. Remove waste materials and debris from the site periodically and dispose of at recycling centers or legal disposal sites in accordance with governing construction and demolition debris regulations.

D. Keep the work area clean at all times. Increase frequency of trash removal, when requested by the Owner, to conform to this requirement.

E. Waste material and debris shall not be buried at the site.

F. Burning of trash and debris on the site will not be permitted.

2.17 SECURITY

A. All site security shall be the responsibility of the Contractor at its expense and no additional cost to Owner.

B. Employment of security personnel for non-construction hours shall be left to the discretion of the Contractor, who shall be fully responsible for any theft or damage to any material, equipment or to portion of the work until Project Final Acceptance.

C. Security provisions shall be provided 24 hours a day, 7 days a week, including holidays, until acceptance of the Project by Owner.

D. If security personnel are used, provide Owner's Representative with the name and pager number or 24-hour telephone number of a contact person who shall have primary responsibility for security.

2.18 DUST CONTROL

A. Blowing dust shall be reduced by timing construction activities so that paving begins as soon as possible after completion of grading and by landscaping disturbed soils as soon as possible.

B. All portions of the site shall be watered as many times a day as required to ensure proper dust control seven (7) days a week for the duration of the Project.
   1. Sprinkle unpaved construction areas with water at least twice per day or as necessary to eliminate dust.
   2. Cover stockpiles of soil, sand, and other similar materials.
   3. Cover trucks hauling debris, soil, sand, and other similar materials.

C. The Contractor shall obtain reclaimed water from the City, if available, for compliance with the above requirements.

D. The Contractor shall maintain and operate construction equipment so as to minimize exhaust emissions of PM10 and other pollutants by means of the following:
   1. Prohibition on idling of motors of equipment that is not in use and by waiting trucks.
   2. Implementation of specific maintenance programs to reduce emissions for equipment in frequent use during construction.

PART 3 - EXECUTION

3.01 SYSTEMS

A. Maintain and operate systems to assure continuous service.

B. Modify and extend systems as work progress requires.

3.02 STORM WATER POLLUTION PREVENTION

A. Contractor shall be required to adhere to the project's Storm Water Pollution Prevention Plan (SWPPP) prepared and approved for this Project.

3.03 MAINTENANCE AND REMOVAL

A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the work.

B. Completely remove temporary materials and equipment when their use is no longer required.

C. Clean and repair damage caused by temporary installations or use of temporary facilities.

D. After removal of temporary facilities, restore existing facilities used for temporary services back to an "as was" or better condition subject to the discretion of the Owner's Representative.

E. Full compensation for cleanup shall be included in other items of work. No separate compensation will be allowed for work pertaining to cleanup or disposal of material.

END OF SECTION

SECTION 01 61 00

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Products

B. Transportation and handling.

C. Storage and protection.

1.02 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work

B. Section 01 45 00 – Quality Control: Product Quality Monitoring.

1.03 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.

B. Provide interchangeable components of the same manufacturer, for similar components

1.04 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions and construction schedules. Coordinate to avoid conflict with work and conditions at the site.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.05 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

B. For exterior storage of fabricated products, place on sloped supports, above ground, to prevent soiling and staining.

C. Provide off-site storage and protection when site does not permit on-site storage or protection.

D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions

H. Provide substantial covering and protection after installation of products from damage due to traffic and subsequent construction operations. Remove when no longer needed.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

SECTION 01 70 00

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SUMMARY

A. This section describes contract closeout procedures including:
   1. Removal of temporary construction facilities
   2. Substantial completion
   3. Final completion
   4. Final cleaning
   5. Project record documents
   6. Material, equipment and finish data
   7. Project guarantee
   8. Warranties
   9. Turn-in
   10. Release of claims
   11. Guaranty and Maintenance Bonds

1.02 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES

A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion Inspection.

B. Clean and repair damage caused by installation or use of temporary facilities.

C. Restore permanent facilities used during construction to specified condition.

1.03 SUBSTANTIAL COMPLETION

A. When Contractor considers Work or designated portion thereof as substantially complete, submit written notice, with list of items to be completed or corrected to Construction Manager.

B. Within reasonable time, Construction Manager and Architect/Engineer will inspect to determine status of completion.

C. Should Construction Manager or Architect/Engineer determine that Work is not substantially complete; Construction Manager will promptly notify Contractor in writing, listing all defects and omissions.

D. Remedy deficiencies and send a second written notice of substantial completion. Architect/Engineer will reinspect the Work. If deficiencies previously noted are not corrected on reinspection, then Contractor shall pay the cost of the reinspection.

E. When Architect/Engineer determines that Work is substantially complete, Construction Manager will issue a Certificate of Substantial Completion.

F. Manufactured units, equipment and systems, which require startup, must have been started up and run for periods prescribed by Construction Manager, Architect/Engineer, or Owner before a Certificate of Substantial Completion will be issued.

1.04 FINAL COMPLETION

A. When Contractor considers Work is complete, submit written certification that:
   1. Contractor has inspected Work for compliance with Contract Documents.
   2. Work, except for Contractor maintenance after Final Acceptance, has been completed in accordance with Contract Documents and deficiencies listed with Certificate of Substantial Completion have been corrected.
   3. Work is complete and ready for final inspection.
   4. Contractor has achieved all requirements for Final Acceptance as that term is defined in Section 01 41 00 – Regulatory Requirements.

B. In addition to submittals required by conditions of Contract, provide submittals required by governing authorities and submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.

C. When Architect/Engineer finds Work is acceptable and final submittal is complete, Construction Manager will issue final change order reflecting approved adjustments to Contract Sum not previously made by Change Order.

1.05 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
   1. Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment operated during construction, clean ducts, blowers and coils of units operated without filters during construction.
   2. Employ skilled workers for final cleaning.

C. Clean Site; mechanically sweep-paved areas.

D. Remove waste and surplus materials, rubbish, and construction facilities from Site.

1.06 PROJECT RECORD DOCUMENTS

A. General
   1. Project Record Documents required include:
      a. Marked-up copies of Contract Drawings
      b. Marked-up copies of Shop Drawings
      c. Newly prepared Drawings
      d. Marked-up copies of Specifications, Addenda and Change Orders
      e. Marked-up Project Data submittals
      f. Record Samples
      g. Field records for variable and concealed conditions
      h. Record information on Work that is recorded only schematically
      i. Comments to all required DSA documentation
      j. All approved change orders
   2. Specific Project Record Documents requirements that expand requirements of this Section are included in the individual Sections of Divisions 2 through 33.

3. Maintenance of Documents and Samples:
   a. Store Project Record Documents and samples in the field office apart from Contract Documents used for construction.
   b. Do not permit Project Record Documents to be used for construction purposes.
   c. Maintain Project Record Documents in good order, and in a clean, dry, legible condition.
   d. Make documents and samples available at all times for inspection by Architect/Engineer.
4. CLPCCD will provide one set of sepias and one blueline set of the construction drawings and one-project manuals for the Contractor's use and copying during construction.

B. Project Record Drawings
1. Mark-up Procedure: During the construction period, maintain a set of blueline or blackline prints of Contract Drawings and Shop Drawings for Project Record Document purposes.
2. Mark these Drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to information on concealed elements, which would be difficult to identify or measure and record later. Items required to be marked include, but are not limited to:
   a. Dimensional changes to the building
   b. Drawings Revisions to details shown on the Contract Drawings
   c. Drawings Depths of foundations below the first floor
   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
   k. Details not on original Contract Drawings
3. Mark completely and accurately Project Record Drawing prints of Contract Drawings or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Drawings location.
4. Mark Project Record Drawing sets with red erasable colored pencil; use other colors to distinguish between changes for different categories of the Work at the same location.
5. Mark important additional information, which was either shown schematically or omitted from original Drawings.
6. Note construction change directive numbers; alternate numbers; Change Order numbers and similar identification.
7. Responsibility for Mark-up: Where feasible, the individual or entity who obtained Project Record Drawing data, whether the individual or entity is the installer, subcontractor, or similar entity, is required to prepare the mark-up on Project Record Drawings.
   a. Accurately record information in an understandable and legible drawing technique.
   b. Record data as soon as possible after it has been obtained. In the case of concealed installations, record and check the mark-up prior to concealment.
8. At time of Substantial Completion, submit Project Record Drawings to Construction Manager for CLPCCD's records. Organize into sets, bind and label sets for CLPCCD's continued use.
9. All record documents shall be submitted in an electronic format and hard copy.

C. Preparation of Documents: Immediately prior to inspection for Certification of Substantial Completion, review completed marked-up Project Record Drawings with the Architect/Engineer. When authorized, prepare a full set of correct Contract Drawings and Shop Drawings.
1. Incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each Drawing; include the printed designation "PROJECT RECORD DRAWINGS" in a prominent location on each Drawing.
2. Refer instances of uncertainty to the Architect/Engineer for resolution.

3. Review of Documents: Before copying and distributing, submit corrected drawings and the original marked-up prints to the Architect/Engineer for review. When acceptable, the Architect/Engineer will initial and date each document, indicating acceptance of general scope of changes and additional information recorded, and of the quality of drafting.
    a. Documents and the original marked-up prints will be returned to the Contractor for organizing into sets, printing, binding, and final submittal.

D. Copies and Distribution: After completing the preparation of Project Record Drawings, print three (3) blue-line or black-line prints of each Drawing, whether or not changes and additional information were recorded. Organize the copies into manageable sets. Bind each set with durable paper cover sheets, with appropriate identification, including titles, dates and other information on cover sheets.
    1. Organize and bind original marked-up set of prints that were maintained during the construction period in the same manner.
    2. Organize Project Record Drawings into sets matching the print sets. Place these sets in durable tube-type drawing containers with end caps. Mark the end cap of each container with suitable identification.
    3. Submit the marked-up Project Record Drawings set and three (3) copy sets to the Construction Manager for CLPCCD's records; the Architect/Engineer will retain one copy set.

1.07 PROJECT RECORD SPECIFICATIONS

A. During the construction period, maintain one copy of the Project Specifications, including addenda and modifications issued, for Project Record Document purposes.
    1. Mark the Project Record Specifications to indicate the actual installation where the installation varies substantially from that indicated in Specifications and Modifications issued. Note related Project Record Drawing information, where applicable. Give particular attention to substitutions, selection of product options, and information on concealed installation that would be difficult to identify or measure and record later.
        a. In each Specification Section where products, materials or units of equipment are specified or scheduled, mark the copy with the proprietary name and model number of the product furnished.
        b. Record the name of the manufacturer, supplier and installer, and other information necessary to provide a record of selections made and to document coordination with Project Record Product Data submittals and maintenance manuals.
        c. Note related Project Record Product Data, where applicable, for each principal product specified, indicate whether Project Record Product Data has been submitted in maintenance manual instead of submitted as Project Record Product Data.
    2. Upon completion of mark-up, submit Project Record Specifications to the Construction Manager for CLPCCD's records.

1.08 PROJECT RECORD PRODUCT DATA.

A. During the construction period, maintain one copy of each Project Record Product Data submittal for Project Record Document purposes.
    1. Mark Project Record Product Data to indicate the actual product installation where the installation varies substantially from that indicated in Project Record Product Data submitted. Include significant changes in the product delivered to the site, and changes in manufacturer's instructions and recommendations for installation.
    2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
    3. Note related Change Orders and mark-up of Project Record Drawings, where applicable.
    4. Upon completion of mark-up, submit a complete set of Project Record Product Data to the Construction Manager for CLPCCD's records.

5. Where Project Record Product Data is required as part of maintenance manuals, submit marked-up Project Record Product Data as an insert in the manual, instead of submittal as Project Record Product Data.
6. Each prime Contractor is responsible for mark-up and submittal of record Project Record Product Data for its own Work.

1.09 MATERIAL, EQUIPMENT AND FINISH DATA.

A. Provide data for primary materials, equipment and finishes as required under each specification section.

B. Submit two (2) sets prior to final inspection, bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers; provide typewritten table of contents for each volume.
   1. Arrange by Specification division and give names, addresses, and telephone numbers of subcontractors and suppliers. List:
      a. Trade names
      b. Model or type numbers
      c. Assembly diagrams
      d. Operating instructions
      e. Cleaning instructions
      f. Maintenance instructions
      g. Recommended spare parts
      h. Product data

1.10 FINAL AS-BUILT DRAWINGS, SPECIFICATIONS.

A. As-Built Drawings and Specifications are the official record drawing that documents what was constructed

B. These drawings shall be available to the Architect and shall be provided to the District upon completion of the work.

C. Requirements:
   1. One hard copy set of full size (24x36) or (36x48) As-Built Plans, with DSA App #, and “AS BUILT” stamped on each sheet in red.
   2. One hard copy set of half size As-Built Plans, with DSA App #, and “AS BUILT” stamped on each sheet in red.
   3. One hard copy set of specifications with “AS BUILT” stamped on the cover page in red.
   4. One CD/DVD in PDF and CAD formats (CAD format to be compatible with AutoCAD 2016) with the following naming convention for the CD/DVD cover:
      a. College Name
      b. Project Name
      c. DSA Application #
      d. Do not check the ‘read only’ option
      e. Do not password protect any files

1.11 MISCELLANEOUS PROJECT RECORD SUBMITTALS

A. Refer to other Specification Sections for miscellaneous record keeping requirements and submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the Construction Manager for CLPCCD's records.

B. Categories of requirements resulting in miscellaneous records include, but are not limited to the following:
   1. Field records on excavations and foundations
   2. Field records on underground construction and similar work
   3. Survey showing locations and elevations of underground lines
   4. Invert elevations of drainage piping
   5. Surveys establishing building lines and levels
   6. Authorized measurements utilizing unit prices or allowances
   7. Records of plant treatment
   8. Ambient and substrate condition tests
   9. Certifications received in lieu of labels on bulk products
   10. Batch mixing and bulk delivery records
   11. Testing and qualification of tradespersons
   12. Documented qualification of installation firms
   13. Load and performance testing
   14. Inspections and certifications by governing authorities leakage and water-penetration tests
   15. Fire resistance and flame spread test results
   16. Final inspection and correction procedures

1.12 PROJECT GUARANTEE

A. Neither recordation of final acceptance nor final certificate for neither payment nor provision of the Contract nor partial or entire use or occupancy of the Site by CLPCCD shall constitute acceptance of Work not done in accordance with Contract Documents nor relieve Contractor of liability in respect to express warranties or responsibility for faulty materials or workmanship.

B. Requirements for Contractor's guarantee of completed Work are included in General Conditions, Article 1.09. Contractor shall guarantee Work done under Contract against failures, leaks or breaks or other unsatisfactory conditions due to defective equipment, materials or workmanship, and perform repair work or replacement required, at Contractor's sole expense, for period of 2 years from date of Final Acceptance, as required by paragraph 13.2 of General Conditions.

C. CLPCCD may make repairs to defective Work as set forth in paragraph 12.6 of General Conditions, if, within 5 working days after mailing of written notice of defective work to Contractor or authorized agent, Contractor shall neglect to make or undertake with due diligence repairs; provided, however, that in case of leak or emergency where, in opinion of CLPCCD, delay would cause hazard to health or serious loss or damage, repairs may be made without notice being sent to Contractor, and Contractor shall pay cost thereof.

D. If, after installation, operation or use of materials or equipment to be furnished under Contract proves to be unsatisfactory to Construction Manager, CLPCCD shall have right to operate and use materials or equipment until it can, without damage to CLPCCD, be taken out of service for correction or replacement. Period of use of defective materials or equipment pending correction or replacement shall in no way decrease guarantee period required for acceptable corrected or replaced items of materials or equipment.

E. Nothing in this Section shall be construed to limit, relieve or release Contractor's, subcontractors' and equipment suppliers' liability to CLPCCD for damages sustained as result of latent defects in equipment caused by negligence of suppliers' agents, employees or subcontractors. Stated in another manner, warranty contained in the Contract Documents shall not amount to, nor shall it be deemed to be, waiver by CLPCCD of any rights or remedies (or time limits in which to enforce such rights or remedies) it may have for defective workmanship or defective materials under laws of this State pertaining to acts of negligence.

1.13 WARRANTIES AND BONDS

A. Execute Contractor's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers.
   1. Provide table of contents and assemble in 8-1/2 inches by 11 inches three-ring binder with durable plastic cover.
   2. Assemble in Specification Section order.
   3. Provide an electronic copy of all warranties on thumb drive in PDF format

B. Submit material prior to final application for payment.
   1. For equipment put into use with CLPCCD's permission during construction, submit within ten (10) working days after first operation.
   2. For items of Work delayed materially beyond Date of Substantial Completion, provide updated submittal within ten (10) working days after acceptance, listing date of acceptance as start of warranty period.

C. Warranties are intended to protect CLPCCD against failure of work and against deficient, defective and faulty materials and workmanship, regardless of sources.

D. Limitations: Warranties are not intended to cover failures, which result from the following:
   1. Unusual or abnormal phenomena of the elements
   2. Vandalism after substantial completion
   3. Insurrection or acts of aggression including war

E. Related Damages and Losses: Remove and replace Work which is damaged as result of defective Work, or which must be removed and replaced to provide access for correction of warranted Work.

F. Warranty Reinstatement: After correction of warranted Work, reinstate warranty for corrected Work to date of original warranty expiration or to a date not less than 365 days after corrected Work was done, whichever is later.

G. Replacement Cost: Replace or restore failing warranted items without regard to anticipated useful service lives.

H. Warranty Forms: Submit drafts to Construction Manager for approval prior to execution. Forms shall not detract from or confuse requirements or interpretations of Contract Documents.
   1. Warranty shall be countersigned by manufacturers.
   2. Where specified, warranty shall be countersigned by subcontractors and installers.

I. Rejection of Warranties: CLPCCD reserves right to reject unsolicited and coincidental product warranties, which detract from or confuse requirements or interpretations of Contract Documents.

J. Term of Warranties: For materials, equipment, systems and workmanship warranty period shall be two (2) years minimum from date of substantial completion of entire Work except where:
   1. Detailed specifications for certain materials, equipment or systems require longer warranty periods.
   2. Materials, equipment or systems are put into beneficial use of CLPCCD prior to Substantial Completion as agreed to in writing by Construction Manager.

K. Warranty of Title: No material, supplies, or equipment for Work under Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by seller or supplier. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all work to deliver the Site, together with improvements and appurtenances constructed or placed thereon by Contractor, to CLPCCD free from any claim, liens, security interest, or charges, and further agrees that neither Contractor nor any person, firm, or corporation furnishing any materials or labor for any Work covered by Contract shall have right to lien upon the Site or improvement or appurtenances thereon. Nothing contained in this Paragraph, however, shall defeat or impair right of persons furnishing materials or labor under bond given by Contractor for their protection or any rights under law permitting persons to look to funds due Contractor in hands of CLPCCD.

1.14 TURN-IN

A. Contract will not be closed out and final payment will not be made until all personnel Identification Media, vehicle permits and keys issued to Contractor during prosecution of Work are turned in to CLPCCD.

1.15 RELEASE OF CLAIMS

A. Contract will not be closed out and final payment will not be made until Contract Agreement and Release of Any and All Claims, is completed and executed by Contractor and CLPCCD.

1.16 FIRE INSPECTION COORDINATION

A. Contractor shall coordinate fire inspection and secure sufficient notice to CLPCCD to permit convenient scheduling.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

SECTION 01 71 23

FIELD ENGINEERING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Field engineering services for proper completion of the Work including, but not necessarily limited to:
   1. Establishing and maintaining lines and levels.
   2. Structural design of shoring, forms, and similar items provided by the Contractor as part of its means and methods of construction.
   3. Excavations and elevations, footings and piers required for installation of work items.
   4. Establishing horizontal and vertical control for site construction items.

B. Related Requirements:
   1. Section 01 78 29 - Conformance Survey

1.02 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Informational submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

1.03 INFORMATIONAL SUBMITTALS

A. Name and address of surveyor or professional engineer to the Owner's Representative.

B. Upon request of the Owner's Representative, submit:
   1. Data demonstrating qualifications of persons proposed to be engaged for field engineering services.
   2. Documentation verifying accuracy of field engineering work.
   3. Certification, signed by the Contractor's retained field engineer, certifying that elevations and locations of improvements are in conformance or nonconformance with requirements of the Contract Documents.

1.04 QUALITY ASSURANCE

A. Contractor shall employ a California Registered Civil Engineer or Licensed Land Surveyor, hereafter referred to as Surveyor, to lay out the entire work and set grades, lines, levels, and positions throughout the site.

1.05 SURVEY REFERENCE POINTS

A. Existing horizontal and vertical control points for the Project are those designated on the Owner's original survey. Locate and protect these control points prior to starting site work and preserve permanent reference points during construction.

B. Do not change or relocate reference points or items of the work without specific review and acceptance by the Owner's Representative.

C. Promptly advise the Owner's Representative when a reference point is lost, destroyed, or requires relocation because of other changes in the work. Upon direction of the Owner's Representative, replace reference stakes or markers according to the original or appropriate survey control.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.01 LAYING OUT THE WORK

A. Prior to beginning work, locate or set all general reference points, benchmarks, establish monuments and take action as necessary to prevent their destruction, then layout all lines, elevations, and measurements for entire work.

B. Verify figures and dimensions shown on the Drawings and son surveys furnished by the Owner before starting work. Notify the Owner's Representative immediately of any discrepancies and re-direct work to avoid delay.
   1. Contractor shall accept responsibility for errors resulting from failure to notify Owner's Representative of known discrepancies.
   2. Offsets will be as agreed upon, in writing, by the Contractor and the Owner's Representative.

C. Establish monuments on curbs, manholes or pavements with concrete embedded steel pipe with lead plug and/or brass nail with washer, as acceptable to the Owner's Representative.

D. Verify layout from time to time as work progresses.

3.02 RECORDS

A. Maintain a complete and accurate log of all control and survey Work as it progresses in accordance with the requirements of Section 01 78 39 - Project Record Documents. Show exact locations of the monuments if any are disrupted or destroyed.

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General conditions, including, without limitation, inspector, inspections, tests, integration of work, nonconforming work, and correction of work, and uncovering work.
   2. Special conditions.
   3. Hazardous materials procedures and requirements.
   4. Hazardous materials certification.
   5. Lead-based paint certification.
   6. Imported materials certification.

B. Related Requirements:
   1. Section 02 41 13 – Site Clearing and Demolition
   2. Section 31 23 00 – Excavation and Fill
   3. Section 32 12 16 – Asphalt Paving
   4. Section 32 13 13 – Concrete Paving

1.02 CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the work or to:
   1. Make several parts fit together.
   2. Uncover portions of work to provide for installation of ill-timed work.
   3. Remove and replace defective work.
   4. Remove and replace work not conforming to requirements of Contract Documents.
   5. Remove samples of installed work as specified for testing.
   6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.
   7. Attaching new materials to existing remodeling areas – including painting (or other finishes) to match existing conditions.

B. In addition to Contract requirements, upon written instructions from the Owner's Representative, Contractor shall uncover work to provide for observations of covered work in accordance with the Contract Documents; remove samples of installed materials for testing as directed by Owner's Representative; and remove work to provide for alteration of existing work.

C. Contractor shall not cut or alter work, or any part of it, in such a way that endangers or compromises the integrity of the work, the Project, or work of others.

1.03 SUBMITTALS

A. Submit written request complying with B, below, in advance of cutting or altering any element which may affect:
   1. The structural integrity of the element.
   2. The structural safety of the Project or work of others.
   3. Integrity of weather-exposed or moisture-resistant elements.
   4. Efficiency, maintenance, or safety of element
   5. Visual qualities of sight-exposed elements.

B. Well in advance of executing such cutting or alterations, Contractor shall submit written notice to Owner's Representative pursuant to the applicable notice provisions of the Contract Documents, requesting consent to proceed with the cutting or alteration, including the following:
   1. The work of the Owner's Representative or other trades.
   2. Structural value or integrity of any element of Project.
   3. Integrity or effectiveness of weather-exposed or weather-resistant elements or systems.
   4. Efficiency, operational life, maintenance or safety of operational elements.
   5. Visual qualities of sight-exposed elements.

C. Contractor's request shall also include:
   1. Identification of Project.
   2. Description of affected work.
   3. Necessity for cutting, alteration, or excavations.
   4. Affects of work on Owner's Representative, other trades, or structural or weatherproof integrity of Project.
   5. Description of proposed work:
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades that will execute work.
      c. Products to be proposed to be used.
      d. Extent of refinishing to be done.
   6. Alternates to cutting and patching.
   7. Cost proposal, when applicable.
   8. The scheduled date and time the Contractor intends to perform the work and the duration of time to complete the work.

D. Should conditions of the work, or schedule, indicate a required change of materials or methods for cutting and patching, notify the Architect and secure written permission prior to proceeding.

