PROJECT MANUAL

CAMP GLENN ROCKEY SECURITY UPGRADES PROJECT
1900 SYCAMORE CANYON ROAD
SAN DIMAS, CA 91773

SPECS. NO.7879; C.P. NO. 8A062

JTC ARCHITECTS
65 NORTH FIRST AVENUE #201
ARCADIA, CA 91006

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COUNTY OF LOS ANGELES
PUBLIC WORKS
BUSINESS RELATIONS AND CONTRACTS DIVISION
900 SOUTH FREMONT AVENUE
ALHAMBRA, CA 91803-5311
(626) 300-2085

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SECTION 00 01 00

INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.01 COPIES OF BIDDING DOCUMENTS

a. Complete set of the Bidding Documents may be downloaded for free from the Los Angeles County Public Works website http://dpw.lacounty.gov/go/constructioncontracts.

b. Complete sets of Bidding Documents shall be used in preparing bids; the County does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

c. All Bidders for this solicitation are strongly encouraged to register at http://dpw.lacounty.gov/general/contracts/opportunities/. Only those Bidders registered for this solicitation through the DPW website will receive automatic notification when any update to this solicitation is made. **County does not have an obligation to notify any Bidders other than through the Public Works website automatic notification system.**

d. Electronic Submission of Bid

Bids will only be accepted electronically through BidExpress, a secure online bidding service website, at www.bidexpress.com.

To submit the bid electronically, register with BidExpress, one week prior to the bid opening date. Once the Bidder is registered, an invitation will be sent to the Bidder to allow access to the solicitation on www.bidexpress.com. A Infotech/BidExpress Set-up Guide is included as an Enclosure for reference. There is a nominal service fee to use BidExpress.

Visit the Infotech Knowledge Center at the following link for more information: Bid Express® help guides. https://infotechinc.zendesk.com/hc/en-us/categories/360003900254-Bid-Express-at-www-bidexpress-com.

e. The bid opening will be held using Microsoft Teams, or County accepted platform. The information and link to access the bid opening will be posted on Public Works website, on the project information link. Any changes to this procedure will be issued in a Notice to Bidders for this project.

1.02 QUALIFICATIONS OF BIDDERS AND SUBCONTRACTORS

a. The Bidder and each listed subcontractor must have a valid license, issued by the Contractors' State License Board, for the type of work proposed to be performed by the Bidder and each listed subcontractor under the contract. The required license(s) is required at time of bid in order to be considered a responsive bid.

b. This project requires the Bidder to possess a license classification of “B" at time of bid.

c. In addition to Article 1.02, a. and b., the specifications set forth require specialty licenses, experience requirements, and required certifications from manufacturers concerning approved installers. The apparent successful Bidder shall be required to demonstrate to the County's satisfaction within 10 calendar days of the bid opening that the Bidder and proposed subcontractors (whether required to be listed or not) possess these specialty licenses, experience requirements, and required certifications.

d. All Bidders and their subcontractors must be registered with the Department of Industrial Relations. Qualified contractors and subcontractors are listed on searchable database at: https://services.dir.ca.gov/gsp.

1.03 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

a. Before submitting a bid, each Bidder must: a) examine the Contract Documents thoroughly; b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress, or performance of the Work; c) become familiar with federal, state, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress, or performance of the Work; and d) study and carefully correlate Bidder's observations with the Contract Documents.

b. The submission of a bid will constitute an incontrovertible representation by the Bidder that Bidder has complied with every requirement of this Article and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

1.04 INTERPRETATIONS

a. All questions about the meaning or intent of the Contract Documents shall be submitted to the Department in writing. Replies will be issued by Notice to Bidders. Questions received less than ten (10) calendar days prior to the date for opening of bids will not be answered. Only questions answered by formal written notice will be binding. Oral and other interpretations or clarifications will be without legal effect.

1.05 BID SECURITY

a. Bid security is required of each Bidder and shall be made payable to Los Angeles County, in an amount of ten percent (10%) of the Bidder's bid price, in the form of cash, a certified check, a cashier's check, or a bid bond issued by a California-admitted Surety.

b. The bid security of the successful Bidder will be retained until such Bidder has executed the Agreement and contract security, whereupon it will be returned; if the successful Bidder fails to execute and deliver the Agreement and furnish the required insurance and contract security within fourteen (14) calendar days of notification from County, the County may annul the Notice of Award and the bid security of that Bidder may be forfeited. The bid security of any Bidder whom the County believes to have a reasonable chance of receiving the award may be retained until the earlier of the effective date of the contract or the ninety-first (91) day after bid opening. Bid security of other Bidders will be returned within thirty (30) days of the bid opening.

1.06 CONTRACT TIME

a. The number of days within which, or the date by which, the Work is to be completed (the contract time) is set forth in Section 01 00 00, "Project General Requirements." By submitting a bid, each Bidder agrees that the contract time is reasonable and the Bidder is capable of performing all Work within the contract time.

1.07 LIQUIDATED DAMAGES

a. Provisions for liquidated damages, if any, are set forth in Section 01 00 00, "Project General Requirements."

1.08 SUBSTITUTE MATERIAL AND EQUIPMENT

a. The Contract, if awarded, will be on the basis of material and equipment described in the Drawings or specified in the Specifications unless the Bidder