1.04 QUALITY ASSURANCE

A. Contractor shall ensure that cutting, fitting, and patching shall achieve security, strength, weather protection, appearance for aesthetic match, efficiency, operational life, maintenance, safety of operational elements, and the continuity of existing fire ratings.

B. Contractor shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, colors, and that materials shall match existing construction. Where there is dispute as to whether duplication is successful or has been achieved to a reasonable degree, the Owner's Representative's decision shall be final.

C. Contractor shall employ a skilled and experienced installer to perform cutting and patching.

D. Perform all cutting and patching in accordance with pertinent requirements of the specifications and in the event no such requirements are determined, in conformance with the Architect's written direction. In the absence of either of the previous, the work shall be completed as a minimum to industry standards for the given scope and project.

E. In all cases, exercise extreme care in cutting operations and perform such operations under adequate supervision by competent mechanics skilled in the applicable trade. Openings shall be neatly cut and shall be kept as small as possible to avoid unnecessary damage. Careless and/or avoidable cutting damage, etc., will not be tolerated, and the Contractor will be held responsible for such avoidable or willful damage.

F. All replacing, patching, and repairing of materials and surfaces cut or damaged in the execution of the work shall be performed by experienced mechanics of the several trades involved. Such replacing, repairing, and/or patching shall be done with the applicable materials, in such a manner that all surfaces so replaced, etc., will upon completion of the work, match the surrounding similar surfaces.

1.05 PAYMENT FOR COSTS

A. Cost caused by ill-timed or defective work or work not conforming to Contract Documents, including costs for additional services of the Owner's Representative, its consultants, including but not limited to the Construction Manager, the Project Inspector(s), Engineers, and Agents, will be paid by Contractor and/or deducted from the Contract by the Owner's Representative.

B. Owner's Representative shall only pay for cost of work if it is part of the original Contract Price or if a change has been made to the contract in compliance with the provisions of the General Conditions. Cost of work performed upon instructions from the Owner's Representative, other than defective or nonconforming work, will be paid by Owner's Representative on approval of written Change Order. Contractor shall provide written cost proposals prior to proceeding with cutting and patching.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Contractor shall provide for replacement and restoration of work removed. Contractor shall comply with the Contract Documents and with the Industry Standard(s), for the type of work, and the Specification requirements for each specific product involved. If not specified, Contractor shall first recommend a product of a manufacturer or appropriate trade association for approval by the Owner's Representative.

B. Materials to be cut and patched include those damaged by the performance of the work.

C. Cutting or patching of areas with chemically treated bases to use slurry or non-expansive imported fill (Class 2 aggregate base) to backfill.

PART 3 - EXECUTION

3.01 INSPECTION

A. Contractor shall inspect existing conditions of the site and the work, including elements subject to movement or damage during cutting and patching, excavating and backfilling. After uncovering work, Contractor shall inspect conditions affecting installation of new products.

B. Contractor shall report unsatisfactory or questionable conditions in writing to Owner's Representative as indicated in the General Conditions and shall proceed with work as indicated in the General Conditions by Owner's Representative.

3.02 DISCREPANCIES

A. If uncovered conditions are not as anticipated, immediately notify the Architect through the Construction Manager and secure needed directions.

B. Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.

3.03 PREPARATION

A. Contractor shall provide shoring, bracing and supports as required to maintain structural integrity for all portions of the Project, including all requirements of the Project.

B. Contractor shall provide devices and methods to protect other portions of Project from damage.

C. Contractor shall, provide all necessary protection from weather and extremes of temperature and humidity for the Project, including without limitation, any work that may be exposed by cutting and patching work. Contractor shall keep excavations free from water.

3.04 ERECTION, INSTALLATION AND APPLICATION

A. With respect to performance, Contractor shall:
   1. Execute fitting and adjustment of products to provide finished installation to comply with and match specified tolerances and finishes.
   2. Execute cutting and demolition by methods that will prevent damage to other work, and provide proper surfaces to receive installation of repairs and new work.
   3. Execute cutting, demolition excavating, and backfilling by methods that will prevent damage to other work and damage from settlement.

B. Contractor shall employ original installer or fabricator to perform cutting and patching for:
   1. Weather-exposed surfaces and moisture-resistant elements such as roofing, sheet metal, sealants, waterproofing, and other trades.
   2. Sight-exposed finished surfaces.

C. Contractor shall execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes as shown or specified in the Contract Documents including, without limitation, the Drawings and Specifications.

D. Contractor shall fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Contractor shall conform to all Code requirements for penetrations or the Drawings and Specifications, whichever calls for a higher quality or more thorough requirement. Contractor shall maintain integrity of both rated and non-rated fire walls, ceilings, floors, etc.

E. Contractor shall restore work which has been cut or removed. Contractor shall install new products to provide completed work in accordance with requirements of the Contract Documents and as required to match surrounding areas and surfaces.

F. Contractor shall refinish all continuous surfaces to nearest intersection as necessary to match the existing finish to any new finish.

G. Execute work by methods which will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.

H. Restore Work with new products in accordance with requirements of Contract Document.

I. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

J. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

K. Identify any hazardous substance or condition exposed during the Work to the Architect for decision or remedy.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.01 SUMMARY

A. Scope of work: This section specifies administrative and procedural requirements for project close-out, that may include but are not necessarily limited to:
   1. Inspection and/or observation procedures
   2. Substantial completion
   3. Uncorrectable work
   4. Close-out submittals
   5. Operating and maintenance manual submittal
   6. Material, equipment and finish data
   7. Demonstration
   8. Warranty / Guarantee format
   9. Removal of temporary facilities
   10. Final site cleaning
   11. Final completion
   12. Turn-in

B. Related sections can include, but may not be limited to the following:
   1. All pertinent Sections of the Specifications

1.02 SUBSTANTIAL COMPLETION

A. Refer to the General Provisions as applicable, and section 01 42 00 for procedures required to establish Substantial Completion.
   1. Final, regular Certificate for Payment (progress payment) shall be issued when all pertinent requirements of the achieving Substantial Completion are met. Final retention payment shall be made after project Final Acceptance and conclusion of any specified Landscape Maintenance Periods subject to the discretion of the Owner's representative.

B. When Contractor considers Work or designated portion thereof as substantially complete, submit written notice, with list of items to be completed or corrected to Construction Manager.

C. Inspection Procedures: Upon receipt of a request for inspection or observation, the Owner's representative shall either proceed or advise the Contractor of unfilled requirements.
   1. The Owner's representative shall prepare the Certificate of Substantial Completion following review or advise the contractor of what must be completed or corrected by "punch-list" before the Certificate is issued.
   2. Upon receipt of "punch-list", contractor shall complete all work described in a timely manner subject to the discretion of the Owner's Representative.
   3. Contractor shall remedy deficiencies and send a second written notice of substantial completion.
   4. Architect/Engineer will reinspect the Work. If deficiencies previously noted are not corrected on reinspection, then Contractor shall pay the cost of the reinspection.
   5. The Owner's representative shall repeat inspection and/or observation when requested provided the contractor has made the request within the specified lead time and given written assurance that the "punch-list" work has been completed.

6. Results of the completed inspection and/or observation shall help form the basis of requirements for Final Acceptance and if acceptable, may signal the beginning of the specified Landscape Maintenance Period.

D. Manufactured units, equipment and systems, which require startup, must have been started up and run for periods prescribed by Construction Manager, Architect/Engineer, or Owner before a Certificate of Substantial Completion will be issued.

1.03 UNCORRECTABLE WORK

A. Should the Owner's representative determine whether it is not practical or possible for the contractor to correct work that is damaged or improperly executed, an equitable deduction from the Contract sum may be made at the sole discretion of the Owner's representative.

1.04 CLOSE-OUT SUBMITTALS

A. Submit two (2) copies of the following, where applicable, in accordance with applicable Contract Documents:
   1. Project record documents (as-constructed)
   2. Operation and maintenance manuals
   3. Warranties, guaranties, and bonds
   4. Keys and keying schedule
   5. Spare parts and extra materials
   6. Other items required by the Specifications
   7. Binder of all manufactured items final submittal information that were installed or provided for the project.

B. Specified number of copies of above close-out submittals shall be received and accepted by the Owner's representative before Final Acceptance shall be given.

C. In addition to those items previously mentioned in this section, the contractor shall submit to the Owner's representative the following items before a Notice of Completion will be filed:
   1. Up-to-date sub-contractor list with names, addresses and telephone numbers.

D. Final Adjustment of Account:
   1. Submit a final statement of accounting to the Owner's representative showing all adjustments to the Contract sum.

1.05 OPERATING AND MAINTENANCE MANUALS

A. Submit two (2) copies of proposed manual(s) to the Owner's representative for review and acceptance. All maintenance manuals shall be received and accepted by the Owner's representative before Final Acceptance shall be given.

B. Organize operating and maintenance data into properly indexed heavy duty 2-inch, 3-ring vinyl covered binders. Mark appropriate identification on front and spine of each binder. Manuals can include but are not limited to the following types of information:
   1. Emergency instructions
   2. Spare parts list
   3. Copies of warranties or actual warranty cards
   4. Wiring diagrams
   5. Recommended "turn around" cycles
   6. Inspection procedures
   7. Shop drawings and product data
   8. Fixture lamping schedule

C. Product submittal items (1.04-A-7) can be provided with warranty information binders.

1.06 MATERIAL, EQUIPMENT AND FINISH DATA

A. Provide data for primary materials, equipment and finishes as required under each specification section.

B. Submit two (2) sets prior to final inspection, bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers; provide typewritten table of contents for each volume.

C. Arrange by Specification division and give names, addresses, and telephone numbers of subcontractors and suppliers. List:
   1. Trade names
   2. Model or type numbers
   3. Assembly diagrams
   4. Operating instructions
   5. Cleaning instructions
   6. Maintenance instructions
   7. Recommended spare parts
   8. Product data

1.07 DEMONSTRATION

A. Prior to Final Acceptance, the contractor shall fully instruct Owner’s representative's designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment, and systems installed.
   1. Provide services of factory trained instructors from the manufacturers of each major item of equipment or system, if necessary or requested by the Owner’s representative.

B. Operation and maintenance manual(s) shall be fully described at this instruction meeting.
   1. Review contents of manual(s) with personnel in full detail to explain all aspects of operations and maintenance such as:
      a. Maintenance manuals
      b. Record documents
      c. Spare parts and materials
      d. Tools
      e. Fuels
      f. Identification systems
      g. Control sequences
      h. Hazards
      i. Cleaning
      j. Warranties and bonds
      k. Maintenance agreements and similar continuing commitments.

   2. As part of instruction for operating equipment, demonstrate the following procedures:
      a. Start-up
      b. Shutdown
      c. Emergency operations
      d. Noise and vibration adjustment
      e. Safety procedures
      f. Economy and efficiency adjustments
      g. Effective energy utilization

1.08 WARRANTY/GUARANTY FORMAT

A. Provide written warranties, guaranties (except manufacturers' standard printed warranties and/or guaranties), addressed to the Owner's representative, in the format shown within the General Provisions. Manufacturers' standard printed warranties and/or guaranties shall be submitted as-is.

B. Warranties and guaranties shall be submitted in duplicate, in the format shown within the General Provisions, signed by all pertinent parties and by the contractor in every case, with modifications as accepted by the Owner's representative to suit the conditions pertaining to the warranty or guaranty. Collect and assemble written warranties and guaranties into bound booklet form and deliver bound books to the Owner's representative for review.

1.09 REMOVAL OF TEMPORARY FACILITIES

A. Prior to final inspection, the contractor shall remove tools, materials, sheds, temporary power poles, temporary tree protection, and other articles from the project site. Should the contractor fail to take prompt action, the Owner's representative may, given 30 days written notice, treat them as abandoned property.

1.10 FINAL SITE CLEANING

A. Execute final cleaning prior to final inspection.

B. Broom clean and power wash exterior paved surfaces and adjacent public streets. Utilize appropriate cleaning methods to remove spills, stains, tire tracks, etc. from all paved surfaces. Rake clean other surfaces of the site.

C. Hose down and scrub walls and paving surfaces dirtied or stained as a result of the construction work, as directed by the Owner's representative.

D. Remove from the site construction waste, unused materials, excess earth, and debris resulting from the work.

E. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
   1. Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment operated during construction, clean ducts, blowers and coils of units operated without filters during construction.
   2. Employ skilled workers for final cleaning.

1.11 FINAL COMPLETION

A. When Contractor considers Work is complete, submit written certification that:
   1. Contractor has inspected Work for compliance with Contract Documents.
   2. Work, except for Contractor maintenance after Final Acceptance, has been completed in accordance with Contract Documents and deficiencies listed with Certificate of Substantial Completion have been corrected.
   3. Work is complete and ready for final inspection.
   4. Contractor has achieved all requirements for Final Acceptance as that term is defined in Section 01 41 00 – Regulatory Requirements.

B. In addition to submittals required by conditions of Contract, provide submittals required by governing authorities and submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.

C. When Architect/Engineer finds Work is acceptable and final submittal is complete, Construction Manager will issue final change order reflecting approved adjustments to Contract Sum not previously made by Change Order.

1.12 TURN-IN

A. Contract will not be closed out and final payment will not be made until all personnel Identification Media, vehicle permits and keys issued to Contractor during prosecution of Work are turned in to CLPCCD.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

1.01 SUMMARY

A. Section Includes: Requirements for preparing, maintaining, and submitting the Project Record documents.

B. Specific Project Record Documents requirements that expand requirements of this Section are included in the individual Sections of Divisions 2 through 33.

C. Related Requirements:

1. Section 01 70 00 – Contract Closeout
2. Section 32 80 00 - Irrigation
3. Division 26 – Electrical
4. Division 27 – Communications Cabling Infrastructure Standards
5. Division 33 - Utilities

1.02 DOCUMENT MAINTENANCE

A. District will provide one full size blueline set of the Drawings and one Project Manual for Contractor's use for recording as-built conditions.

B. Maintain one record copy of each of the following at the site for the Owner:
1. Contract Drawings, Specifications, Addenda, Change Orders, RFIs and other modifications marked currently to record changes made during construction.
2. Newly prepared drawings.
3. Marked up copies of Shop Drawings
4. Marked up Project Data Submittals
5. Record samples
6. Reviewed submittals.
7. RFI log.
8. Addenda log.
9. Submittal log.
10. Inspection reports and log.
11. Field records for variable and concealed conditions.
12. Record information on Work that is recorded only schematically
13. Comments to all required DSA documentation
14. Maintenance forms for major equipment

C. Documents shall be kept at the site and maintained in a clean, dry, legible condition.
1. Store Project Record Documents and samples in the field office apart from Contract Documents used for construction.
2. Do not permit Project Record Documents to be used for construction purposes.
3. CLPCCD will provide one set of sepias and one blueline set of the construction drawings and one-project manuals for the Contractor's use and copying during construction.

D. The Contractor shall advise the Owner's Representative of changes and deviations made during construction.

E. Make documents available at all times for review by Owner's Representative.

F. Comply with related requirements of the individual Specification Sections.

G. Maintenance of Record Drawings shall be delegated to one person on Contractor's staff who will be present at all meetings

1.03 RECORDING

A. During the construction period, maintain one set of blueline or blackline prints of Contract Drawings and Shop Drawings for Project Record Documents purposes.

B. Label each document "PROJECT RECORD" in 2-inch high printed letters.

C. Record Documents are to be kept current.

D. A reference by number to a Change Order, CCD, RFI, RFQ, RFP, Field Order or other such document is not acceptable as sufficient record information on any Record Document.

E. Do not permanently conceal any Work until required information has been recorded.

F. Where feasible, the individual or entity who obtained Project Record Drawing data, whether the individual or entity is the installer, Subcontractor, or similar entity, is required to prepare the mark-up on Project Record Drawings.

G. Record data as soon as possible after it has been obtained. In the case of concealed installations, record and check the mark-up prior to concealment.

H. Drawings:
   1. Make day-to-day changes and notations on a specially designated complete “Job Set” of prints or digital files as the work proceeds.
   2. Markings and notations shall be neatly and accurately made, with red, erasable colored pencil; use other colors to distinguish between changes for different categories of the Work at the same location where required for clarity.
   3. Clearly identify deviations by drawing a "cloud" around affected area and make sufficient notations to describe the change.
   4. Convert schematic layouts to portray precise physical layout (including depths) of exposed and concealed work.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
   5. Drawings shall be marked to indicate:
      a. Measured depths of various elements of foundation in relation to survey or other approved datum.
      b. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
      c. Measured locations of utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
      d. Variations in layout of site improvements.
      e. Field changes of dimensions and detail.
      f. Changes made by Change Order or Construction Change Directive.
      g. Significant details not shown on the original Contract Drawings.
      h. Revisions to details shown on Drawings.
      i. Actual numbering of each electrical circuit.
      j. Revisions to routing of piping and conduits.
      k. Revisions to electrical circuitry.
      l. Actual equipment locations.

m. Duct size and routing.
n. Important additional information that was either shown schematically or omitted from original Drawings.
o. Note CCD numbers, alternate numbers, Change Order numbers, and similar identification.

6. Mark completely and accurately Project Record Drawing prints of Contract Drawings or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Drawings location.
7. Contractor shall solely bear any cost of uncovering, recording and re-covering work not recorded on Job Set.
8. Upon completion of the Work and unless otherwise mutually agreed between Owner and Contractor, all changes and notations shall be neatly and accurately transferred by the Contractor to a complete set of Drawings, as originally issued for construction, obtained from the Owner.
   a. Where the Contract Drawings are not of sufficient size and detail, the Contractor shall furnish its own drawings for incorporation of details and dimensions.
   b. Each sheet of record drawing shall be signed and certified by the Contractor as to their correctness and turned over to the Owner's Representative.
9. Record Drawings are specifically required for the following work:
   a. Electrical including exterior lighting and all other related work.
   b. Communication cabling and related work.
   c. Water distribution.
   d. Storm, sanitary, and site drainage.
   e. Irrigation.

I. Specifications:
   1. On a complete and designated copy or digital file of the Project Manual, legibly mark each Specification Section to record:
      a. Manufacturer, trade name, catalog number, color designation (if applicable), and supplier of each product and item of equipment actually installed.
      b. Changes made by Addendum, Change Order, or Construction Change Directive.
      c. Other matters not originally specified.
      d. Where selection of manufacturers is offered, indicate which manufacturer's product was installed.

J. Product Data: Maintain one copy or digital file of each product data submittal. Note related Change Orders and markup of Contract Drawings and Specifications.
   1. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
   2. Give particular attention to concealed products and portions of the Work that cannot be readily reviewed by direct observation.

K. Samples: Immediately prior to Substantial Completion, meet with Owner's Representative and Owner's personnel at the Project site to determine which samples are to be transmitted to the Owner for record purposes. Comply with the Owner's instructions regarding delivery to the Owner's storage area.

L. Miscellaneous Record Submittals: As specified in other Specification Sections.
   1. Immediately prior to Substantial Completion, complete these miscellaneous records and place in good order.
   2. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Digital files are acceptable.
   3. Submit for the Owner's records as directed.

M. Divisions 15 and 16, Standard Specifications require the preparation of large scale, detailed layout drawings of the Work of those Divisions. These layout drawings are not Shop Drawings as defined by General Conditions, but together with Shop Drawings or layout drawings of all other affected Sections are used to check, coordinate, and integrate the work of the various Sections.
   1. Include these layout drawings as part of the Project Record Documents.

1.04 INTERIM REVIEW

A. Project Record Documents are subject to review at time of review of payment request.

B. If Record Documents are not properly maintained, Owner may withhold all or a portion of payment to Contractor.

1.05 SUBSTANTIAL COMPLETION

A. Prior to Substantial Completion of the Work, District will make available to Contractor originals of the Drawings and Specifications, as Microsoft for Windows in document format (.doc) files, and AutoCAD for Windows in drawing format (.dwg) files. Note all changes thereon for the final Project Record Documents and provide one set of mylar reproducibles, one set of revised Specifications and one set of disks or CDs to be submitted to District

B. Immediately prior to inspection for Certification of Substantial Completion, review completed marked-up Project Record Drawings with District. When authorized, prepare a full set of correct transparencies of Contract Drawings and Shop Drawings.
   1. Incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each Drawing; include the printed designation "PROJECT RECORD DRAWING" in a prominent location on each Drawing.
   2. Refer instances of uncertainty to District for resolution.

C. Whether or not changes and additional information were recorded, organize and bind original marked-up set of prints that were maintained during the construction period into manageable sets.
   1. Bind the set with durable paper cover sheets, with appropriate identification, including titles, dates, and other information on cover sheets

D. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the District for District's records. Categories of requirements resulting in miscellaneous records include, but are not limited to, the following:
   1. Field records on excavations and foundations
   2. Field records on underground construction and similar work
   3. Survey showing locations and elevations of underground lines
   4. Invert elevations of drainage piping
   5. Surveys establishing building lines and levels
   6. Authorized measurements utilizing unit prices or allowances
   7. Records of plant treatment
   8. Ambient and substrate condition tests
   9. Certifications received in lieu of labels on bulk products
   10. Batch mixing and bulk delivery records
   11. Testing and qualification of tradespersons
   12. Documented qualification of installation firms
   13. Load and performance testing
   14. Inspections and certifications by governing authorities
   15. Leakage and water-penetration tests

16. Fire resistance and flame spread test results
17. Final inspection and correction procedures
18. Final As-Built Construction Schedule

E. After Substantial Completion and before Final Completion, carefully transfer all data shown on the job set of Record Drawings to the corresponding computer files, coordinating the information as required.

F. Clearly indicate at each affected detail and other drawings a full description of changes made during construction, and the actual location of items as previously specified.

G. "Cloud" all affected areas.

H. Stamp each Record Drawing with the following information:
1. Project Record Document
2. Prepared by: Contractor's name and permanent address
3. Date Prepared
4. Contractor's Signature
5. District Contract Number

I. Submit three full, bound sets and one digital set in AutoCAD 2000 format, the marked-up Project Record Drawings set to District for District's records.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 – EXECUTION

3.01 RECORDING

A. Post changes and modifications to the Contract Documents as they occur. Do not wait until the end of the Project. District may periodically review Project Record Documents to assure compliance with this requirement.

3.02 SUBMITTALS

A. At completion of work under the Contract, deliver Record Documents as directed.

B. Partial submittals are not acceptable, unless specifically acceptable to Owner.

C. Submit documents specified and required prior to claim for final Application and Certificate for Payment.

D. Accompany submittal with transmittal letter, in duplicate, containing:
1. Date.
2. Project Title and Number.
3. Contractor's name and address.
4. Number and Title of each Project Record Document.
5. Certification that each document, as submitted, is complete and accurate.
6. Signature of Contractor or its authorized representative.

END OF SECTION

SECTION 02 41 13

SITE CLEARING AND DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Site clearing and demolition work and related activities as shown on the Drawings and specified herein. The general extent of the site clearing and demolition work includes, but is not necessarily limited to, the following:
   1. Demolition, removal and disposal of designated items.
   2. Incidental demolition of abandoned utility and irrigation lines.
   3. Protection of existing plant material.

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Action Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

1.04 ACTION SUBMITTALS

A. Product Data: Manufacturer's product information on herbicides to be used for approval prior to use.

1.05 INFORMATIONAL SUBMITTALS

A. Schedule: Indicate the proposed timeline for site clearing and demolition work including shut off times and capping of utility services on the project schedule.

1.06 QUALITY ASSURANCE

A. The Owner will obtain and pay for all permits required in connection with this work. Fees for the dumping of debris shall be paid for by the Contractor.

1.07 FIELD CONDITIONS

A. Dust Control:
   1. The Contractor shall prevent the formation of airborne dust on and around the project site with the use of sprinkled water or other means acceptable to the Owner's Representative. Non-compliance with proper dust control measures may be grounds for issuance of a "stop work" order by the Owner until satisfactory measures are implemented.

B. Utility Services:
   1. Issue written notices of planned demolition operations to utility companies and coordinate site clearing and demolition improvements as requested by the utility companies.
   2. Existing power poles and lines serving existing occupied buildings shall remain. Arrange work in order to maintain utilities not designated for removal.
   3. Coordinate work in order to maintain utilities to temporary on-site facilities.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 EXAMINATION

A. Conform to applicable requirements of Section 01 45 00 - Quality Control.

B. Carefully identify limits of demolition and site clearing.

C. Mark project areas in coordination with the Owner's Representative and as necessary to clearly identify the interface of items to be removed and items remain.

3.02 PREPARATION

A. Protection:
   1. Make provisions and take necessary precautions to protect all existing items not designated for removal. An existing item or area damaged during construction operations shall be replaced or repaired to an "as-was" or better condition at no additional cost to the Owner and subject to the acceptance of the Owner's Representative.
   2. Erect barriers, fences, guard rails, enclosures, chutes, and shoring as necessary to protect personnel, structures, and utilities to remain.
   3. Provide warning signs and lighting as necessary for vehicular and personnel protection. Maintain warning signs during construction as required by applicable safety ordinances and as reasonably prudent.
   4. Coordinate arrangements for items to be salvaged and turned over to the Owner.
   5. Notify Underground Service Alert (USA), (800) 640-5137, and local utility companies to verify locations of existing utilities a minimum of 48 hours prior to beginning work.
   6. Provide tree protection fencing prior to commencing demolition and site clearing work.

B. Traffic Access:
   1. Ensure minimum interference with roads, streets, driveways, sidewalk and adjacent facilities.
   2. Do not close or obstruct streets, sidewalk, alleys or passageways without acceptance from the Owner's Representative or governing authorities as applicable.
   3. Provide approved alternate routes around closed or obstructed traffic ways as required by the Owner's Representative.
   4. Maintain access to adjacent existing buildings to ensure uninterrupted operations during demolition work.

3.03 DEMOLITION

A. General: Refer to the Drawings for extent of demolition and site clearing work.

B. Paving: Demolish paving in accordance with local noise ordinance regulations and as acceptable to the Owner's Representative.

C. Filling:
   1. Completely fill below-grade areas and voids resulting from demolition work.
   2. Install appropriate, acceptable fill material consisting of soil, gravel, or sand, free of trash and debris, stones over 6-inch diameter, roots, or other organic matter. Meet fill and compaction requirements specified and recommended by the Owner's Geotechnical Engineer.

D. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both the nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of response from Owner's Representative, rearrange selective demolition and site clearing schedule as necessary to continue overall job progress without delay.

3.04 EXISTING CONDITIONS

A. Utilities and Related Equipment:

1. The locations of existing utilities, as may be shown on the Drawings, are approximate. Should existing utilities not shown on the Drawings be encountered during construction operations, notify the Owner's Representative immediately, and re-direct work to avoid delay. The Owner's Representative will then determine what action, if any, is required.

B. Underground Piping:

1. Existing storm drain and irrigation systems, as may be shown on the Drawings, shall be modified to allow for construction of new items and systems as a part of this project. Caution shall be exercised so as not to damage underground piping not scheduled for removal.
2. Remove underground piping as indicated or necessary and backfill to specified compaction density.
3. Existing piping abandoned but not removed shall be backfilled with slurry fill (grout), and ends shall be capped with concrete.
4. Materials used for pipe terminations and temporary connections shall be the same as the existing lines. Fittings and flanges shall be of weight and class suitable for the service in which used.

3.05 REPLACEMENT

A. Replacement: In the event items not scheduled to be demolished are damaged, promptly replace or repair such items to an as-was or better condition per the discretion of the Owner's Representative at no additional cost to Owner.

3.06 CLEANING

A. Debris and Rubbish:

1. Remove and transport debris and rubbish as it accumulates and dispose in a legal manner via recognized haul routes in accordance with Section 01 50 00 - Temporary Facilities and Controls in a manner that will prevent spillage on streets or adjacent areas.
2. Remove tools, equipment and appliances used for demolition from the site upon completion of the work.
3. Clean entire project area, adjacent streets, and pavements to a broom-clean, "stain-free" condition per the discretion of the Owner's Representative.

END OF SECTION

SECTION 26 05 00

ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 SCOPE

A. Work Included: All labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the work of this Section, complete, as shown on the Drawings and/or specified herein. Work includes, but is not necessarily limited to, the following:
   1. Examine all other Sections for work related to those other Contract Document Sections and required to be included as work under this Section and this Division.
   2. Electrical General Provisions and Requirements for electrical work.
   3. Division-1; General Requirements; General Conditions.

B. Organization of the Specifications into Divisions, Sections and Articles, and arrangement of Drawings shall not control the Contractor in dividing the Contract Work among Sub-Contractors or in establishing the extent of work to be performed by any trade.

1.02 GENERAL SUMMARY OF ELECTRICAL WORK

A. The Specifications and Drawings are intended to cover a complete installation of systems. The omission of expressed reference to any item of labor or material for the proper execution of the work in accordance with present practice of the trade shall not relieve the Contractor from providing such additional labor and materials.
   1. The Contract Document terms “Provide”, “Provided”, “Providing”, are each defined to mean individually and collectively: Contractor shall furnish, and Contractor shall install, and Contractor shall connect.

B. Refer to the Drawings and Shop Drawings of other trades for additional details, which affect the proper installation of this work. Diagrams and symbols showing electrical connections are diagrammatic only. Wiring diagrams do not necessarily show the exact physical arrangement of the equipment.

C. Before submitting a bid, become familiar with all features of the Project Drawings, which may affect the execution of the work. No extra payment will be allowed for failure to obtain this information.

D. If there are omissions or conflicts between the Drawings and Specifications, clarify these points with the Owner’s Representative before submitting bid and before commencing work.

E. Provide work and material in conformance with the Manufacturer’s published recommendations for respective equipment and systems.

1.03 LOCATIONS OF EQUIPMENT

A. The Drawings indicate diagrammatically the desired locations or arrangements of conduit runs, outlets, equipment, etc., and are to be followed as closely as possible. Proper judgment shall be exercised in executing the work to secure the best possible installation in the available space and to overcome local difficulties due to space limitations or interference of structure conditions encountered.

B. In the event changes in the indicated locations or arrangements are necessary, due to developed conditions in the construction or rearrangement of equipment, such changes shall be made without cost to the Contract, providing the change is ordered before the conduit runs, etc., and work directly connected to same is installed and no extra materials are required.

C. Coordinate and cooperate in every way with other trades to avoid interference and assure a satisfactory job.

D. The location of the existing utilities, building, equipment and conduit shown on the Drawings is approximate. Verify exact locations and routing of existing systems during pre-construction.
   1. Pothole all trench routes prior to digging the trench. Pothole at least 100 feet ahead of the actual trenching to allow space to alter the new conduit routing to accommodate existing conditions.
   2. Repair/replace, without additional cost to the Contract, and to the satisfaction of the Owner any existing work damaged that was identified in the Record Drawings provided; Identified by the Owner's Representative; Identified by In-Building Investigation; Identified by the Underground Detection Services performed; or any existing work damaged as a result of failure to comply with all the Referenced Requirements.

E. Underground Detection Services Existing Utility Structures
   1. Detection/location services shall be provided utilizing the latest detection equipment available. Services shall be performed by a company regularly engaged in the business of existing Underground Utility Structure Detection for the past 5-years.
   2. Prior to excavation and prior to directional boring the following work shall be performed:
      a. Contractor to mark excavation, trenching and directional boring locations and indicate width and depth.
      b. Locate, by way of vertical and horizontal control dimensions, existing subgrade petroleum product pipes, process piping, conduits, sewer, water, gas, storm drain, electrical, telephone, and irrigation lines in the affected areas of Contract construction work.
      c. Arrange and meet with the Owner's Representative to review existing underground conditions.
      d. The proposed location and route of each excavation shall be continuously surveyed along the entire excavation path using Ground-Penetrating Radar (GPR) operating from the surface grade. The GPR shall detect and map existing underground metal and non-metal, both private and public utility lines, pipes, conduits, conductors, etc. The GPR shall identify the horizontal and vertical location of existing underground conditions located at a depth of up to 3-meters below finish grade and located with a vertical and horizontal accuracy within $\pm$12-inches of actual condition. The Contractor shall add this information to the existing Conditions Site Plan.
   3. Exercise extreme caution in directional boring, excavating and trenching on this site to avoid existing underground utilities and structures, and to prevent hazard to Personnel and/or damage to existing underground utilities or structures. The Contract Documents, Drawings and Specifications do not include necessary components for construction safety, which is the responsibility of the Contractor.
   4. The Contractor shall contact Common Ground Alliance (CGA) telephone #811 "Know What's Below-Call Before You Dig" and Underground Service Alert (USA), not less than 72-hours prior to excavation. Contractor shall not excavate until verification has been received from CGA and USA that existing underground utilities serving the site have been located, identified, and marked.

F. The locations of existing in-building or underground utilities, where shown on Drawings, are shown diagrammatically and have not been independently verified by the Owner, the Owner's Representative, the Architect/Engineer. The Owner, the Owner's Representative, and the Owner's Architect/Engineer are not responsible for the location of existing utilities or structures, whether or not shown or detailed and installed under this or any other Contracts. The Contractor shall identify each existing utility line prior to cutting on excavation and mark the locations on the building's surfaces and ground surfaces of each existing circuit and utility line.

1.04 PERMITS

Take out and pay for all required permits, inspections, and examinations without additional cost to the Owner.

1.05 QUALITY ASSURANCE

A. Work and Materials shall be in full accordance with the latest Recommendations, Rules and Regulations. The following publications shall be included in the Contract Documents as Contract Requirements. If a conflict occurs between the publications and any other part of the Contract Documents, the Requirements describing the more restrictive provisions shall become the applicable Contract Definition and Requirement:
   1. American National Standards Institute – ANSI.
   2. California Code of Regulations Title 24.
   3. California Part 3 "California Electrical Code" CEC, Title 24 and Title 8 "Division of Industrial Safety".
   4. California Building Code - CBC.
   5. California Fire Code – CFC
   6. Underwriter's Laboratory – UL.
   7. Other applicable State and Local Government Agencies Laws and Regulations.
   8. Electrical Installation Standards National Electrical Contractors Association (NECA) and National Electrical Installation Standards (NEIS).

B. All material and equipment shall be new and shall be delivered to the site in unbroken packages. All material and equipment shall be listed and labeled by Underwriters Laboratories or other recognized Testing Laboratories, where such listings are available. Comply with all Installation Requirements and restrictions pertaining to such listings.

C. Work and material shown on the Drawings and in the Specifications are new and included in the Contract unless specifically indicated as existing or N.I.C. (not in Contract).

D. Keep a copy of all applicable Codes and Standards available at the job site at all times for reference while performing work under this Contract. Nothing in Plans or Specifications shall be construed to permit work not conforming to the most stringent of Building Codes.

E. Where a conflict or variation occurs between applicable Codes, Standards and/or the Contract Documents, the provisions of the most restrictive provision shall become the Requirement of the Contract Documents.

1.06 SUBMITTALS (ADDITIONAL REQUIREMENTS)

A. General
   1. Review of Contractor's submittals is for general conformance with the design concept of the Project and general compliance with the information given in the Contract Documents. Any action shown is subject to the Requirements of the Plans and Specifications. Contractor is responsible for quantities; dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of work with that of all other trades and satisfactory performance of their work.
   2. The Contractor shall review each submittal in detail for compliance with the Requirements of the Contract Documents prior to submittal. The Contractor shall "Stamp" and sign each item of the submittal with a statement "CERTIFYING THE SUBMITTAL HAS BEEN REVIEWED BY THE CONTRACTOR AND COMPLIES WITH ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS". The Contractor shall clearly and specifically identify each individual proposed substitution, substitution of equal or proposed deviation from the Requirements of the Contract Documents with a statement "THIS ITEM IS A SUBSTITUTION".
      The burden of research, preparation of calculations and the furnishing of adequate and complete Shop Drawings information to demonstrate the suitability of Contractor's proposed substitutions and suitability of proposed deviations from the Contract Documents is the responsibility of the Contractor.
   3. Departure from the submittal procedure will result in resubmittals and delays. Failure of the Contractor to comply with the Submittal Requirements shall render void any acceptance or any approval of the proposed variation. The Contractor shall then be required to provide the equipment or method without variation from the Contract Documents and without additional cost to the Contract.

4. The Contractor at no additional cost or delays to the Contract shall remove any work, material and correct any deficiencies resulting from deviations from the Requirements of the Contract Documents not approved in advance by the Owner prior to commencement of work.
5. Shop Drawings submitted by the Contractor, which are not specifically required for submittal by the Contract Documents, or Contractor Shop Drawings previously reviewed and resubmitted without a written resubmittal request to the Contractor, will not be reviewed, considered, or commented on. The respective Shop Drawing submittal/resubmittal will not be returned to the Contractor and will be destroyed without comment or response to the Contractor. The respective submittal shall be considered null and void as being not in compliance with the Requirements of the Contract Documents.
6. Refer to Division-1 for Additional Requirements.

B. Material Lists and Shop Drawings
1. Submit material list and Equipment Manufacturers for review within 35 days of Award of Contract. Give name of Manufacturer and where applicable, brand name, type and/or catalog number of each item. Listing of more than one Manufacturer for any one item of equipment, or listing items "as specified", without both make and model or type designation, is not acceptable. Shop Drawings shall not be submitted before review completion of Manufacturers list. The right is reserved to require submission of samples of any material whether or not particularly mentioned herein.
2. After completion of review of the Material and Equipment Manufacturers list, submit Shop Drawings for review. Shop Drawings shall be submitted in completed bound groups of materials (i.e., all lighting fixtures or all switchgear, etc.). The Contractor shall verify dimensions of equipment and be satisfied as to fit and that they comply with all Code Requirements relating to clear working space about electrical equipment prior to submitting Shop Drawings for review. Submittals, which are intended to be reviewed as substitution or departure from the Contract Documents, must be specifically noted as such. The Requirements of the Contract Documents shall prevail regardless of the acceptance of the submittal.
3. Shop Drawings shall include catalog data sheets, instruction manuals, Dimensioned Plans, elevations, details, wiring diagrams, and descriptive literature of component parts where applicable. Structural calculations and mounting details, signed by a Structural Engineer registered in good standing by the State of California, shall be submitted for all equipment weighing over 400-pounds, and shall be in compliance with Title 21 and Title 24 of the California Code of Regulations (CCR).
4. Each Shop Drawing item shall be identified with the Specification Section, applicable paragraph number(s), lighting fixture/equipment types and Drawing sheet numbers; the specific Shop Drawing is intended to represent.
5. The time required to review and comment on the Contractor's submittals will not be less than 14 calendar days, or more than 21-calendar days after receipt of the submittals at the office of FBA Engineering. The review of Contractor submittals and return to Contractor of submittals with review comments will occur in a timely manner conditioned upon the Contractor complying with all the following:
    a. The submittals contain complete and accurate information, complying with the Requirements of the Contract Documents.
    b. Contractor's submittals are each marked with Contractor's approval "Stamp", and with Contractor signatures.
    c. The submittals are received in accordance with a written, Shop Drawing submittal schedule for each submittal. The Contractor distributes the schedule not less than 35-calendar days in advance of the Shop Drawing Submittals, and the schedule identifies the calendar dates, the Contractor will deliver the various submittals for review.
6. Shop Drawings shall include the Manufacturers' projected days for shipment from the factory of completed equipment, after the Contractor releases the equipment for production. It shall be the responsibility of the Contractor to ensure that all material and equipment is ordered in time to provide an orderly progression of the work. The Contractor shall notify the Owner's Representative of any changes in delivery, which would affect the project completion date.
7. Submittal Identification
    a. Each submittal shall be dated: with submittal transmission date; sequentially numbered and titled with submittal contents identification and applicable Specification/Drawing references *(i.e., Submittal dated: 05/12/26 Submittal #4 Contents: Branch Circuit Panelboards Sheet #E5.1 and Transformers Specification Section 260500 Paragraph 2.11, etc.)*.

b. Each resubmittal shall be dated: with original submittal date and resubmittal transmission dates; sequentially numbered with original submittal number and sequential resubmittal revision number and titled with submittal contents identification and applicable Specifications/Drawing references *(i.e., Original Submittal Date: 05/12/26 Resubmittal Date: 10/09/26 Original Submittal #4 Resubmittal Revision R2 Contents: Transformer Resubmittal Specification Section - 260500 Paragraph 2.11, etc.)*.
c. Contractor shall provide a written response narrative with each resubmittal. Describe each response action, resubmittal addition, change and deletion. Correspond to each response to A/E specific review comment.

C. The Contractor shall be responsible for incidental, direct and indirect costs resulting from the Contractor's substitution of; or changes to; the specified Contract Materials and Work.

D. Maintenance and Operating Manuals
1. The Contractor shall furnish three copies of type-written maintenance and operating manuals for all electrical equipment to the Owner.
2. Maintenance and operating manuals shall be bound in three ring, hard-cover, plastic binders with table of contents. Manuals shall be delivered to the Owner's Representative, with an itemized receipt.

E. Portable or Detachable Parts: The Contractor shall retain in his possession and shall be responsible for all portable and detachable parts or portions of the installation such as fuses, keys, locks, adapters, locking clips, and inserts until final completion of Contract work. These parts shall then be delivered to the Owner's Representative with an itemized receipt.

F. Record Drawings (Additional Requirements)
1. Provide and maintain in good order a complete set of Electrical Contract "Record" prints. Changes to the Contract to be clearly recorded on this set of prints. At the end of the Project, transfer all changes to one set of transparencies to be delivered unfolded to the Owner's Representative.
2. The actual location and elevation of all buried lines, boxes, monuments, vaults, stub-outs and other provisions for future connections shall be referenced to the building lines or other clearly established base lines and to approved benchmarks. If any necessary dimensions are omitted from the Record Drawings, the Contractor shall, at the Contractor's own expense, do all excavation required to expose the buried work and to establish the correct locations.
3. The Contractor shall keep the "Record" prints up to date and current with all work performed.
4. Refer to Division-1 for Additional Requirements.

1.07 CLEANING EQUIPMENT, MATERIALS, PREMISES

All Parts of the Equipment shall be thoroughly cleaned of dirt, rust, cement, plaster, etc., and all cracks and corners scraped out clean. Surfaces to be painted shall be carefully cleaned of grease and oil spots and left smooth, clean and in proper condition to receive paint finish.

1.08 JOB CONDITIONS - PROTECTION

Protect all work, materials, and equipment from damage from any cause whatever and provide adequate and proper storage facilities during the progress of the work. Provide for the safety and good condition of all the work until final acceptance of the work by the Owner and replace all damaged or defective work, materials, and equipment before requesting final acceptance.

1.09 EXCAVATION, CUTTING, BACKFILL AND PATCHING ADDITIONAL REQUIREMENTS

A. General
1. Perform excavation, cutting, backfill, core drilling, directional boring, and patching of the construction work required for the proper installation of the electrical work.
2. Patching shall be of the same material, thickness, workmanship, and finish as existing and accurately match-surrounding work to the satisfaction of the Owner's Representative.

3. Prior to penetrating, coring, drilling, or cutting existing building elements, concrete and/or masonry, provide imaging equipment examinations of each specific location. The imaging process shall identify existing internal embedded components and locations, including structural elements/anchors, conduit, and piping that are present. Do not penetrate or damage the existing internal embedded elements. Imaging shall employ one of the following, with GPR methodology preferred:
   a. Non-invasive imaging employing high frequency, Ground Penetrating Radar (GPR), single side echo reflection technology.
   b. Non-invasive imaging employing x-ray radiography, through-and-through imaging technology.

B. Excavation Temporary Cover
1. Excavations for Contract Work occurring in streets, vehicular drive areas, parking lots, sidewalks; any paved surface; or any area accessible to the public; provide temporary steel plating and shoring support for the plates, to completely cover the excavations under one or more of the following conditions:
   a. Excavation shall not remain "open" for more than 4-calendar days; provide temporary plating.
   b. Excavation shall not be "open" over weekends (Saturday, Sunday) or Holidays; provide temporary plating.
2. The temporary plating shall be a minimum of 0.75-inch thickness steel, but in no case shall the thickness be less than required to support AASHO-H20 traffic loading.
3. Provide a minimum of two 100% open lanes for vehicular traffic at all times during construction, for vehicle access to all areas.

1.10 IDENTIFICATION

A. Equipment Nameplates
1. Panelboards, terminal cabinets, circuit breakers, disconnect switches, starters, relays, time switches, contactors, push-button control stations, and other apparatus used for the operation or control of feeders, circuits, appliances, or equipment shall be properly identified by means of descriptive nameplates or tags permanently attached to the apparatus and wiring.
2. Provide nameplate label on electrical service entrance equipment describing available short circuit information and Arc-Flash information calculated by the Contractor, including:
   a. Calculation date, month-day-year.
   b. Calculate maximum available short circuit fault current and Arc-Flash intensities.
   c. Description of parameters and changes affecting the Requirements for recalculation of the fault current information and Arc-Flash information.
3. Electrical equipment including switchgear, switchboards, electric panels and control panels, motor control centers, combination motor starters, transformers, disconnects, etc., shall each be labeled by the Manufacturer with “Electric-Arc-Flash” warning signs. The signs shall explain a hazard to personnel may exist if the equipment is worked on while energized or operated by personnel while energized. The sign shall instruct personnel to wear the correct Protective Equipment/clothing (PPE) when working “Live” or operating “Live” electrical equipment and circuits.
4. Nameplates shall be engraved laminated phenolic, rated UV-resistant for wet locations and outdoor locations, fade resistant. Shop Drawings with dimensions and format shall be submitted before installation. Attachment to equipment shall be with escutcheon pins, rivets, self-tapping screws or machine screws. Self-adhering or adhesive backed nameplates shall not be used.
5. Provide black-on-white laminated plastic nameplates engraved in minimum ¼-inch high letters to correspond with the designations on the Drawings. Provide other or additional information on nameplates where indicated.

B. Wire and Cable Identification
1. Provide identification on individual wire and cable including signal systems, fire alarm, electrical power systems (each individual phase, neutral and ground), empty conduit pull ropes, and controls circuit.
2. Permanent identification shall be provided at each termination location, splice location, pullbox, junction box and equipment enclosure.
   a. Individual wire and cable larger than #6AWG or 0.25-inch diameter, shall be provided with polypropylene identification tag holders, with yellow polypropylene tags interchangeable

black alphanumeric characters, character height 0.25 inch. Attach identification tags with plastic "tie" wraps, minimum of two for each tag. As manufactured by Almetek Industries- "EZTAG" series; or TECH Products - "EVERLAST" series.

b. Individual wire and cable #6AWG and smaller or smaller than 0.25 inch diameter, shall be provided with water and oil resistant, flexible, self-laminating pressure sensitive machine embossed plastic tags that wrap a minimum of 360 degrees around the wire/cable diameter. The entire tag shall then be covered with a clear flexible waterproof plastic cover wrapped a minimum of 540 degrees around the wire/cable diameter and completely covering the identification. As manufactured by Brady Identification; or 3M; or Panduit.

c. Each identification tag location shall indicate the following information: circuit number, circuit phase, source termination and destination termination equipment name (or outlet number as applicable).

3. Install permanent identification after installation/pulling of wire/cable is complete, to prevent loss or damage to the identification.

C. Cardholders and Cards shall be provided for circuit identification in panelboards. Cardholders shall consist of a metal frame retaining a clear plastic cover permanently attached to the inside of panel door. List of circuits shall be typewritten on card. Circuit description shall include name or number of circuits, area, and connected load.

D. Junction and Pullboxes shall have covers stenciled with box number when shown on the Drawings, or circuit numbers according to panel schedule. Data shall be lettered in a conspicuous manner with a color contrasting to finish.

1.11 POWER AND FIRE ALARM OUTAGES

A. All Electrical Services (line voltage, low voltage/signal and fire alarm) in all occupied facilities of the Contract work are to remain operational during the entire Contract period. Any interruption of the electrical services for the performance of this work shall be at the convenience of the Owner and performed only after consultation with the Owner's Representative. Work involving circuit outages shall be only at such a time and of such a duration as approved in writing. Work involving circuit outages for the work required to connect new equipment and disconnect existing equipment shall be performed at the convenience of the Owner.

B. Contract Work involving outages or disruption of normal function in electrical power systems, telephone/ communication systems, fire alarms, shall be performed during the following time periods. The Contract Work shall be phased to limit outages in the respective systems to the stated periods:

1. 11:30 p.m. Friday to 11:30 p.m. Sunday of the same weekend. Work shall occur on multiple weekend periods if a single weekend is not sufficient time to complete the work.
2. The Contract Work involving outages shall be phased in multiple work time units, to comply with the permitted outage limitations.

C. Provide overtime work; double shift work; nighttime work; Saturday, Sunday, and holiday work to meet outages schedule.

D. Provide temporary electrical power to meet the Requirements of this Article.

E. Any added costs to Contractor due to necessity of complying with this Article shall be included in the Contract Scope of Work.

F. When electrical work involving power disruptions to existing areas is initiated, the work shall proceed on a continuous basis without stopping until electric system power is restored to the affected areas.

G. Request in writing to the Owner's Representative a minimum of 3-weeks in advance, for scheduling proposed electrical systems outage.

END OF SECTION 26 05 00

SECTION 26 05 00

ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 SCOPE

A. Work Included: All labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the work of this Section, complete, as shown on the Drawings and/or specified herein. Work includes, but is not necessarily limited to, the following:
   1. Examine all other Sections for work related to those other Contract Document Sections and required to be included as work under this Section and this Division.
   2. Electrical General Provisions and Requirements for electrical work.
   3. Division-1; General Requirements; General Conditions.

B. Organization of the Specifications into Divisions, Sections and Articles, and arrangement of Drawings shall not control the Contractor in dividing the Contract Work among Sub-Contractors or in establishing the extent of work to be performed by any trade.

1.02 GENERAL SUMMARY OF ELECTRICAL WORK

A. The Specifications and Drawings are intended to cover a complete installation of systems. The omission of expressed reference to any item of labor or material for the proper execution of the work in accordance with present practice of the trade shall not relieve the Contractor from providing such additional labor and materials.
   1. The Contract Document terms “Provide”, “Provided”, “Providing”, are each defined to mean individually and collectively: Contractor shall furnish, and Contractor shall install, and Contractor shall connect.

B. Refer to the Drawings and Shop Drawings of other trades for additional details, which affect the proper installation of this work. Diagrams and symbols showing electrical connections are diagrammatic only. Wiring diagrams do not necessarily show the exact physical arrangement of the equipment.

C. Before submitting a bid, become familiar with all features of the Project Drawings, which may affect the execution of the work. No extra payment will be allowed for failure to obtain this information.

D. If there are omissions or conflicts between the Drawings and Specifications, clarify these points with the Owner’s Representative before submitting bid and before commencing work.

E. Provide work and material in conformance with the Manufacturer’s published recommendations for respective equipment and systems.

1.03 LOCATIONS OF EQUIPMENT

A. The Drawings indicate diagrammatically the desired locations or arrangements of conduit runs, outlets, equipment, etc., and are to be followed as closely as possible. Proper judgment shall be exercised in executing the work to secure the best possible installation in the available space and to overcome local difficulties due to space limitations or interference of structure conditions encountered.

B. In the event changes in the indicated locations or arrangements are necessary, due to developed conditions in the construction or rearrangement of equipment, such changes shall be made without cost to the Contract, providing the change is ordered before the conduit runs, etc., and work directly connected to same is installed and no extra materials are required.

C. Coordinate and cooperate in every way with other trades to avoid interference and assure a satisfactory job.

D. The location of the existing utilities, building, equipment and conduit shown on the Drawings is approximate. Verify exact locations and routing of existing systems during pre-construction.
   1. Pothole all trench routes prior to digging the trench. Pothole at least 100 feet ahead of the actual trenching to allow space to alter the new conduit routing to accommodate existing conditions.
   2. Repair/replace, without additional cost to the Contract, and to the satisfaction of the Owner any existing work damaged that was identified in the Record Drawings provided; Identified by the Owner's Representative; Identified by In-Building Investigation; Identified by the Underground Detection Services performed; or any existing work damaged as a result of failure to comply with all the Referenced Requirements.

E. Underground Detection Services Existing Utility Structures
   1. Detection/location services shall be provided utilizing the latest detection equipment available. Services shall be performed by a company regularly engaged in the business of existing Underground Utility Structure Detection for the past 5-years.
   2. Prior to excavation and prior to directional boring the following work shall be performed:
      a. Contractor to mark excavation, trenching and directional boring locations and indicate width and depth.
      b. Locate, by way of vertical and horizontal control dimensions, existing subgrade petroleum product pipes, process piping, conduits, sewer, water, gas, storm drain, electrical, telephone, and irrigation lines in the affected areas of Contract construction work.
      c. Arrange and meet with the Owner's Representative to review existing underground conditions.
      d. The proposed location and route of each excavation shall be continuously surveyed along the entire excavation path using Ground-Penetrating Radar (GPR) operating from the surface grade. The GPR shall detect and map existing underground metal and non-metal, both private and public utility lines, pipes, conduits, conductors, etc. The GPR shall identify the horizontal and vertical location of existing underground conditions located at a depth of up to 3-meters below finish grade and located with a vertical and horizontal accuracy within $\pm$12-inches of actual condition. The Contractor shall add this information to the existing Conditions Site Plan.
   3. Exercise extreme caution in directional boring, excavating and trenching on this site to avoid existing underground utilities and structures, and to prevent hazard to Personnel and/or damage to existing underground utilities or structures. The Contract Documents, Drawings and Specifications do not include necessary components for construction safety, which is the responsibility of the Contractor.
   4. The Contractor shall contact Common Ground Alliance (CGA) telephone #811 "Know What's Below-Call Before You Dig" and Underground Service Alert (USA), not less than 72-hours prior to excavation. Contractor shall not excavate until verification has been received from CGA and USA that existing underground utilities serving the site have been located, identified, and marked.

F. The locations of existing in-building or underground utilities, where shown on Drawings, are shown diagrammatically and have not been independently verified by the Owner, the Owner's Representative, the Architect/Engineer. The Owner, the Owner's Representative, and the Owner's Architect/Engineer are not responsible for the location of existing utilities or structures, whether or not shown or detailed and installed under this or any other Contracts. The Contractor shall identify each existing utility line prior to cutting on excavation and mark the locations on the building's surfaces and ground surfaces of each existing circuit and utility line.

1.04 PERMITS

Take out and pay for all required permits, inspections, and examinations without additional cost to the Owner.

1.05 QUALITY ASSURANCE

A. Work and Materials shall be in full accordance with the latest Recommendations, Rules and Regulations. The following publications shall be included in the Contract Documents as Contract Requirements. If a conflict occurs between the publications and any other part of the Contract Documents, the Requirements describing the more restrictive provisions shall become the applicable Contract Definition and Requirement:
   1. American National Standards Institute – ANSI.
   2. California Code of Regulations Title 24.
   3. California Part 3 "California Electrical Code" CEC, Title 24 and Title 8 "Division of Industrial Safety".
   4. California Building Code - CBC.
   5. California Fire Code – CFC
   6. Underwriter's Laboratory – UL.
   7. Other applicable State and Local Government Agencies Laws and Regulations.
   8. Electrical Installation Standards National Electrical Contractors Association (NECA) and National Electrical Installation Standards (NEIS).

B. All material and equipment shall be new and shall be delivered to the site in unbroken packages. All material and equipment shall be listed and labeled by Underwriters Laboratories or other recognized Testing Laboratories, where such listings are available. Comply with all Installation Requirements and restrictions pertaining to such listings.

C. Work and material shown on the Drawings and in the Specifications are new and included in the Contract unless specifically indicated as existing or N.I.C. (not in Contract).

D. Keep a copy of all applicable Codes and Standards available at the job site at all times for reference while performing work under this Contract. Nothing in Plans or Specifications shall be construed to permit work not conforming to the most stringent of Building Codes.

E. Where a conflict or variation occurs between applicable Codes, Standards and/or the Contract Documents, the provisions of the most restrictive provision shall become the Requirement of the Contract Documents.

1.06 SUBMITTALS (ADDITIONAL REQUIREMENTS)

A. General
   1. Review of Contractor's submittals is for general conformance with the design concept of the Project and general compliance with the information given in the Contract Documents. Any action shown is subject to the Requirements of the Plans and Specifications. Contractor is responsible for quantities; dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of work with that of all other trades and satisfactory performance of their work.
   2. The Contractor shall review each submittal in detail for compliance with the Requirements of the Contract Documents prior to submittal. The Contractor shall "Stamp" and sign each item of the submittal with a statement "CERTIFYING THE SUBMITTAL HAS BEEN REVIEWED BY THE CONTRACTOR AND COMPLIES WITH ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS". The Contractor shall clearly and specifically identify each individual proposed substitution, substitution of equal or proposed deviation from the Requirements of the Contract Documents with a statement "THIS ITEM IS A SUBSTITUTION".
      The burden of research, preparation of calculations and the furnishing of adequate and complete Shop Drawings information to demonstrate the suitability of Contractor's proposed substitutions and suitability of proposed deviations from the Contract Documents is the responsibility of the Contractor.
   3. Departure from the submittal procedure will result in resubmittals and delays. Failure of the Contractor to comply with the Submittal Requirements shall render void any acceptance or any approval of the proposed variation. The Contractor shall then be required to provide the equipment or method without variation from the Contract Documents and without additional cost to the Contract.

4. The Contractor at no additional cost or delays to the Contract shall remove any work, material and correct any deficiencies resulting from deviations from the Requirements of the Contract Documents not approved in advance by the Owner prior to commencement of work.
5. Shop Drawings submitted by the Contractor, which are not specifically required for submittal by the Contract Documents, or Contractor Shop Drawings previously reviewed and resubmitted without a written resubmittal request to the Contractor, will not be reviewed, considered, or commented on. The respective Shop Drawing submittal/resubmittal will not be returned to the Contractor and will be destroyed without comment or response to the Contractor. The respective submittal shall be considered null and void as being not in compliance with the Requirements of the Contract Documents.
6. Refer to Division-1 for Additional Requirements.

B. Material Lists and Shop Drawings
1. Submit material list and Equipment Manufacturers for review within 35 days of Award of Contract. Give name of Manufacturer and where applicable, brand name, type and/or catalog number of each item. Listing of more than one Manufacturer for any one item of equipment, or listing items "as specified", without both make and model or type designation, is not acceptable. Shop Drawings shall not be submitted before review completion of Manufacturers list. The right is reserved to require submission of samples of any material whether or not particularly mentioned herein.
2. After completion of review of the Material and Equipment Manufacturers list, submit Shop Drawings for review. Shop Drawings shall be submitted in completed bound groups of materials (i.e., all lighting fixtures or all switchgear, etc.). The Contractor shall verify dimensions of equipment and be satisfied as to fit and that they comply with all Code Requirements relating to clear working space about electrical equipment prior to submitting Shop Drawings for review. Submittals, which are intended to be reviewed as substitution or departure from the Contract Documents, must be specifically noted as such. The Requirements of the Contract Documents shall prevail regardless of the acceptance of the submittal.
3. Shop Drawings shall include catalog data sheets, instruction manuals, Dimensioned Plans, elevations, details, wiring diagrams, and descriptive literature of component parts where applicable. Structural calculations and mounting details, signed by a Structural Engineer registered in good standing by the State of California, shall be submitted for all equipment weighing over 400-pounds, and shall be in compliance with Title 21 and Title 24 of the California Code of Regulations (CCR).
4. Each Shop Drawing item shall be identified with the Specification Section, applicable paragraph number(s), lighting fixture/equipment types and Drawing sheet numbers; the specific Shop Drawing is intended to represent.
5. The time required to review and comment on the Contractor's submittals will not be less than 14 calendar days, or more than 21-calendar days after receipt of the submittals at the office of FBA Engineering. The review of Contractor submittals and return to Contractor of submittals with review comments will occur in a timely manner conditioned upon the Contractor complying with all the following:
    a. The submittals contain complete and accurate information, complying with the Requirements of the Contract Documents.
    b. Contractor's submittals are each marked with Contractor's approval "Stamp", and with Contractor signatures.
    c. The submittals are received in accordance with a written, Shop Drawing submittal schedule for each submittal. The Contractor distributes the schedule not less than 35-calendar days in advance of the Shop Drawing Submittals, and the schedule identifies the calendar dates, the Contractor will deliver the various submittals for review.
6. Shop Drawings shall include the Manufacturers' projected days for shipment from the factory of completed equipment, after the Contractor releases the equipment for production. It shall be the responsibility of the Contractor to ensure that all material and equipment is ordered in time to provide an orderly progression of the work. The Contractor shall notify the Owner's Representative of any changes in delivery, which would affect the project completion date.
7. Submittal Identification
    a. Each submittal shall be dated: with submittal transmission date; sequentially numbered and titled with submittal contents identification and applicable Specification/Drawing references *(i.e., Submittal dated: 05/12/26 Submittal #4 Contents: Branch Circuit Panelboards Sheet #E5.1 and Transformers Specification Section 260500 Paragraph 2.11, etc.)*.

b. Each resubmittal shall be dated: with original submittal date and resubmittal transmission dates; sequentially numbered with original submittal number and sequential resubmittal revision number and titled with submittal contents identification and applicable Specifications/Drawing references *(i.e., Original Submittal Date: 05/12/26 Resubmittal Date: 10/09/26 Original Submittal #4 Resubmittal Revision R2 Contents: Transformer Resubmittal Specification Section - 260500 Paragraph 2.11, etc.)*.
c. Contractor shall provide a written response narrative with each resubmittal. Describe each response action, resubmittal addition, change and deletion. Correspond to each response to A/E specific review comment.

C. The Contractor shall be responsible for incidental, direct and indirect costs resulting from the Contractor's substitution of; or changes to; the specified Contract Materials and Work.

D. Maintenance and Operating Manuals
1. The Contractor shall furnish three copies of type-written maintenance and operating manuals for all electrical equipment to the Owner.
2. Maintenance and operating manuals shall be bound in three ring, hard-cover, plastic binders with table of contents. Manuals shall be delivered to the Owner's Representative, with an itemized receipt.

E. Portable or Detachable Parts: The Contractor shall retain in his possession and shall be responsible for all portable and detachable parts or portions of the installation such as fuses, keys, locks, adapters, locking clips, and inserts until final completion of Contract work. These parts shall then be delivered to the Owner's Representative with an itemized receipt.

F. Record Drawings (Additional Requirements)
1. Provide and maintain in good order a complete set of Electrical Contract "Record" prints. Changes to the Contract to be clearly recorded on this set of prints. At the end of the Project, transfer all changes to one set of transparencies to be delivered unfolded to the Owner's Representative.
2. The actual location and elevation of all buried lines, boxes, monuments, vaults, stub-outs and other provisions for future connections shall be referenced to the building lines or other clearly established base lines and to approved benchmarks. If any necessary dimensions are omitted from the Record Drawings, the Contractor shall, at the Contractor's own expense, do all excavation required to expose the buried work and to establish the correct locations.
3. The Contractor shall keep the "Record" prints up to date and current with all work performed.
4. Refer to Division-1 for Additional Requirements.

1.07 CLEANING EQUIPMENT, MATERIALS, PREMISES

All Parts of the Equipment shall be thoroughly cleaned of dirt, rust, cement, plaster, etc., and all cracks and corners scraped out clean. Surfaces to be painted shall be carefully cleaned of grease and oil spots and left smooth, clean and in proper condition to receive paint finish.

1.08 JOB CONDITIONS - PROTECTION

Protect all work, materials, and equipment from damage from any cause whatever and provide adequate and proper storage facilities during the progress of the work. Provide for the safety and good condition of all the work until final acceptance of the work by the Owner and replace all damaged or defective work, materials, and equipment before requesting final acceptance.

1.09 EXCAVATION, CUTTING, BACKFILL AND PATCHING ADDITIONAL REQUIREMENTS

A. General
1. Perform excavation, cutting, backfill, core drilling, directional boring, and patching of the construction work required for the proper installation of the electrical work.
2. Patching shall be of the same material, thickness, workmanship, and finish as existing and accurately match-surrounding work to the satisfaction of the Owner's Representative.

3. Prior to penetrating, coring, drilling, or cutting existing building elements, concrete and/or masonry, provide imaging equipment examinations of each specific location. The imaging process shall identify existing internal embedded components and locations, including structural elements/anchors, conduit, and piping that are present. Do not penetrate or damage the existing internal embedded elements. Imaging shall employ one of the following, with GPR methodology preferred:
   a. Non-invasive imaging employing high frequency, Ground Penetrating Radar (GPR), single side echo reflection technology.
   b. Non-invasive imaging employing x-ray radiography, through-and-through imaging technology.

B. Excavation Temporary Cover
1. Excavations for Contract Work occurring in streets, vehicular drive areas, parking lots, sidewalks; any paved surface; or any area accessible to the public; provide temporary steel plating and shoring support for the plates, to completely cover the excavations under one or more of the following conditions:
   a. Excavation shall not remain "open" for more than 4-calendar days; provide temporary plating.
   b. Excavation shall not be "open" over weekends (Saturday, Sunday) or Holidays; provide temporary plating.
2. The temporary plating shall be a minimum of 0.75-inch thickness steel, but in no case shall the thickness be less than required to support AASHO-H20 traffic loading.
3. Provide a minimum of two 100% open lanes for vehicular traffic at all times during construction, for vehicle access to all areas.

1.10 IDENTIFICATION

A. Equipment Nameplates
1. Panelboards, terminal cabinets, circuit breakers, disconnect switches, starters, relays, time switches, contactors, push-button control stations, and other apparatus used for the operation or control of feeders, circuits, appliances, or equipment shall be properly identified by means of descriptive nameplates or tags permanently attached to the apparatus and wiring.
2. Provide nameplate label on electrical service entrance equipment describing available short circuit information and Arc-Flash information calculated by the Contractor, including:
   a. Calculation date, month-day-year.
   b. Calculate maximum available short circuit fault current and Arc-Flash intensities.
   c. Description of parameters and changes affecting the Requirements for recalculation of the fault current information and Arc-Flash information.
3. Electrical equipment including switchgear, switchboards, electric panels and control panels, motor control centers, combination motor starters, transformers, disconnects, etc., shall each be labeled by the Manufacturer with “Electric-Arc-Flash” warning signs. The signs shall explain a hazard to personnel may exist if the equipment is worked on while energized or operated by personnel while energized. The sign shall instruct personnel to wear the correct Protective Equipment/clothing (PPE) when working “Live” or operating “Live” electrical equipment and circuits.
4. Nameplates shall be engraved laminated phenolic, rated UV-resistant for wet locations and outdoor locations, fade resistant. Shop Drawings with dimensions and format shall be submitted before installation. Attachment to equipment shall be with escutcheon pins, rivets, self-tapping screws or machine screws. Self-adhering or adhesive backed nameplates shall not be used.
5. Provide black-on-white laminated plastic nameplates engraved in minimum ¼-inch high letters to correspond with the designations on the Drawings. Provide other or additional information on nameplates where indicated.

B. Wire and Cable Identification
1. Provide identification on individual wire and cable including signal systems, fire alarm, electrical power systems (each individual phase, neutral and ground), empty conduit pull ropes, and controls circuit.
2. Permanent identification shall be provided at each termination location, splice location, pullbox, junction box and equipment enclosure.
   a. Individual wire and cable larger than #6AWG or 0.25-inch diameter, shall be provided with polypropylene identification tag holders, with yellow polypropylene tags interchangeable

black alphanumeric characters, character height 0.25 inch. Attach identification tags with plastic "tie" wraps, minimum of two for each tag. As manufactured by Almetek Industries- "EZTAG" series; or TECH Products - "EVERLAST" series.

b. Individual wire and cable #6AWG and smaller or smaller than 0.25 inch diameter, shall be provided with water and oil resistant, flexible, self-laminating pressure sensitive machine embossed plastic tags that wrap a minimum of 360 degrees around the wire/cable diameter. The entire tag shall then be covered with a clear flexible waterproof plastic cover wrapped a minimum of 540 degrees around the wire/cable diameter and completely covering the identification. As manufactured by Brady Identification; or 3M; or Panduit.

c. Each identification tag location shall indicate the following information: circuit number, circuit phase, source termination and destination termination equipment name (or outlet number as applicable).

3. Install permanent identification after installation/pulling of wire/cable is complete, to prevent loss or damage to the identification.

C. Cardholders and Cards shall be provided for circuit identification in panelboards. Cardholders shall consist of a metal frame retaining a clear plastic cover permanently attached to the inside of panel door. List of circuits shall be typewritten on card. Circuit description shall include name or number of circuits, area, and connected load.

D. Junction and Pullboxes shall have covers stenciled with box number when shown on the Drawings, or circuit numbers according to panel schedule. Data shall be lettered in a conspicuous manner with a color contrasting to finish.

1.11 POWER AND FIRE ALARM OUTAGES

A. All Electrical Services (line voltage, low voltage/signal and fire alarm) in all occupied facilities of the Contract work are to remain operational during the entire Contract period. Any interruption of the electrical services for the performance of this work shall be at the convenience of the Owner and performed only after consultation with the Owner's Representative. Work involving circuit outages shall be only at such a time and of such a duration as approved in writing. Work involving circuit outages for the work required to connect new equipment and disconnect existing equipment shall be performed at the convenience of the Owner.

B. Contract Work involving outages or disruption of normal function in electrical power systems, telephone/ communication systems, fire alarms, shall be performed during the following time periods. The Contract Work shall be phased to limit outages in the respective systems to the stated periods:

1. 11:30 p.m. Friday to 11:30 p.m. Sunday of the same weekend. Work shall occur on multiple weekend periods if a single weekend is not sufficient time to complete the work.
2. The Contract Work involving outages shall be phased in multiple work time units, to comply with the permitted outage limitations.

C. Provide overtime work; double shift work; nighttime work; Saturday, Sunday, and holiday work to meet outages schedule.

D. Provide temporary electrical power to meet the Requirements of this Article.

E. Any added costs to Contractor due to necessity of complying with this Article shall be included in the Contract Scope of Work.

F. When electrical work involving power disruptions to existing areas is initiated, the work shall proceed on a continuous basis without stopping until electric system power is restored to the affected areas.

G. Request in writing to the Owner's Representative a minimum of 3-weeks in advance, for scheduling proposed electrical systems outage.

END OF SECTION 26 05 00

SECTION 26 05 01

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 SCOPE

A. Work Included: All labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the work of this Section, complete as shown on the Drawings and/or specified herein. Work includes, but is not necessarily limited to the following:
   1. Examine all other Sections for work related to those other Sections and required to be included as work under this Section.
   2. General Provisions and Requirements for electrical work.

1.02 SUBMITTALS (ADDITIONAL REQUIREMENTS)

A. Submit product data sheets for all outlet boxes, floor boxes, wiring devices, device plates, relays, contactors, timeswitches, and disconnect fuses.

B. Submit Material List for Outlet Boxes.

PART 2 - PRODUCTS

2.01 OUTLET AND JUNCTION BOXES

A. General:
   1. Flush or concealed outlet boxes and junction boxes.
      a. Non-masonry and/or non-concrete locations provide pressed steel boxes. Steel thickness not less than 0.062-inch, hot-dip galvanized. Knockout (KO) type with conduit entrances and quantities size to match conduits shown connecting to respective junction box and outlet box.
      b. UL-514 listed and labeled.
      c. Minimum required box depth is exclusive of extension-ring depth.
      d. Provide all boxes with matching cover plates. Cover plates shall be gasketed water-tight in wet and outdoor locations.
      e. Boxes installed in masonry or concrete shall be UL "concrete-tight" approved for installation in concrete and shall allow the placing of conduit without displacing reinforcing bars.
   2. Provide outlet boxes of proper code size for the number of wiring devices, connecting conduits, and conductors/cables or conduits passing through or terminating therein. In no case shall outlet box be less than 4.0-inches square by 2.125-inches deep. Unless specified elsewhere or noted otherwise on the Drawings, 2.5-inches minimum depth for box width exceeding 2-gang.
   3. Increase the minimum outlet box size to 4.69-inches square by not less than 2.125-inches deep, where one or more of the following conditions occur:
      a. More than two conduits connect to the outlet box.
      b. Circuit “Homerun” or Conduit “Homerun” connects to outlet box.
   4. Junction boxes shall be sized to comply with the following:
      a. Code Requirements size based on the conduit quantities, conduit sizes and wire-fill connected to the junction box.
      b. Junction box minimum size shall not be less than 4.69-inches square by 2.5-inches deep, but not less than size indicated on the Drawings or required by Code.
   5. Provide extension rings on flush outlet boxes and flush junction boxes, to finish face of extension ring flush to (within ±0.63-inches) of finished building surfaces. Extension ring shall match outlet box

materials/construction and contain "attachment mounting-tabs" for wiring devices. Extension rings shall be "screw-attached" to respective box and maintain "ground" bonding continuity.

6. Outlet boxes installed in outdoor locations, or in wet locations, or in concrete/masonry, shall be cast-iron or cast-bronze, with threaded conduit hubs. UL rated for wet locations.
   a. Aluminum boxes shall NOT be in contact with concrete or masonry. Die-cast aluminum or cast aluminum water-tight electrical outlet boxes with threaded hubs may be provided as an alternative to cast-iron or cast-bronze outlet boxes, only where one or more of the following conditions occur:
      1) Outdoor locations above finish grade.
      2) Indoor wet locations surface or flush in walls or ceilings.
      3) Not in contact with concrete or masonry.
7. Outlet boxes installed penetrating into fire rated walls, fire rated floors, fire rated ceilings and all fire rated construction. The outlet boxes shall be UL listed, classified and labeled, for fire rated and temperature rated penetration of the respective fire rated surface and fire rated construction. The outlet box fire rating and temperature rating shall equal or exceed the fire/temperature rating of the surface/construction being penetrated. Provide UL listed and labeled supplemental fire and temperature protection to maintain ratings:
   a. Wall and ceiling penetrations, supplemental tumescent fire wrap (external or internal of outlet box).
   b. Floors provide subfloor supplemental fireproofing below floor box.

B. Surface Outlet Boxes
1. Surface mounted outlet boxes, cast iron Type FS or FD, with threaded hubs as required. Box interior dimensions and interior volume capacity not less than required for “press steel boxes”, and “sheet steel boxes”. Provide plugs in all unused openings. Provide weatherproof gaskets for all exterior boxes.

2.02 PULLBOXES

A. General
1. Sizes as indicated on the Drawings and in no case of less size or material thickness than required by the Governing Code and AHJ.
2. Exercise care in locating pullboxes to avoid installation in drain water flow areas and to clear existing condition interferences.
3. UL listed and labeled for electrical circuits.

B. General Purpose Sheet Metal Pullbox
1. General purpose sheet steel pull boxes: Install only in dry protected locations with removable screw attached covers. Manufacturer's standard rust proofing and baked enamel finishes.
2. Weatherproof sheet steel pullboxes: Fabricate of Code gauge steel. All surfaces interior and exterior hot-dip galvanized steel. Gasketed weathertight cover of same material.

C. Concrete Pullboxes and Hand-Holes for Electrical
1. AASHTO H-20 traffic loading rated box and cover, pre-cast concrete, steel reinforced pullboxes and hand-holes. Provide complete with pulling irons, hot-dip galvanized metal traffic cover with hot-dip galvanized metal cover frame, pullbox concrete base with sump. Four-cable full height wall racks with porcelain cable support blocks.
2. Boxes shall be “Intercept” type with multiple box sections. Extension cable-intercepts at both ends of box. Refer to Drawings for box size.
3. Covers shall be flush bolt down. Covers weighing more than 40-pounds shall be split cover type “Torsion-Sping” assist, hinged open-close.
4. Box covers shall comply with Federal ADA, UL, State and Local AHJ for slip resistance. Provide cast-or-bead weld on cover of pullbox to indicate services within pullbox (i.e., "480/277-VOLT, 3-PHASE, 4-WIRE ELECTRICAL" OR “SIGNAL/TEL/P.A./CLOCK/FIRE ALARM" etc.).
5. Shall be set on a machine-compacted pea gravel base 12-inches thick with gravel base extend 6-inches beyond box base on all sides. Provide a 0.75-inch by 10-feet copper clad ground rod through

the box bottom with 9-inch projection into box, for grounding all metal parts and frames with continuous #10AWG copper bond wire.

6. Seal all box joints and seal box between cover and frame with a mastic compound similar to Parmagum or Dukseal. After cables have been pulled, connected, tested and inspected, seal box cover and bolt-close cover.
7. As manufactured by Jensen Precast, or Oldcastle Precast.

2.03 ELECTRIC RECEPTACLE WIRING DEVICES

A. General

1. All receptacle wiring devices in flush type outlet boxes shall be installed with a bonding jumper to connect the box to the receptacle ground terminal. Grounding through the receptacle mounting straps is not acceptable. The bonding jumper shall be sized in accordance with the branch circuit protective device as tabulated herein under "Grounding". Bonding jumper shall be attached at each outlet to the back of the box using drilled and tapped holes and washer head screws 6-32 or larger (except isolated ground receptacles). For receptacles in surface mounted outlet boxes direct metal-to-metal contact between receptacle mounting strap (if it is connected to the grounding contacts) and outlet box may be used. Receptacle mounting-ears for screw attachment to outlet box. Receptacle shall be UL listed and labeled; conform to NEMA-WD1 and WD6.
2. All receptacles shall be a product of the same Manufacturer.
3. Receptacle color as selected by Owner's Representative.
4. Receptacles shall be GFCI type.
5. Shall be grounding type, 120 volt and shall have two current carrying contacts and one grounding contact which are internally connected to the frame. Outlet shall accommodate standard parallel blade caps and shall be side wired. Receptacles shall be tamper-resistant–TR, UL-TR.
6. GFCI receptacles shall be all Weather-Resistant and wet location rated. Duplex rated 120-volt 60Hz AC, 20-amp, unless indicated otherwise on Drawings.
7. Heavy Duty Industrial Grade

Manufacturer	NEMA 5-15R	NEMA 5-20R	NEMA 5-20R-GFCI
Legrand/P&S	#5262	#5362	#2095HG
Leviton	#5262	#5362	#W7899
Hubbell	#CR5252	#5362	#GFR8300
Cooper-Arrow/Hart	#AH5262	#AH5362	#WRVGF20

2.04 SURGE PROTECTION DEVICES - SPD DIRECT CONNECT

A. General

1. The SPD unit shall be modular in construction and operate in parallel with 60Hz AC line voltage, 4-wire or 5-wire, grounded or ungrounded systems, as applicable; voltage, kVA and ampere capacity as indicated on the Drawings. Suitable for direct connection through an external circuit breaker or combination switch/fuse protective device rated 30-amp, continuous duty, rated for Service Entrance equipment connection. Transient electrical surge protection sequences shall include circuit configurations as follows:
   a. Line-to-Line (Phase-to-Phase).
   b. Line-to-Ground (Phase-to-Ground).
   c. Line-to-Neutral, where neutral is present.
   d. Ground-to-Neutral, where neutral is present.
2. The unit shall operate correctly with any combination of resistive, inductive, or capacitate loads. The unit shall automatically shunt to ground the electrical transients and EMI/RFI noise occurring above the specified values. The unit shall automatically reset after transient condition has passed. Operating temperature minus 40° centigrade to plus 85° centigrade.
3. Provide one or more individual self-contained protection module(s) for each line voltage phase, ground and neutral, suitable for direct connect with line-side C/B protection and disconnect. Provide one spare individual plug-in protection module. Provide incoming line, neutral and ground conductor termination lugs rated CU/AL #14 through #4 AWG. Lugs shall be barriered from and prewired to the respective protection modules.

a. Mount directly into the equipment assembly being protected by the device by the Equipment Manufacturer.

4. As manufactured by Total Protection Solutions Model #ST Series; or MCG Electronics; or Advantage Protection Technologies, Inc.

B. Operational Characteristics

1. Surge Protection Device – SPD testing, listing and certification.
   a. UL 1449 (latest edition) and CSA listed and labeling, for safety surge protective devices; UL 1283 for transient voltage electrical noise attenuation, ANSI/IEEE C62.45, C62.1 for C62.41, (latest edition) bi-directional transient clamping voltages for both Normal Mode and Common Modes against Category A and B ring wave and Category B impulse wave.
   b. The unit connected to the service entrance shall also withstand a minimum of 2,000-sequential ANSI/IEEE C62.41 Category C surges without failure following IEEE test procedures in C62.1, C62.41 and C62.45.
2. Transient voltage protection, EMI noise rejection, and RFI noise rejection shall be provided for Common Mode (line-to-neutral and line-to-ground), Normal Mode (line-to-line) and neutral to ground.
3. EMI and RFI noise rejection.
   a. Conducted line noises interference both electromagnetic (EMI) and Radio Frequency (RFI) shall be reduced by the unit over a continuous spectrum of 0.5MHz to 1.0MHz. The basis for reduction shall be a standardized 50-OHM insertion loss MIL -STD-220A test. Provide spectrum analysis test dB attenuation reports showing RFI filtering over specified frequencies. Test data based on calculated or computer simulation is not acceptable.
4. Three phase and grounded "WYE" Performance Requirements.

Characteristics	208/120 Volt	480/277 Volt
Nominal line-to-line	208 Volt	480 Volt
Nominal line-to-neutral	120 Volt	277 Volt
Internal capacitance (Micro-farads)	2.5	2.5
Maximum response time	1-nanosecond	1-nanosecond
EMI/RFI noise rejection	25-35dB	25-35-dB
Nominal peak clamp voltage		
Line-to-neutral and line-to-ground	500 Volts	900 Volts
Minimum transient energy dissipation per phase (at		
8x20 microseconds waveform)	1000 Joules	1500 Joules
Peak transients withstand (at 8x20 microseconds		
waveform) without failure of the unit	50,000 amp	60,000 amp
• Category-A3	60,000 amp	80,000 amp

C. Diagnostic Indicators

1. Shall display the "Normal" and "Fault" status of each line suppression circuit, along with protection circuit "ON" indication.
2. Shall provide a sonic audible fault alarm with silence push-button.

D. Surge Suppressor Protection Categories

1. Surge protectors shall comply with ANSI C62.41 (Latest Revision) Standard Protection Categories for "Impulse" and "Ringwave" transients, based on the installation locations shown in the Contract Documents.
   a. Branch circuit panelboards 400-amp or less main bus rating - Category "A3", high exposure, Type-1, Type-2 and Type-3.
2. The SPD short circuit current withstand rating shall exceed the actual short circuit current available at the SPD installation location

PART 3 EXECUTION

3.01 GROUNDING (ADDITIONAL REQUIREMENTS)

A. Grounding shall be executed in accordance with all applicable Codes and Regulations, both State of California and Local Authorities Having Jurisdiction.

B. Each pullbox or any other enclosure in which several ground wires are terminated shall be equipped with a ground bus secured to the interior of the enclosure. The bus shall have a separate lug for each ground conductor. No more than one conductor shall be installed per lug.

C. The Maximum Resistance to Ground shall not exceed 5 ohms.

3.02 SURGE PROTECTION DEVICE INSTALLATION (SPD)

A. Direct Connect SPD Installation
   1. Factory install SPD unit directly into respective equipment. Install SPD inside respective panelboards.
   2. Connect between surge protection unit and supply equipment with not less than 1.25-inch conduit containing 5#4 AWG, copper conductor, 600-volt THHN /THWN insulation, connection circuit.
   3. Provide a sub-feed overcurrent protective device in the respective panel or switchboard to supply the SPD connection circuit, whether or not shown on the Drawings. The protective sub-feed device shall be a thermal magnetic circuit breaker rated not less than 30-amp 3-pole or a safety switch and fuse unit rated not less than 60-amp 3-pole, voltage and short circuit fault interrupting class to match the respective circuit voltage.
   4. Connect surge protection unit to transformer ground rod, with 1-inch conduit - 1#4 AWG copper conductor 600 volt, THHN/THWN insulation.

END OF SECTION 26 05 01

SECTION 26 05 30

CONDUIT AND WIRE

PART 1 - GENERAL

1.01 SCOPE

A. Work Included: All labor, materials, appliances, tools, equipment, facilities, transportation, and services necessary for and incidental to perform all operations in connection with furnishing, delivery and installation of the work of this Section, complete as shown on the Drawings and/or specified herein. Work includes, but is not necessarily limited to the following:
   1. Examine all other Sections for work related to those other Sections and required to be included as work under this Section.
   2. General Provisions and Requirements for electrical work.

1.02 SUBMITTALS (ADDITIONAL REQUIREMENTS)

A. Submit product data sheets for all wires, supports, conduit, raceways, ground rods, fittings, and splicing materials.

B. Submit material list for all conduit and conduit fittings.

C. Submit Details and Structural Engineer (PE) Calculations for conduit support systems.

PART 2 - PRODUCTS

2.01 CONDUIT

A. General
   1. The interior surfaces of conduits and fittings shall be continuous and smooth, with a constant interior diameter. Conduits and conduit fittings shall provide conductor raceways of fully enclosed circular cross section. The interior surfaces of conduits and fittings shall be without ridges, burrs irregularities or obstructions. Conduits and fittings of the same type shall be of the same uniform weight and thickness.
   2. Type of conduit, type of conduit fittings and conduit support shall be suitable for the conditions of use and the conditions of location of installation, based on the Manufacturer's recommendations and based on applicable Codes.
   3. All fittings for metal conduits shall be suitable for use as a grounding means, pursuant to the applicable Code Requirements. All metal conduit and metal conduit fittings shall provide 3-second duration ground fault current carrying ratings, when installed and connected to the respective conduit, as follows:
      a. RMC and EMT conduit fittings.
         1) 0.5-inch through 1.5-inch conduit/fitting size - 10,000-amp RMS.
         2) 2.0-inches and larger conduit/fitting size - 20,000-amp RMS.
      b. FMC and LTFMC Conduit Fittings
         1) 0.5-inch through 1.25-inch conduit/fitting size - 1,000-amp RMS (without external bonding jumper).
         2) 1.5-inch through 4.0-inch fitting size - 10,000-amp RMS with bonding jumper.
   4. Protective corrosion resistant finish for metal conduit fabricated from steel and metal conduit fittings fabricated from steel, shall be as follows:
      a. Clean all metal surfaces (including metal threads) with acid bath "Pickle" prior to coating, to remove dirt, oil and prepare surfaces for galvanizing.

b. Hot-dip galvanized zinc coating on all interior and exterior steel surfaces. Minimum finish zinc coating thickness shall not be less than 0.002 inches.
c. Threads shall be hot-dip zinc coated after machine fabrication.
d. Exterior metal surfaces shall be finished with a clear organic polymer topcoat layer, after galvanizing.
e. The inner metal surfaces of conduit fittings shall be finished with a lubricating topcoat after galvanizing, to facilitate conductor pulling through the conduit/fitting.

5. Threads for metal conduit and metal conduit fittings shall be taper-pipe-thread, National Pipe Standards (NPS) and shall comply with ANSI-B1.20.1.
6. Metal conduit termination connector fittings shall be provided with a Manufacturer installed, insulating throat bushing inside the fitting. The bushing shall protect the wire conductor insulation from cutting, nicks and abrasion during conductor installation and electrical load "Cycling" after installation is complete. The bushing shall comply with UL 94V-0 flammability.
7. Provide conduit bonding/grounding jumper from metal enclosures with "Concentric Ring" knockouts, to positively ground/bond each respective conduit(s) to the metal enclosure.
8. Metal conduit fittings connecting to PVC coated metal conduit shall be PVC coated to match the conduit.
9. The conduit and fittings shall be watertight and airtight without cracks and pinholes.

B. Rigid Metal Conduit (RMC)
1. Rigid metal, round tubing, machine threaded at both ends.
a. The conduit and conduit fittings shall comply with the Requirements for an equipment grounding conductor, pursuant to applicable Codes.
2. RMC raceway types shall be as follows:
a. Rigid Galvanized Steel conduit (RGS), minimum yield strength shall be 35,000 PSI. Shall comply with NEMA Standard 5-19 (latest revision); ANSI C80.1 and ANSI-C80.4 (latest revision); UL 514-B and UL 6 (latest revisions); National Pipe Standard Specification (latest revision).
b. Intermediate steel conduit (IMC). Shall comply with NEMA Standard 5-19 (latest revision) ANSI-C80.6 (latest revision); UL 2142 (latest revision).
3. RMC fittings:
a. Fittings shall be compatible with RGS and IMC.
b. Fittings shall be rated "Liquid Tight".
c. Fittings imbedded in concrete shall be rated "Liquid Tight" and "concrete tight".
d. Connectors and couplings for terminating, connecting and coupling to RMC conduit shall be threaded metal.
e. Fittings shall comply with ANSI C80.4 and ANSI C33-84 (latest revision); NEMA FB1 (latest revision); UL 514 (latest revision).
f. Conduit seal fittings:
1) Conduit seals shall prevent the passage of gases, liquids and vapors past the location of the seal installation in the conduit.
2) Conduit seals shall be suitable for installation in both vertical and horizontal conduit locations.
3) Conduit seals shall be visible and accessible for inspection after installation is complete.
4) Conduit seals shall be rated for the following locations:
a) Wet locations
b) Classified hazardous location materials NEC Class 1 Division 1.
c) Temperature ranges from minus 20 degrees centigrade to plus 90 degrees centigrade.
5) Conduit seals, sealing compound and sealing compound "dam" shall be the products of the same Manufacturer.
4. RMC fittings as manufactured by:
a. For threaded enclosure, termination connection.
1) Thomas & Betts - 106 Series bonding locknut, 5302 Series sealing ring with stainless steel retainer.

b. For non-threaded enclosure, termination connector.
   1) Thomas & Betts - 370 Series watertight threaded sealing hub, 106 Series threaded bonding lock nut, Sta-Con Series enclosure bonding jumper and 3870 Series threaded ground bushing.
   2) Emerson-OZ/Gedney-CHMT/CHT watertight threaded hub with bonding locknut and GH50G Series enclosure bonding jumper.
c. For RMC-to-RMC conduit-to-conduit coupling
   1) Thomas & Betts/Erickson - 674 (threaded) Series
   2) Emerson-OZ/Gedney Type TPC (threaded) Series
   3) Threaded RMC conduit couplings, product of the same Manufacturer as the RMC conduit.
d. For RMC Conduit Seals
   1) Emerson-OZ/Gedney-EYA and EYAM (threaded) Series
   2) Appleton-EYF and EYM (threaded) Series

C. Electrical Metallic Tubing (EMT)
1. Rigid metal round tubing, "Thin Wall" steel construction, with non-threaded ends.
   a. The conduit and conduit fittings shall comply with the Requirements for an equipment grounding conductor pursuant to applicable Codes.
   b. The conduit shall be watertight and airtight without cracks and pinholes.
2. EMT shall be allowed for conduit size ranges from 0.5-inch through 4.0-inches.
3. Comply with ANSI C80.3, C80.4, and ANSI C33.98 (latest revisions); UL 594 and UL 797 (latest revisions); CEC Section 12500 (latest revision).
4. EMT fittings:
   a. Connectors and couplings for terminating, connecting, and coupling to EMT conduit shall be non-threaded steel fabrication.
   b. EMT termination connector fittings shall be as follows:
      1) Set screw type "Concrete Tight" when installed in dry interior locations.
      2) Compression types "Rain Tight" and "Concrete Tight" when installed in wet or damp locations, outdoors and in concrete or masonry construction.
   c. Fittings shall comply with ANSI C33.84 (latest revision); UL 514 (latest revision); NEMA FB-1.
5. EMT fittings as manufactured by:
   a. For threaded and non-threaded enclosure, termination connector
      1) Thomas & Betts-TC721A (set screw type) Series (with locknuts).
      2) Emerson-OZ/Gedney-TC500I (set screw type) Series (with locknuts).
      3) Thomas & Betts-5123 (compression type) Series (with two locknuts).
      4) Emerson-OZ/Gedney-TC600I (compression type) Series (with locknut).
      5) Thomas & Betts-4240 (compression type) Series (90-degree angle with locknut).
      6) Emerson-OZ/Gedney-TWL (compression type) Series (90-degree angle with locknut).
   b. For EMT-to-EMT conduit-to-conduit coupling:
      1) Thomas & Betts-TK121A (set screw type) Series (with locknut).
      2) Emerson-OZ/Gedney-5000 (set screw type) Series (with locknut).
      3) Thomas & Betts-5120 (compression type) Series.
      4) Emerson-OZ/Gedney-TC600 (compression type) Series.
   c. For EMT to RMC conduit to conduit combination coupling:
      1) Thomas & Betts-HT221 (set screw type) Series.
      2) Emerson-OZ/Gedney-ESR (set screw type) Series.
      3) Thomas & Betts-530 (compression type) Series.
      4) Emerson-OZ/Gedney-ETR (compression type) Series.

D. Liquid Tight Flexible Metal Conduit (LTFMC)
1. The metal conduit core of LTFMC shall comply with the same Requirements as FMC conduit, with the addition of a thermoplastic exterior flexible jacket over the metal core.
2. The exterior jacket shall be positively locked to the metal core to prevent jacket "sleeving".
3. The LTFMC shall be rated for installation and operating service temperatures of between minus 20-degrees centigrade through plus 90-degrees centigrade.

4. The LTFMC jacket shall be suitable for continuous exposure to sunlight, rainwater, water vapor, mineral oils, and liquid solvents, without penetrating into the conduit and without deteriorating the jacket.
5. LTFMC sizes from 0.5-inch through 1.25-inches shall include an additional internal ground conductor, fabricated by the Manufacturer, as an integral part of the conduit core.
6. Direct LTFMC conduit-to-LTFMC conduit coupling of LTFMC shall not be permitted.
7. LTFMC shall be allowed for conduit size ranges from 0.5-inch through 4.0-inches.
8. In addition to the Requirements for FMC conduit, LTFMC shall also comply with ANSI C-33.84 (latest revision); NEMA-FB1 (latest revision); CEC 12-1400 (latest revision).
9. LTFMC fittings
   a. Fittings shall include an external mechanical ground/bond wire connector.
   b. The attachment of the fitting to LTFMC shall be threaded compression type onto the conduit core with locknut and liquid tight jacket compression seal. The fitting shall automatically prevent "Sleeving" of the jacket.
   c. Straight and angled termination connector fittings shall be threaded on one end and shall include locknut suitable for connection to threaded and unthreaded enclosures.
10. LTFMC fittings as manufactured by:
    a. Termination connector fittings:
       Straight
       1) Thomas & Betts - 5331 GR Series.
       2) Appleton-STB Series; STN-L Series for use with preformed "knockouts".
       3) Emerson- OZ/Gedney - 4Q Series.
       45- and 90-Degree Angle Connectors
       1) Thomas & Betts - 5341GR and 5351GR Series.
       2) Appleton-STB-L Series; STN-L Series for use with preformed "knockouts".
       3) Emerson-OZ/Gedney-4Q Series
    b. LTFMC to RMC conduit to conduit combination coupling fittings:
       1) Thomas & Betts-5271 GR Series.
       2) Emerson-OZ/Gedney-4Q Series

E. Rigid Non-Metallic Conduit (RNMC)
   1. General
      a. Fabricated from homogeneous material, free from visible cracks, holes or foreign inclusions, with integral "End-Bell". The conduit and conduit fittings shall be watertight and airtight.
      b. Conduit, conduit fittings and conduit fitting assembly "Solvent Cement" shall all be the product of the same Manufacturer. RNMC Conduit and fittings shall be solvent cement welded watertight.
      c. Conduit and fittings shall be identified with legible markings showing ratings, size and Manufacturers name.
      d. RNMC and fitting shall be corrosion resistant, watertight.
      e. Conduit and fittings shall be suitable for conductor and ambient operating temperatures from minus 20 degrees centigrade to plus 90 degrees centigrade.
      f. RNMC shall comply with NEMA TC-2 (PVC 40 conduit, latest revision) NEMA TC-6 (EB conduit latest revision) and NEMA TC-3 (fittings, latest revision); UL 514 and UL 651 (latest revision).
   2. Polyvinyl Chloride (PVC)-RNMC
      a. PVC-Schedule 40 heavy wall construction.
      b. PVC-Schedule 80 extra heavy wall construction.
      c. PVC-Type EB, with concrete full encasement end-to-end.
   3. RNMC fittings connected to metallic raceways shall be provided with a ground/bond jumper connection.

F. Conduit Bodies Conduit Fitting
   1. Conduit bodies shall provide conductor access with a removable conduit body cover and wiring area enclosed in metal housing. The conduit body shall facilitate pulling conductors.
   2. In-line form "C" conduit bodies shall be prohibited.
   3. The interior space "Length" of 90 degree "Elbow" conduit bodies shall not be less than six times the diameter size of the largest conduit connecting to the conduit body.

4. Conduit body covers shall be removable, gasketed; watertight "Domed" metal covers "Mogul-Type" with threaded screw attachment to the conduit body.
5. Lubricated, reusable, wire roller guards inside the conduit body shall protect wire from insulation damage during wire "Pulling".
6. Conduit body fittings shall comply with UL 514.
7. Conduit bodies as manufactured by:
    a. For RMC Conduit
        1) Hubbell/Killark – LB/Mogul (90-degree elbow) Series – threaded body.
        2) Emerson-OZ/Gedney - LB 6X/Mogul (90-degree elbow) Series - threaded body.
        3) Appleton – NEC6X-LB/Mogul (90-degree elbow) Series - threaded body.
    b. For EMT Conduit
        1) Same as for RMC conduit. Provide EMT to RMC conduit combination coupling fitting for each outlet body connection.

2.02 PVC COATING

A. PVC Coatings shall be provided as described for specified metal products.

B. PVC Coating shall be factory applied, to comply with NEMA-RN1 and 5-19.

C. The adhesion of the PVC coating to the coated metal shall exceed the strength of the coating itself, based on 0.5-inch "Strip-Pull" test.

D. Uniform coating thickness shall be continuous without "Breaks" or "Pinholes" and shall not be less than the following:
    1. Exterior metal surfaces, 40-millimeter coating thickness.
    2. Interior metal surfaces, 10-millimeter PVC or urethane coating thickness (i.e., interior of conduits, interior of conduit fittings etc.).

2.03 CONDUIT SUPPORTS

A. General
    1. Conduit Supports, hangers and fasteners for metal conduit shall be steel, hot dip zinc galvanized.
    2. Conduit supports, hangers and fasteners for PVC coated conduit shall be PVC coated to match the conduit PVC coating.
    3. Threaded hardware shall be continuous, free running threads.
    4. Conduit support systems, including support channels, pipe clamps, braces, anchors, hardware, fasteners, shall be sized to support the full capacity circuit conductors' weight, plus the installed conduit weight, plus the conduit fitting weight and support hardware weight, plus a 300% additional weight capacity safety factor.
    5. Provide lock washer at each "Bolted"/threaded connection.
    6. Conduit supports, fasteners, channels, braces, hardware, anchors, pipe clamps, and hangers as manufactured by Unistrut or Kindorf.
    7. Supports shall be free of "BURRS" and sharp edges.
    8. Metal supports cut in the field shall be zinc galvanized after cutting to prevent rust.

B. Conduit Hangers
    1. Threaded steel hanger rods.
        a. Hanger rods smaller than 0.375-inches in diameter shall not be used for support of individual conduits.
        b. Hanger rods smaller than 0.5-inches in diameter shall not be used for support of multiple conduits.
    2. Conduit hanger wires shall be not less than 12-gauge steel.
    3. Conduit hangers shall attach to structure fasteners with steel "Clevis" or "Swing" hangers and shall provide a minimum of 45 degrees of angular movement in any direction at the point of the conduit hanger attachment to the structure fasteners.

4. Conduits individually suspended by conduit hangers shall fasten to the respective hangers with "Clevis" type pipe hangers. The pipe hangers shall be steel, adjustable to fit conduit size and shall completely enclose the conduit circumference.

C. Conduit Support Channels
1. "C" channels shall be factory preformed with a minimum 12-gauge thickness metal. The channel shall be factory "Punched" with regularly spaced slotted holes for fastener attachments along the length of the channel.
2. The "C" channel shall not deflect more than 0.1-inch between channel supports at maximum installed design load, including required safety factor.
3. Channels shall comply with ANSI-1008 (latest revision) and ASTM-A569 latest revision).
4. Channels shall provide "Turned Lips" at longitudinal edges to hold (lock-in) fasteners.
5. Conduit support channels suspended from conduit hangers shall attach to conduit hangers with treaded connections. Provide a minimum of two hangers (trapeze style) connected to each channel.
6. Non-suspended conduit support channels shall connect to structure fasteners with threaded connectors.

D. Fasteners, Seismic Earthquake Rated
1. Channel fasteners:
a. Channel fasteners shall "Pre-Locate" and lock into the channel "Turned Lips" and channel "Walls".
b. A separate metal strap shall "Tie" each conduit to each channel with conduit channel fasteners.
2. Structure fasteners:
a. Structure fasteners for wall and floor mounted conduit attachments shall attach to existing masonry and concrete structures with structure fasteners using drilled, mechanical, expansion shield anchors.
b. Structure fasteners for wall and floor mounted conduit attachments shall attach to new masonry and concrete structures with structure fasteners using steel-threaded inserts precast into the structures.
c. Structure fasteners shall center the support load above or below the beam flanges and reduce torsion-rotation forces exerted on the structural beam. Attach to steel structural members with "Swing-Beam Clamps", with set-locking screw structure fasteners.
1) Beam clamps shall include an integral safety rod, strap or "J"-hook to secure the attachment clamp to the beam flanges on both sides of the beam, with integral hanger rod attachment.
2) Or double-ended beam clamp to secure the attachment clamp to the beam flanges on both sides of the beam, with integral hanger rod attachment.
d. Structure fasteners for wall and floor mounted conduit attachments shall attach to wood structural members with flush "Through-Bolted" wood beam/wood framing stud structure fasteners.
e. Structure fasteners for wall mounted conduit attachments shall attach to steel framing studs and steel structural elements with spot welded steel structure fasteners or drilled and bolted structure fasteners.

2.04 ELECTRICAL POWER WIRE AND CABLE (600 VOLT AND BELOW)

A. General
1. All wire and cable shall be single-conductor, annealed copper, insulated 600-volt, #12AWG minimum unless specifically noted otherwise on the Drawings.
2. Conductors #10AWG and smaller shall be solid. Conductors #8AWG and larger shall be stranded.
3. Insulation of conductor connected to circuit protection devices required to be "100%" rated, shall be 90-degree centigrade rated insulation.
4. Insulation of conductors installed outdoors, on grade or underground, and insulation shall be rated for wet locations.
5. Insulation of conductors installed outdoors, installed exposed to the sun, installed in exposed conduits, insulation shall be rated for high-temperature 90 degrees centigrade.
6. Insulation of branch circuit conductors installed internal of light fixtures; insulation shall be rated for not less than 90 degrees centigrade.

B. Conductor Insulation
   1. 600 Volt AC and/or DC insulated conductors complying with UL 83 installed entirely inside conduits, or enclosed inside wireways, or enclosed inside raceways, insulation shall be rated as follows.
   2. Indoor above Grade locations either concealed or exposed.
      a. Dual rated THHN and THWN
      b. Individually rated THHN-2
      c. Individually rated THWN-2
      d. XHHW-2
   3. Outdoor above Grade either concealed or exposed.
      a. XHHW-2
      b. THWN-2
      c. THW-2
   4. Outdoor below Grade or outdoor on Grade.
      a. XHHW-2
      b. THWN-2
      c. THW-2
   5. All other enclosed raceway locations not described above.
      a. XHHW-2
      b. THWN-2
      c. THW-2
   6. 600 Volt AC and/or DC insulated conductors installed in open cable tray or open wire-way or exposed; insulation also shall be additionally rated for the specific exposed install locations.

C. Insulation Color Coding and Identification
   1. The following color code for branch circuits:
      a. Neutral . . . White (Tape feeder neutrals with white tape near connections)
      b. Normal Power

120/208 Volt	480/277 Volt
Ground Green	Ground Green
Phase A Black	Phase A Brown
Phase B Red	Phase B Orange
Phase C Blue	Phase C Yellow

PART 3 - EXECUTION

3.01 TRENCHING, FOOTINGS, SLEEVES

A. General
   1. Provide excavation and trenching, concrete encasement of conduits, trench backfilling, and compaction for the underground electrical work.
   2. Provide concrete footings and concrete reinforcement for all post and/or pole-mounted lighting fixtures.

B. Sleeves
   1. Provide sleeves for raceways, conduit and wire/cables passing through the following construction elements:
      a. Concrete and masonry foundations, floors, walls and slabs.
      b. Gypsum, Lath, and plaster walls and ceilings.
      c. Building structures (i.e., foundations, walls, floors, ceilings, beams, and roofs) with a fire rating exceeding 20-minutes.
   2. Sleeves shall extend 1.5-inch above and below floors, except under floor standing electrical equipment. Sleeves shall be flush with wall ceiling foundations and partitions exposed to public view and extend approximately 0.5-inch past penetration in fire rated construction. Sleeves shall be installed at exact penetration locations and angles to accommodate wire/cable, raceway, and conduit routings.

3. The layout and design of raceways and conduits located in or routed through masonry or reinforced beams or the Owner's Representative shall review walls before any work is performed. All sleeving shall be accomplished according to the instructions of the Owner's Representative and shall be accepted before any concrete is poured.
4. Sleeves, raceways, and conduit shall be located to clear steel reinforcing bars in beams. Reinforcing bars in walls shall be offset to clear piping and sleeves.
5. Provide a continuous clearance between the inside of a sleeve and exterior of wire/cables, conduits and raceways passing through the sleeve not less than the following:
   a. 0.5-inch clearance except as required otherwise.
   b. 1.0-inch clearance through outside walls below grade.
   c. 3.0-inch clearance through seismic joints.
6. Sleeves set in fire rated construction shall be caulked between sleeves and building structure, additionally sleeves shall be caulked between the sleeve and the wire/cables, conduits/raceways passing through the sleeve. The caulking shall be a fireproof sealant, equal to the fire rating and temperature being penetrated. Clearance between components inside of sleeve and exterior of components passing through sleeve and between components inside the sleeve shall comply with Fireproof Sealant Manufacturer's recommendations.
7. Sleeve material:
   a. In floor construction: Schedule 40 black steel pipes, with upper surface to be sealed watertight.
   b. In concrete or masonry walls roofs or ceilings: Schedule 40 black steel pipes. When installed on roofs or outside walls, seal outer surface watertight.
   c. In fire rated construction; 24-gauge galvanized iron or steel.
   d. Sleeves through waterproof membranes: Cast iron or Schedule 40 steel with flashing clamp device and corrosion resistant clamping bolts. Caulk space between pipe and sleeve and surfaces between sleeve and conduits sealed watertight.

3.02 GROUNDING AND BONDING

A. General
   1. Grounding and Bonding shall be executed in accordance with all applicable Codes and Regulations, both of the State and Local Authorities Having Jurisdiction (AHJ).
   2. Where a nonmetallic conduit is used in the distribution system, the Contractor shall install the proper sized copper ground wire in the conduit with the feeder for use as an equipment ground. The electrical metallic raceway system shall be grounded to this ground wire.
   3. The maximum ground/bond resistance to the grounding electrode shall not exceed 1-ohm from any location in the electrical system. The maximum ground resistance of the grounding electrode to earth shall not exceed 5-ohms.

B. Ground/Bond Conductors
   1. Provide additional, dedicated, green insulation equipment ground/bond wire inside each conduit type and raceway as follows. Size the ground/bond conductors to comply with CEC/NEC Requirements. The metal conduit or raceway shall not be permitted to serve (function) as the only (exclusive) electrical ground return path:
      a. All types of nonmetallic conduit and all types of non-metallic raceways including but not limited to: RNMC - Rigid Nonmetallic Conduit.
      b. FMC - Flexible Metal Conduit.
      c. LTFMC - Liquid Tight Flexible Metal Conduit.
      d. Metal and non-metal raceways.
   2. The equipment ground/bond wire shall be continuous from the electrical circuit source point of origin to the electrical circuit end termination utilization point as follows:
      a. Every conduit and raceway path containing any length of the above identified conduits or raceway.
      b. Every conduit path and raceway path connected to any length of the above-identified conduits and raceways.

3. The equipment ground/bond wire shall be sized as follows, but in no case smaller than indicated on the Drawings. Install equipment ground/bond wire in each conduit/raceway, with the respective phase conductors:

a. Feeder, Subfeeders and Branch Circuit Protection	Minimum Equipment Ground Copper Wire Size
15 amp	#12
20 amp	#12
0 to 60 amp	#10
70 to 100 amp	#8
101 to 200 amp	#6
201 to 400 amp	#2
401 to 600 amp	#1
801 to 1000-amp	2/0
1001 to 1200-amp	3/0
1201 to 1600-amp	4/0
1601 to 2000 amp	250 MCM
2001 to 2500 amp	350 MCM
2501 to 4000 amp	500 MCM
4001 to 6000 amp	800 MCM

4. Splices in ground/bond wires shall be permitted only at the following locations:
   a. Ground buses with listed and approved ground lugs.
   b. Where exothermic welded ground/bond wire splices and/or terminations are provided.
5. Provide ground/bond wire jumpers for conduit fittings with ground lugs, expansion and deflection conduit fittings at conduit fittings connecting between metallic and non-metallic raceways and to bond metal enclosures to conduit fittings with ground lugs.
6. Ground conductors for branch circuit wiring shall be attached at each outlet to the back of the box using drilled and tapped holes and washer head screws, 6-32 or larger.

3.03 CONDUIT

A. General
   1. The sizes of the conduits for the various circuits shall be as indicated on the Drawings, but not less than the conduit size required by Code for the size and quantity of conductors to be installed in the conduit.
   2. Conduits shall be installed concealed from view. Install conduits concealed in walls, concealed below floors and concealed above ceilings, except as specifically noted otherwise.
      a. Conduits shall not be installed in concrete floors.
   3. Conduits shall be provided complete with conduit bends, conduit fittings, outlet boxes, pullboxes, junction boxes, conduit anchors/supports, and grounding/bonding for a complete and operating conductor/wire raceway system.
   4. Metal and nonmetal conduits shall be provided mechanically continuous between termination connection points. Metal conduit shall be provided electrically continuous between termination connection points.
   5. Individual conduit paths and home runs shown on the Drawings shall be maintained as separate individual conduits for each homerun and path.
   6. Transitions between conduits constructed of different materials and occurring in above grade locations shall be allowed only at outlet boxes, junction boxes, pull boxes and equipment enclosures unless specifically indicated otherwise. Provide outlet boxes and junction boxes.
   7. Metal conduit terminating to nonmetal enclosures; terminating into metal enclosures with "Concentric.Ring" knockouts; terminating into metal enclosures with knockout reducing washers, including but not limited to equipment housings, outlet boxes, junction boxes, pull boxes, cable trenches, manholes, shall be provided with a ground/bonding lug integrated with the conduit termination conductor fitting construction, by the Fitting Manufacturer. The lug shall provide for connection of a grounding/bonding conductor (insulated or uninsulated). The grounding lug shall be located on the fitting, inside the termination enclosure.
   8. The type of conduit, type of conduit fittings, and type of conduit supports, and method of conduit installation shall be suitable for the conditions of use and conditions of location of installation based

on the Manufacturer's recommendations; based on the applicable Codes and based on the Requirements of the Contract Documents.

B. RMC Installation Locations
RGS, IMC conduits and RGS, IMC fittings shall be installed in the following locations:
1. Embedded in floors, walls, ceilings, roofs, foundations, and footings constructed with concrete.
2. Embedded in walls and foundations constructed with brick and masonry.
3. Interior of buildings, within 9-feet of finish floor lines for exposed conduit locations.
4. Exterior of building for exposed conduit locations.
5. Damp or wet locations exposed or concealed locations.
6. Exposed on roofs.
7. In hazardous materials areas and locations; below hazardous materials areas and locations; above hazardous materials areas and locations.
8. Exposed on utility service poles, for pole risers less than 9-feet above finish grade.
9. RMC conduit and RMC fittings may be installed in any location where EMT and FMC conduit is permitted to be installed.

C. PVC Coated RMC Installation Locations
PVC coated RMC conduit and PVC coated RMC fittings shall be installed in the following locations:
1. Underground conduit locations for elbows and bends with a radius of less than 36-times the conduit diameter.
2. Underground vertical risers extending above grade.
3. Installed in contact with earth or corrosive materials.

D. EMT Installation Locations
EMT conduit and EMT fittings may be installed in the following locations, for circuit conductors operating below 600 volts to ground; locations containing only "Non-Hazardous Materials"; only dry locations:
1. Concealed in hollow non masonry/non-concrete, metal stud frame and wood stud frame walls and floors.
2. Concealed above ceilings.
3. Exposed inside interior enclosed crawl spaces.
4. Exposed interior locations placed 9-foot or higher above finished floors (except as described in paragraph below at lower heights).
5. Exposed on walls and ceilings (any height) in the following dedicated function areas, interior enclosed room locations:
    a. Indoor enclosed electrical equipment rooms and closets.
    b. Indoor enclosed data and telecommunication terminal rooms and closets.
    c. Indoor enclosed HVAC equipment rooms and closets.
6. Any location where FMC is described to be installed, except as the final connection to rotating or vibrating equipment.

E. LTFMC Installation Locations
LTFMC conduit and LTFMC fittings shall be installed in the following locations for circuit conductors operating below 600 volts to ground; locations containing only "Non-Hazardous Materials":
1. Final electrical connection to vibrating or rotating equipment; control and monitoring devices mounted on vibrating and rotating equipment including the following. Minimum conduit length shall not be less than 24-inches:
    a. Motor, engines, boilers, solenoids, and valves.
    b. Fixed mounted "Shop" (manufacturing) production equipment.
    c. Fixed mounted food preparation equipment and "Kitchen" equipment.
2. All locations where exposed flexible conduit connections are required, both indoor and outdoor.
3. Final connection to indoors electrical transformers. Minimum conduit length shall not be less than 24-inches; maximum conduit length shall not exceed 72-inches.
4. Do not install LTFMC located in environmental air plenums.

F. RNMC Installation Locations

RNMC conduit and RNMC fittings shall be installed in the following locations containing only "Non-Hazardous Material":

1. Underground, concealed below earth grade, unless specifically noted or specified otherwise.
2. Exposed on utility service poles, for pole risers at 9-feet or higher above finish grade, schedule 80 PVC only.
3. RNMC type "EB" conduit(s) shall be concrete encased along the entire length of the conduits for all installation locations.
4. Non-metal type raceways and RNMC type conduit shall not be installed inside buildings or exposed on buildings.

G. Conduit Installation

1. Conduit Supports
   a. Securely and rigidly support all raceways/conduits from the building structure. Raceways/ Conduits shall be supported independent of all piping, air ducts, equipment ceiling hanger wires, and suspended ceiling grid systems. Secure conduit to structural element by means of UL listed and approved hangers, fasteners, "C" channels and pipe clamps.
   b. Provide conduit supports spaced along the length of the conduit as follows:
      1) RMC and EMT conduit, maximum not to exceed 96-inches on center; within 24-inches of each conduit bend and conduit termination location.
      2) FMC and LTFMC conduit, maximum not to exceed 24-inches on center; within 6-inches of each conduit bend and conduit termination location.
   c. Suspended conduit methods:
      1) Individual, suspended raceways/conduits separated by more than 12-inches from any other conduit and suspended from ceilings and roofs shall be supported as follows:
         a) Conduits smaller than 1.5-inch by means of hanger rods or hanger wires.
         b) Conduits 1.5-inch and larger by means of hanger rods.
         c) The conduit shall attach to the hangers with pipe clamps.
         d) Hanger wire, not less than #12AWG steel; hanger rods, threaded, not less than 0.375-inch diameter steel.
      2) Suspended raceways/conduits positioned within 24-inches of any other conduit shall be grouped and supported by hanger rods using trapeze type conduit support channels ("C" channels). Conduits shall individually attach to common channels side-by-side, with pipe clamps.
   d. Non-suspended conduit methods:
      1) Individual raceway/conduits placed against wall/ceiling/floors, placed inside hollow wall/ceiling construction or structure framing (i.e., "Dry-Wall" or plaster hollow wall construction), shall be secured by means of individual pipe clamps and fasteners attached to the framing studs or other structural members and the conduit/raceway.
      2) Provide common "C" channel support for all multiple raceways/conduits placed against vertical or horizontal surfaces and positioned within 24-inches of other raceways/conduits. Attach channels to the framing studs or other structural members. Attach the conduits/ raceway individually to common channels, side-by-side, with pipe clamps.
      3) The use of toggle bolts is prohibited.
   e. Conduit rising from floor for motor connection shall be independently supported if extending over 18-inches above floor. Support shall not be to a motor or ductwork, which may transmit vibrations.
   f. Provide conduit anchoring, conduit support and conduit bracing systems conforming to Earthquake Seismic Requirements at each install location. The conduit support/anchoring system capacity shall include the weight of the conduits, conduit fittings, conduit supports, and conductors/wires/ cables installed in the conduits plus a 300% safety factor. Submit Shop-Drawing details showing each typical conduit anchor, conduit support and conduit brace location. Submit structural calculations performed by and signed by a Professional Structural Engineer (P.E.) with a P.E. license, registered in the State of California, U.S.A.
2. Conduit Separation:
   a. Conduit installed underground or below building slab without full concrete encasement: Shall be separated from adjacent conduits of identical systems (i.e., signal to signal, data to data,

power to power, control to control etc.) by a minimum of 3-inches. Conduits of non-identical systems (i.e., signal to power; data to power; power to control; signal to control, etc.) shall be separated by a minimum of 12-inches.

3. Conduit concrete encasement:
   a. Conduits which are run underground exterior to building slab shall be continuously concrete encased, except 15 and 20-amp power branch circuit conduits underground do not require concrete encasement.
   b. PVC rigid-non-metallic-type EB conduit, of any size and any location shall be continuously concrete encased the full length of the conduit installation, including under building slab.
   c. Concrete for encasement of underground conduits shall be 2000-PSI 28-days cure strength with a mix of cement, sand, water and maximum of ¾-inch gravel. Concrete encasement of conduits shall be continuous without voids. The encasement shall extend 3-inches past the edges of all conduits on all sides of the circuit. Provide ten pounds of red oxide cement coloring uniformly mixed with each cubic yard of concrete for conduit encasement.
   d. Conduits located below or adjacent to structural foundations shall be separated from the foundation by a minimum of 12-inches. Conduits located below structural foundations shall be fully and continuously concrete backfilled and encased between the bottom of the foundation to the bottom of the conduits. The concrete shall be 4000-PSI 28-day cure strength instead of 2000-PSI concrete.
   e. Conduits of any size and type (including 15-amp and 20-amp power branch circuits) located under roads, paved areas and "Transit-System" right of way shall be concrete encased.
4. Underground conduits:
   a. Three or more underground conduits occupying the same trench shall be separated and supported on factory fabricated, non-metallic, duct/conduit support spacers. The spacers shall be modular, keyed interlocking type, "Built-Up" to accommodate quantity, size orientation and spacing of installed conduits. The spacers shall maintain a constant distance between adjacent conduit supports and hold conduits in place during trench backfill operations. Minimum support spacer installation interval along with length of the conduits shall be as follows:
      1) Concrete encased conduits, not less than 8-feet on center.
      2) Non-concrete encased conduits, not less than 5-feet on center.
   b. Provide trenching, excavation, shoring, and Backfilling required for the proper installation of underground conduits. Tops of backfill shall match finish grade.
   c. Bottoms of trenches shall be cut parallel to "Finish Grade" elevation. Make trenches 12-inches wider than the greatest diameter of the conduit.
   d. Back-filling Trenches for Conduits without Concrete Encasement Requirements
      1) Conduits which are not required by the Contract Documents to be concrete encased and are located exterior to building slab, shall be set on a 3-inch bed of damp clean sand. Conduit trenches shall be backfilled to within 12-inches of finished grade with damp sand after installation of conduit is completed. Remainder of backfill shall be native soil.
      2) Conduits located under a building which are not required by the Contract Documents to be concrete encased, shall be completely backfilled and compacted with clean damp sand to the same level as the building foundation pad.
      3) Provide a continuous yellow 12-inches wide flat plastic tracer tape, located 12-inches above the conduits in the trench. The tracer tape shall be imprinted with "Warning-Electric Circuits" a minimum of 24-inches on center.
   e. Backfill material:
      1) Sand backfill shall be clean with no clay or organic materials, free of State of California and EPA defined toxic constituents, total chloride content less than 500 ppm, total sulfate content less than 150 ppm, sand pH greater than 4.5 and less than 9.0. Sand and native soil backfill of trenches shall be machine vibrated in 6-inch lifts to provide not less than 90% compaction of backfill.
      2) Native soil backfill shall have no gravel or stones, and no organic matter of aggregate greater than 1-inches.
   f. Do not backfill until Owner's Representative has approved Installation and As-Built Drawings are up to date. Promptly install conduits after excavation has been done, to keep the excavations open as short a time as possible. Excess soil from trenching shall be removed from the site.

g. Installation depth below finish grade of underground conduits and underground raceways. In no condition/location less than 12-inches below winter underground frost-line. Underground depth dimensions shall be measured from finish top of grade elevation to top of all underground conduits/raceways, typically except under buildings.
   1) Under non-traffic areas not covered with paving or concrete, not less than 24-inches underground.
   2) Under traffic areas including roads and parking areas, not less than 36-inches underground.
   3) Under public/private transit system right-of-way and railroad right-of-way, not less than 48-inches underground.

h. Conduit crossing existing underground utilities shall cross below the bottom depth of the existing utilities. If the top portion of the existing utility depth below finish grade exceeds 72-inches and the specified separation and depths are maintained when crossing over the top of the existing underground utility, the conduit may cross above the existing underground utility.

i. Provide long radius horizontal bends (minimum radius of 36-times the conduit diameter) in underground conduits where the conduit is in excess of 100-feet long.

j. Conduits installed below grade and on grade below buildings, shall not be smaller than 0.75-inch. Conduits for circuits exceeding 600 volts shall not be smaller than 5.0-inches.

k. Underground conduits entering a building shall be sloped. The conduit direction of slope shall be away from the building and shall prevent water in the conduit from "Gravity Draining" towards the building. The conduit slope "High Point" shall originate from the building, out to the first exterior pullbox, manhole etc. exterior conduit termination "Low Point". The minimum slope angle shall be a constant 8-inches (or greater) of fall for each 100-feet of conduit length.

l. Dewatering:
   1) Provide pumping to remove, maintain and dispose of all water entering the excavation during the time the excavation is being prepared, for the conduit laying, during the laying of the conduit, and until the backfill at the conduit zone has been completed. These provisions shall apply on a continuous basis. Water shall be disposed of in a manner to prevent damage to adjacent property. Trench water shall not be drained through the construction site. Groundwater shall not be allowed to rise around the pipe until joining compound has firmly set.
   2) The Owner's Representative shall be notified 48 hours prior to commencement of dewatering.

5. Raceway/Conduits, which are installed at this time and left empty for future use, shall have 0.25-inch diameter polyvinyl rope left in place for future use. The pull rope shall be 500-pounds minimum tensile strength. Provide a minimum of 5-feet of slack at each end of pull ropes.
6. Provide openings in building structures for conduit penetrations:
   a. New construction shall be provided with conduit sleeves, to provide conduit penetration.
   b. Existing construction shall be drilled (core drill masonry and concrete) and provide conduit sleeves installed after drilling, to provide conduit penetration.
   c. Where the structure penetrations for underground conduits penetrating through foundations will not comply with the (restriction/penetration) shown in the Contract Documents, install the conduits below and clear of the foundation lowest point.
7. Conduit bends risers and offsets:
   a. The minimum bend radius of "Factory or Field" fabricated conduit bends shall not be less than the following. The bend radius shall be measured at the surface, inside radius of the conduit wall:
      1) LTFMC conduit - conduit minimum bend radius 12-times the conduit diameter.
      2) RMC and EMT conduit minimum bend radius - conduit for power circuits over 100-volts and less than 600-volts, 8-times conduit diameter. Conduit for power circuits over 600-volt, 12-times conduit diameter. Conduit for low voltage, signal, and fiber optic circuits, 10-times conduit diameter.
      3) RNMC conduit - conduit minimum bend radius 36-times the conduit diameter. Under building reduce minimum bend radius to 10-times the conduit diameter. Conduit bends and offsets in RNMC with less than 36-times conduit diameter bend/offset radius shall be RNMC PVC Schedule 80 or PVC coated RGS.

4) Conduits for Utility Company conductors. Conduit minimum bend radius and separations shall comply with the respective Utility Company Requirements.

b. Bends and offsets in conduits shall be kept to an absolute minimum. The total summation of all bends and offsets permitted in a conduit segment, occurring between two conduit termination/ connection end points, shall not exceed the following, including conduit fittings:
   1) RMC and EMT conduit - 360 angular degrees
   2) LTFMC conduit - 180 angular degrees
   3) RNMC conduit - 270 angular degrees

c. Each field fabricated conduit offset, bend and elbow which are not the standard product of the Raceway/Conduit Manufacturer shall be mandrel tested. The test shall be conducted after the conduit installation is complete and prior to pulling-in any wire, in the same manner as for underground conduits.

d. Factory manufactured angle connector conduit fittings shall be installed in exposed conduit locations only. Installation in locations normally concealed from view shall not be permitted. Not more than one factory manufactured angle connector shall be permitted in any length of conduit between conduit termination end points.

e. RNMC conduit risers from below grade shall be PVC coated RGS. Conduit risers, bends or offsets entering into a building shall be PVC coated RGS.

f. If three or more conduit-bends of the same conduit size and same conduit material type, installed, as part of the Contract Work, fail to comply with the required minimum conduit bend radius or conduit angular degree limits. The following corrective actions shall occur:
   1) The Contractor shall remove all the non-complying conduit bends and the respective wire in the conduit from the project site. Provide new conduit and wire, complying with the Contract Documents.
   2) Where the conduit bends similar to the non-complying conduit bends are installed concealed in walls, floors, above ceilings or below grade, the Contractor shall expose the conduit bends to allow visual observation.
   3) The Contractor shall remove the non-complying conduit bends and dispose of the Project Site. The Contractor shall provide new conduit bends and conductors complying with the Contract Documents.
   4) All the costs to correct the deficient material and work along with costs to repair the direct, indirect, incidental damages and Contract delays shall be the sole responsibility of the Contractor and shall be included in the bid price.

8. Provide two locknuts and an insulated throat bushing at each metal conduit terminating at enclosures, including but not limited to outlet boxes, junction boxes, terminal cabinets, switchgear, transformers, switchboards, distribution panels and panelboards.
9. Provide metallic or plastic closure caps on all conduit ends during construction, until installation of conductors in the respective conduit.
10. Conduit run exposed, shall be run at right angles or parallel to the walls or structures. All changes in exposed conduit directions, either horizontally or vertically, shall be made with conduit bodies. Conduits on exposed beams or trelliswork shall be painted to match surrounding surfaces.
11. Rigid conduit shall not be strapped or fastened to equipment subject to vibration or equipment mounted on shock absorbing bases.
12. RMC conduit threads:
    a. Machine cut threads on RMC conduit required for field fabrication shall comply with NPS and ANSI-B1.20.1. Galvanized after fabrication.
    b. The length of bare metal exposed during thread fabrication shall be completely covered by conduit couplings and fittings. Additionally, the thread length shall insure that conduit joints will reach "Torque" tightness and become secure before conduit ends "Butt" together and before conduit ends "Butt" into the "Shoulders" of other conduit fittings.
    c. Running threads or right/left-handed threads shall not be used to connect RMC.
13. RNMC conduit:
    a. Joints and fittings shall be solvent welded to RNMC conduit. Joints and fittings shall be watertight and airtight after fabrication.
14. Tighten each conduit fittings and fitting appurtenance, to the "Torque" (allowable tolerance $\pm$5%) value recommended by the Fitting Manufacturer and applicable Code. If three or more conduit

fittings are found to not be in compliance with the Manufacturer's "Torque" (tightness) recommendations, the following corrective actions shall occur:

a. The Contractor shall tighten "Re-Torque" the defective fittings and all similar conduit fittings installed as part of the Contract Documents in the presence of the Owner's Representative.
b. If the respective conduit fittings similar to the deficient "Torque Tightness" fittings are installed concealed in walls, floors, above ceilings or below grade, the Contractor shall expose the fitting, to allow retightening each similar conduit fitting to the Manufacturers recommended "Torque" values.
c. All the cost to repair the direct, indirect, incidental damages and Contract delays resulting from complying with these Requirements shall be the sole responsibility of the Contractor and shall be included in the bid price.

15. Horizontal directional boring for underground conduit:
    a. Provide a directional guided horizontal "bore-hole" underground conduit installation where one or more of the following conduits occur:
        1) Continuous trenching excavation and backfill for conduit installation is not permitted by the Contract.
        2) Where continuous trenching excavation due to the existing surface and below grade conditions and restrictions, is not possible or practical to excavate a trench.
    b. Provide "Path-Tracing" of the underground bore head, from the surface, along the entire horizontal bore length. Path tracing shall use electronic transmitters and receivers, continuously communicating the underground bore head locations and depth to the bore equipment operator. The directional boring system shall employ active tracking and directional position/ steering control of the bore equipment drill head location. The active tracking system shall provide a port-able receiver/transmitter unit for tracking the position of the moving drill head; a sensor "Sonde" unit on the drill head for tracking signals to the receiver/transmitter; and a drill head tracking data view display located at the boring equipment operator position to view the drill head position information sent from the portable receiver/transmitter. As manufactured by SPX-Radiodetection Company or similar products.
    c. Provide vertical pilot excavations not more than 50 feet on center along the path of the borehole to intercept the horizontal bore-hole routing, provide excavations at the beginning and end terminals staging points of the horizontal borehole.
    d. Provide full depth "Shoring" of the vertical pilot excavations. Remove the shoring, backfill, compact and repair the excavations when conduit installation is complete.
    e. "Drilling-fluid" shall be used during "Back-reaming" and "Pullback", pumped through the drill pipe to the bore drill head.
    f. Directional guided horizontal drilling shall employ equipment specifically designed and manufactured for the process. The Equipment Manufacturer shall train bore equipment operating personal in the proper operation of said equipment.
    g. Locate the position, size, depth and identify all underground "Cross-Bore" existing underground utilities, pipes, structures and conflicts along the entire bore path of each underground bore, prior to initiating directional boring work. Notify respective Agency for each "Cross Bore" potential crossing. Comply with the recommendations of the Cross-Bore Safety Association (CBSA).
    h. Horizontal, directionally guided boring equipment, as manufactured: by Ditch Witch; Vermeer Manufacturing; or Case Corporation.

H. Conduit Bodies
    1. Conduit bodies shall be installed in exposed conduit locations only or above accessible ceilings.
    2. Conduit bodies shall be accessible for removing body cover and pulling wire through the conduit body.
    3. Conduit bodies shall not be installed inside enclosed walls.

3.04 WIRE AND CABLE

A. Branch circuit and fixture joints for #10AWG and smaller wire shall be made with UL-approved connectors listed for 600 volts, approved for use with copper and/or aluminum wire. The connector consists of a

cone-shaped, expandable coil spring insert, insulated with a nylon shell and two wings placed opposite each other to serve as a built-in wrench or shall be molded one-piece. As manufactured by 3M-"Scotchlok".

B. Branch circuit joints of #8AWG and larger shall be made with screw pressure connectors made of high strength structural aluminum alloy and UL-approved for use with both copper and/or aluminum wire as manufactured by Thomas & Betts. Joints shall be insulated with plastic splicing tape, tapered half-lapped and at least the thickness equivalent to 1.5-times the conductor insulation. Tapes shall be fresh and of quality equal to Scotch.

C. Use UL listed pulling compound for installation of conductors in conduits.

D. Correspond each circuit to the branch number indicated on the panel schedule shown on the Drawings except where departures are approved by the Owner's Representative.

E. All wiring, including low voltage, shall be installed in conduit.

F. All splices in exterior pullboxes and light poles shall be cast resins encapsulated.
   1. Power conductor splices as manufactured by 3M Scotchcast Series 82/85/90; or Plymouth; or equal.
   2. Control and signal circuits as manufactured by 3M Scotchcast Series 8981 through 8986; or Plymouth; or equal.

G. Neatly group and lace all wiring in panelboards, switchboards, motor control centers and terminal cabinets with plastic ties at 3-inches on centers. Identify and tag all spare conductors.

END OF SECTION 26 05 30

SECTION 31 23 00

EXCAVATION AND FILL

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Trenching, backfilling, and compaction required for, but not necessarily limited to, the following:
   1. Electrical conduit installation.

B. Related Requirements:
   1. Section 01 33 00 - Submittal Procedures
   2. Section 01 71 23 - Field Engineering
   3. Section 01 78 39 - Project Record Drawings
   4. Section 02 41 13 - Site Clearing and Demolition

1.02 REFERENCES

A. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 SEQUENCING AND SCHEDULING

A. Refer to all other Contract Documents, determine the extent and character of related work, and properly coordinate work specified herein with that described elsewhere to produce a complete, operational installation.

1.04 CLOSEOUT SUBMITTALS

A. Project Record Drawings:
   1. Conform to requirements specified in Section 01 78 39 - Project Record Documents.
   2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts and slope gradients as practical.

1.05 QUALITY ASSURANCE

A. Control of Work: Comply with Section 5 of the Standard Specifications.

B. Control of Materials: Comply with Section 6 of the Standard Specifications.

C. Trench Safety: Comply with applicable portions of Sections 5 and 7 of the Standard Specifications and requirements of OSHA and other agencies having jurisdiction).

1.06 FIELD CONDITIONS

A. Wet Conditions: No trenching shall occur when excessively wet conditions exist in the opinion of the Owner's Representative.

B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to work as necessary to achieve compaction goals.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Materials shall be free of debris, roots, wood, scrap material, vegetative matter, refuse, soft unsound particles, or other deleterious and objectionable materials.

B. Bedding for Utility Piping: Sand conforming to Section 19-3.02F(2) of the Standard Specifications.

C. Native Backfill: Native backfill shall be acceptable soil material excavated from the project site. This material will be considered unclassified and no testing other than for compaction will be required. Additional material required for backfill shall be acceptable to the Owner's Representative.

D. Slurry Fill: Controlled low-strength fluid material (CLSM) consisting of water, Portland cement, aggregate, and fly ash with slump of 10 inches or more and an unconfined compressive strength of 200 psi or less.

E. Aggregate Base: As specified in Section 32 11 00 - Base Courses.

PART 3 - EXECUTION

3.01 PREPARATION

A. General:
1. Prior to trenching, the Contractor shall pothole existing utilities at locations indicated or implied on the Drawings, where new piping or utilities will cross existing utilities of uncertain depth to determine the elevation of the utility in question and ensure that the new line will clear the potential obstruction.
2. The Contractor shall mark out construction areas in white with non-permanent paint and contact Underground Service Alert (U.S.A.), 800-642-2444, to locate all known utilities a minimum 48 working hours prior to any excavation.
3. Should an existing crossing utility present an obstruction, the proposed line shall be adjusted as acceptable to the Owner's Representative to clear the existing utility.

3.02 TRENCH EXCAVATION

A. General:
1. Excavation shall include removal of water and materials that interfere with construction. Remove water which may be encountered in the trench by pumping or other methods prior to pipe laying, bedding and backfill operations. Trenches shall be sufficiently dry to permit proper jointing and compaction.
2. Contractor is responsible for directing vehicular and pedestrian traffic safely through or around the work area at all times.
3. The Contractor shall relocate, replace, reconstruct or repair, to an "as-was" or better condition, surface or subsurface improvements which are in the line of construction or which may be damaged, removed, disrupted or otherwise disturbed by the construction activities. Except as specified in other Sections or shown in the Drawings, this provision applies to all surface improvements of whatever nature such as walls, fences, above-grade utilities, landscaping, paving, structures, or other physical features whether shown in the Drawings or not and to all subsurface improvements such as utilities which may be indicated in the Drawings or marked in the field. The Contractor shall connect modified utilities to existing systems and leave work in an operating condition. The cost of this work shall be considered as included in other items of work and no additional compensation will be allowed.

4. The maximum allowable trench width at the top of pipe shall be 18 inches greater than the pipe diameter.
5. New utility trenches extending deeper than 2 feet below finish grade should be located a minimum of 5 feet away from footings and foundations.

B. Existing Paving Areas:
1. Existing asphalt paving over new trenches shall be sawcut, removed, and legally disposed. Existing asphalt paving shall be neatly sawcut 1 foot greater on each side than the trench width. If a longitudinal pavement joint or edge of pavement is located within 3 feet of the limit of excavation, intervening pavement shall be removed and replaced after completion of backfilling. If curb, gutter, or similar concrete improvement are to be replaced, the adjacent existing asphalt paving shall be sawcut 2 feet from the edge of concrete.
2. Existing Portland cement concrete paving over new trenches shall be sawcut to a minimum depth of 1-1/2 inches in straight lines either parallel to the curb or at 90-degree angles to the alignment of the sidewalk prior to being broken out. No section to be replaced shall be smaller than 30 inches in either length or width. If the sawcut would fall within 30 inches of a construction joint, expansion joint, or edge, or within 12 inches of a score mark, the concrete shall be removed to the joint, edge, or mark.

C. Open Trench:
1. No trench shall be left in an open un-protected condition at the end of the day. At the end of the day, open trenches shall be protected in a manner acceptable to the Owner's Representative.
2. Provisions for trench crossings and access shall be made at all street crossings, driveways, water gate valves, and fire hydrants unless otherwise acceptable to the Owner's Representative.

D. Excavated Material:
1. Excavated material not required for backfill or of value to the Owner shall be removed and legally disposed of by the Contractor at no additional cost.
2. Material excavated in streets and roadways shall be laid alongside the trench no closer than 2 feet from the trench edge and kept trimmed to minimize inconvenience to public traffic.
3. Provisions shall be made whereby all storm and waste water can flow uninterrupted in gutters or drainage channels to drainage structures.
4. Excavated material shall not be stored on existing landscaping or paving without provisions being made to protect the surface below from being stained or otherwise adversely affected.

E. Shoring
1. Should excavations extend more than 4 feet below existing ground surface, shoring will be required.
2. For trenching greater than 4 feet deep side slopes are not to exceed 1-1/2: 1 with a depth of 20' max.
3. When trenching greater than 4 feet deep, provide a trench box or shield approved by a PE or designed with accompanying tabulated data approved by a PE.
4. Provide shoring, bracing, or underpinning when trenching next to adjoining walls, sidewalks, or pavements. There shall be no trenching below the base or footing of a foundation that can reasonably expected to pose a hazard to workers unless one of the mentioned support systems is used.
5. Follow OSHA standards for maintaining, installing, and removing support systems.
6. Utility trenches shall be excavated according to accepted engineering practices following OSHA.

3.03 PIPE BEDDING

A. Stabilization of Trench Bottom:
1. When the trench bottom is unstable due to wet or spongy foundation, trench bottom shall be de-watered as necessary. The Owner's Representative will determine the suitability of the trench bottom and the amount of sand, gravel, or crushed rock needed to stabilize the soft foundation.

3.04 TRENCH BACKFILL AND COMPACTION

A. General:

1. Construct backfill in two operations, initial and final.
2. Do not backfill where the foundation material in trench is already saturated, except as acceptable to the Owner's Representative. Provide a minimum cover as shown or specified.
3. Where settling greater than the tolerance allowed for grading occurs in trenches and pits due to unstable subgrade material, 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.
4. Place final backfill in 6-inch maximum loose lifts for utilities under roads, streets, concrete slabs or other areas to be paved and synthetic turf subgrade areas.
5. Compact backfill surrounding ducts, conduits, pipes and other structures, including the top 12-inches of subgrade to 95 percent maximum density in accordance with ASTM D1557.
6. Backfill to permit the rolling and compacting of the completed excavation with the adjoining material providing the specified density necessary to enable rock placement of paving of the area immediately after backfilling has been completed.
7. Where trenching occurs at chemically treated subgrade, backfill using a controlled low-strength material (CLSM) slurry as specified.

B. Initial Backfill:

1. Prior to trench backfill, the condition of the trench and laying of pipe shall be acceptable to the Owner's Representative.
2. Select backfill material shall be used as initial backfill for all utilities except irrigation piping, except as otherwise noted and specified.
    a. After the pipe has been properly laid and accepted by the Owner's Representative, selected backfill material shall be placed on both sides of the pipe and compacted to the depth shown in the Drawings.
    b. Compaction: The initial backfill material shall be hand tamped in layers not exceeding 4 inches in uncompacted depth and shall be brought up uniformly on both sides of the pipe to avoid bending or distortional stress. After hand-tamping, the relative compaction of the initial backfill material shall be at least 95 percent relative compaction.

3. Where trenching occurs at chemically treated subgrade, backfill using specified controlled low-strength material (CLSM) slurry.

    a. The mixture shall be placed using chutes, conveyors, buckets, or pumps depending upon accessibility.
    b. Placed in lifts to prevent piping from floating.
    c. Do not vibrate.

C. Final Backfill:

1. Native backfill material shall be used for final backfill, unless otherwise noted.
2. Compaction: Final backfill compaction shall be by mechanical means with backfill material placed in layers not exceeding 6 inches in loose depth. Each layer shall be thoroughly compacted before succeeding layers are placed. The use of machine tampers, except manually held types, shall not be permitted. Final backfill shall be compacted to a relative compaction of 95 percent for paving areas and synthetic turf subgrade areas. In planting areas, provide acceptable topsoil to required depth compacted to 85 percent to 89 percent maximum relative compaction.

D. Jetting: No jetting will be allowed.

3.05 TRENCH SURFACING

A. General:
   1. In unimproved areas, the trench surface shall be restored to its original condition. No mounds of earth shall be left along the trench.
   2. Backfill shall be flush with adjoining grade in a firm, unyielding position with no visible settling for a period of one year after Final Acceptance.

B. Paved Areas:
   1. Temporary surfacing acceptable to the Owner's Representative shall be laid within 1 day after backfilling, except where the Contractor elects to place permanent surfacing within this time period, until permanent paving is installed.

END OF SECTION

SECTION 32 11 00

BASE COURSES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Grading and compaction of subgrade soil for areas to receive pavement, structures, and base material.
   2. Furnishing and placing of aggregate base material.

B. Related Requirements:
   1. Section 01 71 23 - Field Engineering
   2. Section 32 13 13 - Concrete Paving

1.02 REFERENCES

A. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Action Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

B. Sequencing and Scheduling
   1. Work of this Section shall not proceed until all underground utilities and irrigation sleeving have been installed and accepted.
   2. Contractor shall schedule work so that installation of paving and surfacing occurs no later than 5 working days after placement and proper compaction of base materials. Base materials left un-paved longer than this time period shall be subject to testing and re-compaction at the contractor's expense.

1.04 ACTION SUBMITTALS

A. Certificates of compliance, including sieve analyses, for products and materials proposed to be used in work covered by this Section.

1.05 QUALITY ASSURANCE

A. Control of Work: Conform to Section 5 of the Standard Specifications.

B. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.06 FIELD CONDITIONS

A. Wet Conditions: Do not prepare subgrade or place base material when excessively wet conditions exist as determined by the Owner's Representative.

B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to subgrades and base courses as necessary to achieve compaction goals.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be stockpiled on site in locations that, in the opinion of the contractor, cause least interference with construction operations and as acceptable to the Owner's Representative.

B. Materials shall not be stockpiled in proposed planting areas.

C. Protect materials from segregation, contamination and wind and water erosion.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Aggregate Base: Class 2, 3/4-inch maximum material conforming to Section 26-1.02A of the Standard Specifications. No recycled materials will be accepted for synthetic turf areas. All other paving and surfacing using aggregate base can use recycled materials.

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

A. Preparation of subgrade shall conform to Section 6 of the Standard Specifications and as specified in Section 31 20 00 - Earth Moving.

B. Remove unsuitable subgrade material as necessary and replace with suitable material or aggregate base per the discretion of the Owner's Representative.

3.02 BASE MATERIAL PLACEMENT

A. Conform to Section 26 of the Standard Specifications.

B. Obtain acceptance of subgrade preparation work prior to placing base material thereon.

C. Place and compact base material in 6-inch maximum lifts unless otherwise noted. Compaction shall be at least 95 percent relative compaction.

D. Base material shall be moisture conditioned to between optimum and 3 percent above optimum prior to placement and compaction.

3.03 TOLERANCES

A. Conform to Section 26 of the Standard Specifications, unless more stringent requirements in these Contract Documents are provided, in which place the more stringent tolerances shall govern.

3.04 CLEAN-UP OF WORK AREA

A. The Contractor shall remove and legally dispose of excess materials, spoils, and debris from the job site on a daily basis.

3.05 PROTECTION OF FINISHED PRODUCT

A. The Contractor shall provide lighted barricades, signs, and other devices as necessary to prevent damage to finished base courses.

END OF SECTION

SECTION 32 13 13

CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Concrete flatwork as shown on the Drawings including, but is not necessarily limited to, the following
   1. Edge bands.
   2. Walkways.
   3. Expansion and control joints.
   4. Reinforcement.
   5. Finishing.

B. Related Requirements:

   1. Section 01 33 00 - Submittal Procedures
   2. Section 01 71 23 - Field Engineering
   3. Section 32 12 16 - Asphalt Paving
   4. Section 31 20 00 - Earth Moving
   5. Section 32 11 00 - Base Courses
   6. Section 32 33 00 - Site Furnishings

1.02 REFERENCES

A. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Informational Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

B. Pre-Installation Meeting: Conduct meeting at Project site to review scope of concrete paving work and expectations.
   1. Meeting shall be scheduled after approval of mockups and sufficiently in advance of commencement of concrete paving.
   2. Attendees shall include:
      a. Contractor.
      b. Concrete subcontractor.
      c. Owner’s Representatives.

1.04 ACTION SUBMITTALS

A. Product Data: Manufacturers' current catalog cuts and specifications for the following:
   1. Expansion joint filler materials.
   2. Color admixtures.
   3. Surface retarder.
   4. Curing compounds.
   5. Other items as requested by Owner’s Representative.

B. Samples:
   1. Concrete materials as required for testing and inspection.
   2. Expansion Joint Sealant: Manufacturer's standard bead samples showing full range of colors available.
   3. Concrete Panels: Not less than 12 inches by 12 inches for each selected color and finish texture using concrete mix proposed for this Project.
      a. Indicate materials and methods used to produce each color and texture.
      b. Mockup work shall not commence until a concrete sample panels have been approved.

C. Concrete Mix Design: Submit mix designs and certified compressive strength test reports for each concrete strength, type, additives, and maximum aggregate size required, prepared, and certified by the ready-mix concrete supplier.

1.05 INFORMATIONAL SUBMITTALS

A. Statement of installer/finisher qualifications if requested by Owner's Representative.

B. Mill Certificates and Certifications for reinforcing bars, if used.

C. Delivery tickets for each load of concrete delivered to the site.

D. Results of slip-resistance testing.

1.06 QUALITY ASSURANCE

A. Construction of concrete flatwork, including curbs and gutters, shall conform to Section 73 of the Standard Specifications.

B. Codes and Standards: Comply with the applicable provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified:
   1. California Building Code, Title 24, Part 2, Chapter 19A – Concrete
   2. ACI-SPEC-301-20 Specifications for Concrete Construction
   3. ACI CODE-318-25: Building Code for Structural Concrete ACI CODE-318-56 Standard Building Code Requirements for Reinforced Concrete
   4. ACI 614-59 Recommended Practice for Measuring, Mixing, and Placing Concrete
   5. Concrete Reinforcing Steel Institute (CRSI), Manual of Standard Practice
   6. ASTM A29 Standard Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought
   7. ASTM A82 Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
   8. ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
   9. ASTM C33 Standard Specification for Concrete Aggregates
   10. ASTM C150 Standard Specification for Portland Cement
   11. ASTM C618-25a Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
   12. ASTM C920 Standard Specification for Elastomeric Joint Sealants
   13. ASTM D1751 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)

C. AASHTO M154 Standard Specification for Air-Entraining Admixtures for Concrete Contractor shall be responsible for quality of concrete in place and shall bear burden of proof that concrete as placed meets minimum requirements.

D. Slip Resistance: Flooring shall provide a DCOF value equal to or greater than 0.42 when tested in accordance under dry conditions with DCOF AcuTest procedure contained in ANSI A137.1:2022, Section 9.6, and under wet conditions with DCOF AcuTest procedure of NFSI B101.3-2022.

E. Concrete Testing:
   1. The Owner may retain, at its expense, a testing laboratory to perform material evaluation tests in accordance with Section 01 45 00 - Quality Control.
   2. Testing may include slump tests and securing samples of concrete, cement, aggregates, or other materials for testing. Applicable materials shall be provided by the Contractor at no additional cost to the Owner.

F. When review or observation is required of the Owner's Representative of the concrete work, Contractor shall notify the Owner's Representative not less than 2 working days prior to date when the review or observation is required.

G. Pre-Pouring Review:
   1. Formwork, joint patterns, base material, reinforcement, "dobies," ties, and other installation accessories shall be reviewed and accepted by the Owner's Representative prior to pouring concrete.
   2. Forms, reinforcing, and accessories shall be in place and Contractor shall give a minimum of 5 working day lead-time notice to Owner's Representative when scheduling the review request.
   3. Contractor shall allow a minimum of 2 working days after pre-pour review in Construction Schedule for possible modifications to concrete preparation work, at no cost or delay to the project.

H. The Owner's Representative shall have access to any off-site batch plant or quarry supplying materials at all times for subject project and trucks in route to the project site.

I. Mockups:
   1. General:
      a. Mix design shall match that used on accepted sample panels and proposed for use in final construction including cement and color additive.
      b. Prepare at least one month before start of final concrete work to allow concrete to cure before observation.
      c. Concrete color and finish for mockup appearance shall match color and finish of accepted sample.
      d. Build mockups at the location indicated or, if not indicated, as selected by the Owner's Representative
      e. Notify Owner's Representative 5 working days in advance of dates and times when mockups will be constructed and layouts will be ready for review.
      f. Color and texture shall be approved before starting construction.
      g. Perform specified slip-resistance testing on mockups.
      h. Maintain final accepted mockups in an undisturbed condition as a standard for judging the completed Work.
      i. Retain samples of sands, aggregates, and color additive used in the mockups for comparison with materials used in final work.
      j. Demolish and remove mockups when directed if not incorporated into the final work.
   2. Flat Paving Mockups:
      a. 4-feet x 4-feet sample panels of concrete flatwork and concrete darkening agent for each required color and texture shall be poured by the Contractor at the site for review and acceptance by the Owner's Representative.
      b. Quantity:
         1) Contractor shall allow for preparation of up to 2 flat paving mockups for evaluation and final approval of each concrete.
         2) For mockups demonstrating appearance using specified surface retarder, Contractor shall prepare a mockup using specified retardant level plus additional samples one level higher and one level lower, of applicable, for review by Owner's Representative.
      c. Samples shall include each type and profile of joint, surface texture, and tooled conditions for approval. Contractor shall schedule review well in advance of concrete operations to allow for modifications and preparing an additional mockup panel if necessary.

1.07 DELIVERY AND STORAGE

A. Deliver concrete reinforcement to job site properly tagged and ready to set. Store above ground surface on platforms, skids, or other supports. Coordinate delivery and storage of all other materials as appropriate.

B. Coordinate delivery so that mixes may be immediately poured upon arrival at site.

1.08 FIELD CONDITIONS

A. Maintain control of concrete dust and water. Do not permit adjacent areas to be contaminated.

PART 2 - PRODUCTS

2.01 BASE MATERIALS

A. Aggregate: As specified in Section 32 11 00 - Base Courses.

2.02 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
   1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less.
   2. Do not use notched and bent forms.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.03 REINFORCING

A. General:
   1. Reinforcing steel shall be cut and bent cold to exact lengths and shapes to comply with Drawings, reviewed shop drawings, and referenced codes and standards.
   2. Comply with the additional requirements shown on the Drawings.

B. Reinforcing Steel: Deformed billet steel bars complying with Section 52-1.02B of Standard Specifications, Section 1907 of CBC and ASTM A615.
   1. Provide Grade 60 for No. 4 and larger, Grade 40 for No. 3 and smaller.
   2. Bars shall be in a new, “first-class” condition.

C. Smooth Dowel Steel Bars for Expansion Joints: ASTM A29, Grade 40, No. 3 smooth.
   1. Dowels shall be shop painted with iron-oxide zinc-chromate primer.
   2. Where shown, provide metal dowel sleeve or other approved break-bond method at one end of dowel to permit lateral movement at dowel within concrete section.
   3. Provide for movement which equals joint width plus 1/2 inch.
   4. Bars shall be in a new, “first-class” condition.

D. Dowel Insert System: Single component dowel sleeve with self-locking design; “Speed Dowel” by Sika, or equal selected for dowel profile and diameter indicated on the Drawings.

E. Tie Wire: ASTM A82, black annealed, minimum 16 gage.

F. Supports for Reinforcement: Provide bolsters, chairs, spacers, and other devices for spacing, support and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications, unless otherwise acceptable.

2.04 CONCRETE MATERIALS

A. Cement: ASTM C150, Type II, and shall be provided by one manufacturer.

B. Pozzolan: Class F Fly Ash per ASTM C618 comprising 15-20% of total cementitious materials. Fly Ash may be added to a maximum ratio of 35% of total cementitious materials where testing reports are provided for the mix design review.

C. Coarse Aggregates: Coarse aggregates shall conform to ASTM C33, sizes 57, 67 or 7. Pea gravel aggregate shall not be used.

D. Fine aggregates: Fine Aggregates shall conform to ASTM C33.

E. Water: Clean and not detrimental to concrete.

F. Surface Retarder at Concrete Paving: Water-based, top-surface retarder and etch; "Grace Top-Cast" by Grace Construction Products (GCP). Contractor shall verify compatibility with concrete mix to achieve desired sandblast finish.
   1. Grade: 05 Light Blue – Sandblast Finish, unless otherwise required to achieve a median sand blasted texture.

2.05 CONCRETE ADDITIVES

A. Pigment for Concrete: Synthetic mineral-oxide pigments or colored water-reducing admixtures, color stable, nonfading, and resistant to lime and other alkalis, and complying with ASTM C979; Davis Colors Inc., 800-800-6856, as specified and noted on the Drawings, or equal.
   1. If added to mix at Project site, additive shall be furnished in manufacturer's "Mix-Ready" disintegrating bags.
   2. Dosage Rate: As required to achieve color of approved sample but not exceeding 10 percent of weight of cementitious materials in mix.
   3. Colors:
      a. Darkening Agent: Davis Colors Inc. colorant #8084 Jet Black, or acceptable equal.
         1) Dosage: 1/4-pound per sack of concrete.

B. Curing Compound: Clear, non-yellowing, non-flammable compound meeting the moisture retention requirements of ASTM C-309 Type 1D; E-Cure by SpecChem, or equal.

C. No other admixtures shall be allowed without written acceptance by the Engineer of Record. Admixtures that have a negative impact on concrete finish shall not be used. When more than one admixture is used, admixtures shall be compatible.

2.06 ACCESSORIES

A. Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days. SIKAGrout 212 or equal.

B. Curing Materials:
   1. Liquid Curing Compounds: ASTM C309, Type 1.
   2. Sheet Material: Waterproofed Kraft paper, ASTM C17, regular type.

C. Joint primer: One component, solvent based; Sonolastic horizontal paving joint primer No. 733, or No. 766 by BASF, or equal.

D. Fiber Expansion Joint Material: Preformed cellular fiber complying with ASTM D1751; 1/2 inch thick unless otherwise indicated.
   1. Expansion joint material shall be variety with "zip-strip" H-channel joint sealant receptacles. If proposed joint material is not installed with sealant receptacles then, the expansion joint material shall be completely covered with a Sonolastic closed cell backer rod by BASF, or acceptable equal prior to application of joint sealant.
   2. Provide 3/8-inch tooled edges each side of joint material. Refer to Drawings for additional information.

E. Paving Expansion Joint Sealant: Multi-component, self-leveling polyurethane conforming to ASTM C920, Class 25, Type S, Grade P; Sonolastic SL 2 by BASF, or equal.
   1. Color: As selected by Owner's Representative.

F. Cold Joint Form: "MB Joint Key" by MeadowBurke, or equal.

2.07 CONCRETE MIXING

A. General:
   1. Mix and deliver concrete in accordance with ASTM C94.
   2. Addition of water to the mix after leaving the plant is not permitted.
   3. No admixtures will be allowed without prior acceptance by the Owner's Representative. If accepted, use admixtures according to manufacturer's written instructions.
   4. Ensure equipment and plant will afford accurate weighing, minimize segregation, and will efficiently handle materials.
   5. Deposit concrete into final position within 90 minutes of introduction of cement.

B. Pigments:
   1. Darkening Agent: Add 1/4 pound of specified black colorant per 94 lb. sack of cement to all concrete which will be exposed to view when cured except for drain rims and concrete receiving other colorants.

C. Minimum ultimate compression strength of concrete at 28 days is as follows:

Item	Strength (psi)	Maximum slump	Size of aggregate	Cement (min # of 94 lb. sacks per yard)	W/C Ratio (max)
Slab-On-Grade	3,000	4"	3/4"-1"	5	0.60
Edgebands	3,000	4"	3/4"-1"	5	0.60
Structural Items	Refer to SB1: Scoreboard PC Cover Sheet, Construction Specifications				

D. Drying Shrinkage Limit at 21 Days: 0.40 percent.

E. Addition of approved admixtures shall be per manufacturer's recommendations.

F. Adjustment to Concrete Mixes:
   1. Mix design adjustments may be requested by Contractor when job conditions, weather, test results warrant, or to meet appearance of accepted samples or mockup.
   2. Test data for revised mix design shall be submitted to and accepted by Owner's Representative before using in work.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify requirements for concrete cover over reinforcement.

B. Verify that anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.02 PREPARATION

A. Prepare joints in previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

B. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

3.03 EXCAVATION

A. In addition to the general grading excavation required, the Contractor shall excavate to the required depths in the locations shown for flatwork and curbs. Excess excavation shall be replaced with concrete poured monolithically with the wall or pavement, at no additional cost to the Owner.

3.04 INSTALLATION OF FORMWORK

A. Formwork shall conform to Section 51 of the Standard Specifications and as follows:
   1. The Contractor shall build forms with a high degree of care and shall select from materials of adequate strength and smoothness to produce smooth, even surfaces of uniform texture and appearance, free of bulges, depressions, or other imperfections per the discretion of the Owner's Representative. Remove any residue remaining on concrete after forms are removed.
   2. Transition of curves to straight lines and of curves to curves shall be formed as smooth, continuous, and uninterrupted with typical 90-degree radius alignment at the points of tangency, unless otherwise detailed on Drawings.

3.05 PLACING REINFORCEMENT

A. General:
   1. When there has been a delay in placing concrete, reinforcement shall be inspected and, if necessary, cleaned, relocated, and tied at no additional cost to Owner.
   2. Wherever conduits, piping, inserts, sleeves, and similar item interfere with placing of reinforcing steel, obtain approval of Owner's Representative of method of procedure before concrete is placed.

B. Reinforcement installation shall conform to the provisions of the Standard Specifications as follows:
   1. Cleaning Section 52-1.03B
   2. Bending Section 52-1.03C
   3. Placing Section 52-1.03D
   4. Splicing Section 52-6
   5. Lapped Splices Section 52-6.03B

3.06 PLACING CONCRETE

A. Place concrete in accordance with ACI 301-20.

B. Notify Engineer of Record and Special Inspector minimum 48 hours prior to commencement of operations. Do not place concrete until forms and reinforcements, as well as other required inspections, have occurred and the Special Inspector is present to perform observations and testing during placement.

C. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.

D. Separate slabs on grade from vertical surfaces with 1/2-inch-thick joint filler. Place joint filler to required elevations. Secure to resist movement by wet concrete.

E. Extend joint filler from bottom of slab to within 1/8 inch of finished slab surface.

F. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

G. Place concrete continuously between predetermined contraction joints.

H. Do not interrupt successive placement; do not permit cold joints to occur.

I. Screed slabs on grades shown, maintaining surface to tolerance of 1/4 inch maximum in 10 feet.

3.07 CONCRETE JOINTS

A. General:
   1. Joints shall be constructed as detailed in the Drawings.
   2. Refer to layouts on the Drawings for location of each joint type.
   3. Where joints have not been specifically laid out, refer to details for maximum on center spacing.
      a. Joints shall be laid out equidistant within the larger areas.
   4. Joints shall be constructed to be perpendicular and parallel to utility and drainage structures.
      a. Where possible, utility and drainage structures shall be rotated such that they will be square to nearest joint.

B. Expansion Joints: Install to full depth of slab.
   1. Cold Joints: Install specified cold joint forms in accordance with manufacturer's recommendations. Joints shall not be covered with concrete. Tool joint to remove concrete from edge of metal.
   2. Fiber Expansion Joints: After allowing concrete to fully cure, remove zip strips and install expansion joint sealant as shown and in accordance with manufacturer's instructions.
   3. Install specified dowel sleeves in accordance with manufacturer's instructions and as shown.

C. Score Joints: Tool to a 3/8-inch radius and to a depth of one-fourth of the slab thickness, 2" depth maximum.

D. Form contraction joints as detailed on plans. Joints shall be formed immediately after final finishing with an approved concrete-sawing machine; "SOFF-Cut" as manufactured by Husqvarna Construction US (800) 288-5040, or equal.
   1. Avoid dislodging aggregates.
   2. Unless otherwise indicated or directed, the joints shall be 1/8-inch-wide and 1-inch deep. Do not use zip-strips.
   3. Saw contraction joints to true alignment with "SOFF-Cut" concrete-sawing machines adequate in number and power and with sufficient replacement blades to complete the sawing at the required rate.

4. Joints shall be cut as the concrete has hardened sufficiently to permit walking on the slab, and as recommended by the saw manufacturer.
5. Unless otherwise approved, saw joints in the sequence of concrete placement. Remove cutting debris.
6. Saw cuts shall be made in accordance with manufacturer's instructions.

E. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
1. Cut depth shall be 25 percent of slab depth unless otherwise shown or required to comply with accepted mockup.
2. Layout: As shown on the Drawings.

F. Curb and Edge Band Joint: Locate as follows, unless otherwise noted on the Drawings.
1. Every 8 feet for score joints.
2. Install fiber expansion joints maximum 16 feet on center.
3. Install fiber expansion joints at corners, and beginnings and endings of radii.
4. Align score and fiber expansion joints with proposed fence posts.

3.08 EDGING

A. Edges of slabs, curbs, and other paving shall be tooled with a 1/2-inch radius edging tool, unless otherwise indicated or specified in the Drawings.

B. Trowel marks resulting from tooling of edges shall be carefully troweled out.

3.09 PLACING OF CONCRETE

A. Notify Owner's Representative minimum 5 working days prior to pour.

B. Preparation:
1. Protect finished surfaces adjacent to areas to receive concrete.
2. Valve boxes, electric boxes, drainage inlet structures, manholes, lids, and other similar items shall be covered and protected prior to and during concrete pour. Concrete staining to these items will not be accepted.
3. Verify that the Owner's Representative, if required, has inspected reinforcement.
4. Notify the Owner's testing laboratory at least 2 working days before placing concrete.

C. Placing:
1. Concrete placement shall conform to Chapter 4, Section 40 of the Standard Specifications.
2. Moisten earth, and spray forms and reinforcement with water before placing concrete.
3. Place concrete in continuous operation to permit proper and thorough integration and to complete scheduled placement.

D. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than six feet. Spouts, elephant trunks, or other acceptable means shall be used to prevent segregation.

3.10 CONCRETE FINISHING - GENERAL

A. Provide formed concrete surfaces to be left exposed with a medium sand-blast finish. Coordinate with Landscape Architect prior to placing concrete.

B. Finish concrete floor surfaces in accordance with ACI 301-20. Provide non-slip surface where concrete floor surfaces are left exposed, unless noted otherwise.

C. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on drawings.

3.11 FLATWORK FINISHING

A. General:
1. Provide each concrete finish where shown in the Drawings.
2. Provide samples and mockups as specified of all concrete finishes for review and acceptance prior to pouring concrete.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats.

C. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance.

D. Broom Finish:
1. Broom with medium bristled broom to a uniformly roughened surface. Finished surface shall be clean with uniform and straight lines.
2. Paving with a slope greater than 6 percent shall be heavy broom finish and paving less than 6 percent shall be a medium broom finish.
3. Broom finish shall be parallel to the path of travel, unless otherwise noted on plans.

E. Areas to Receive Surface Retarder:
1. Apply specified surface retarder uniformly to wet concrete after the initial bleed water rises to the surface using low pressure spray equipment in accordance with manufacturer's recommendations.
2. Remove retarded cement matrix with water.
3. Exercise care, and install protective procedures, to prevent rinse water from damaging adjacent materials or entering adjacent soil and planting areas. Should rinse water contaminate soil of planting areas, affected soil shall be removed and replaced with new soil complying with Section 32 90 00 - Planting at no additional cost to Owner.

3.12 FIELD QUALITY CONTROL

A. Provide free access to Work and cooperate with Owner's Representatives.

B. Tests of cement and aggregates may be performed to ensure conformance with specified requirements.

C. One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.

D. At a minimum one slump test will be taken for each set of test cylinders taken.

E. Tolerances:
1. Vertical deviation from specified grades shall not exceed 0.04 foot.
2. Surface smoothness deviations shall not exceed 1/8 inch in 8 feet, in any direction.
3. Thickness shall not be more than 0.01 foot less than planned thickness at any point.

3.13 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Cure floor surfaces in accordance with ACI 308.

D. Spraying: Spray water over floor slab areas and maintain wet for 7 days.

E. Provide necessary security to protect the concrete from vandalism. Concrete which is defaced or damaged during the course of this Contract shall be replaced by the Contractor at no additional cost to the Owner.

F. Installer logo or markings are not allowed.

3.14 PATCHING

A. Allow Engineer to inspect concrete surfaces immediately upon removal of forms.

B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.

C. Patch imperfections in accordance with ACI 301-20.

3.15 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements; concrete with excessive honeycombs or other surface or finish defects.

B. Repair or replacement of defective concrete will be determined by the Engineer of Record.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

D. No additional compensation will be allowed for repair of defective concrete.

3.16 CLEANING

A. Remove excess base material, concrete spills, cement stains and all other excess materials from all project areas, and adjacent areas as necessary, prior to Final Acceptance.

END OF SECTION

SECTION 32 33 00

SITE FURNISHINGS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Site furnishings and installation accessories as shown on the Drawings including, but not necessarily limited to, the following:

      a. Scoreboard

   2. Site Furnishings Product Matrix

B. Related Requirements:
   1. Section 01 25 00 - Substitution Procedures
   2. Section 32 13 13 – Concrete Paving

1.02 REFERENCES

A. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Action and Informational Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

B. Scheduling and Sequencing:
   1. Do not install site furnishings prior to acceptance by Owner's Representative of area to receive items.
   2. Coordinate construction timing of installation of site furnishings in conformance with other work interfacing with installation of the site furnishing items.

1.04 ACTION SUBMITTALS

A. Shop Drawings: Submit complete shop drawings for all materials or furnishings requiring field or shop fabrication.

B. Product Data: Manufacturer's catalog cut sheets of materials and equipment to be provided.
   1. Include the manufacturer and distributor name, and subcontractor as applicable.
   2. Cut sheets clearly describe the specific product by catalog number and that additional non-specified products that may appear on the same cut sheet are crossed out where applicable.

C. Samples: Colors and finishes for products and furnishings requiring selection by the Owner's Representative.

1.05 INFORMATIONAL SUBMITTALS

A. Statement of qualifications for manufacturers and installer if requested by the Owner's Representative.

1.06 CLOSEOUT SUBMITTALS

A. Provide operation and maintenance data for items with operable, movable, or replaceable parts, for items with mechanical connections, and for other items as applicable.

B. Extended warranties as specified.

1.07 QUALITY ASSURANCE

A. Furnishings shall be reviewed for conformance with the intent of the Contract Documents and accepted by the Contractor prior to installation.

B. Site furnishings shall be in a new, "first-class" condition as determined by the Owner's Representative at the time of Final Acceptance.

C. Field Samples and Mockups: As requested by the Owner's Representative.

1.08 DELIVERY, STORAGE AND HANDLING

A. General:
   1. The Contractor is responsible for coordination of the delivery, acceptance, handling, and storage of site furnishings.
   2. Store and handle site furnishings as acceptable to the Owner's Representative and so that work or access of others is not impeded.
   3. Protect site furnishings from theft or damage until such items have been accepted by the Owner.

B. Packaging and Labeling: Furnish materials in manufacturer's unopened, original packaging, bearing original labels showing quantity, description, and name of manufacturer. Verify that materials and components are adequately padded and securely bound in such a manner that no damage occurs to the product during delivery and unloading at the site.

C. Storage: Damaged materials will be rejected. Remove damaged materials from job site immediately and pay cost of replacement. Determination of damage shall be the sole authority of the Owner's Representative.

D. Painted Finishes: Provide non-scratching, non-staining, firmly bound covering for shop-painted finishes until installed and accepted.

E. Protect wood materials from stains.

1.09 WARRANTY

A. Manufacturers: Provide Owner with manufacturer's written extended product warranties as available for the specified products.

PART 2 - PRODUCTS

2.01 SITE FURNISHINGS - GENERAL

A. When a material, article, or process is indicated or specified by trade, patent, proprietary name, or name of manufacturer, the specification shall be deemed to be followed by the words "**or equal, as accepted in writing by the Owner's Representative"** and a request for substitution shall be submitted as specified in Section 01 25 00 Substitution Procedures.

2.02 SCOREBOARD

A. Description: SO-2019-W-PV-F PanaView Soccer Scoreboard
B. Manufacturer: Daktronics
   1. Contact: Luke Winson (605)736-1945
C. Model details:
   1. Cabinet
      a. Dimensions: 8'-0" H x 18'-0" W x 8" D (approx.)
      b. Digit Type: PanaView
      c. Digit Color: White
      d. Max Power: 595 watts/display
      e. Weight: Unpackaged 595 lbs per display; Packaged 920 lbs per display
   2. Electronic Caption (White LED) for 18' / 25' Football and Soccer
      a. 8x32-34mm Electronic Captions
      b. Weight: Unpackaged 210 lbs per display; Packaged 450 lbs per display
   3. TNMC_8x32_White LED (34mm) Team Name Message Center
      a. Set of 2
      b. White LEDS
      c. Weight: Unpackaged 70 lbs per display; Packaged 150 lbs per display
   4. 12VDC Trumpet Horn w/ Power Supply for Outdoor Scoreboards
   5. All Sport 5010 Control Console Kit
   6. Outdoor Scoreboard Radio Communications (Transmitter)
      a. Frequency of 2.4 GHz
   7. Radio Receiver
      a. Frequency of 2.4 GHz
   8. All Sport Radio Antenna Extension Kit, 25ft
   9. I-Beam Mounting Hardware (A) for 2 I-Beams
   10. Outdoor Non-Backlit 2'-0" x 18'-0" Horizontal Ad Panel
      a. Dimensions: 2'-0" H x 18'-0" W x 8" D
      b. Weight: Packaged 116 lbs per display
   11. Pre-Check DSA Package
   12. System Startup with Final Commissioning of Equipment
   13. Labor, Field Technician
      a. Regional Field Service Technician Labor which includes system commissioning, and customer operator training.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to commencement of work described in this Section, carefully inspect installed work, and verify all such work is correct and complete. Immediately notify the Owner's Representative of any discrepancy before proceeding with work.

3.02 INSTALLATION - GENERAL

A. Conform to layout shown on Drawings. Final placement shall be field verified with the Owner's Representative.

B. Installation of products shall be as shown in the Drawings, or according to manufacturer's instructions. If discrepancies are found, or if information is lacking, consult with the Owner's Representative prior to beginning the work.

C. Concrete footings shall conform to requirements of Section 32 32 15 – Landscape Concrete unless noted otherwise.

D. Furnish anchorage and fastening required for installation to ensure proper fit and accurate placements. Bolts, where exposed, shall be cut back to within three threads of the nut.

3.03 CLEANING AND ADJUSTMENT

A. Protect furnishings from damage until acceptance of work. Do not remove protective wrappings from furnishings until so instructed by the Owner's Representative.

B. Clean soiled site furnishings prior to acceptance by Owner.

C. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by the Owner's Representative.

D. Replace damaged items to the satisfaction of the Owner's Representative. Replace missing accessories at no cost to Owner.

END OF SECTION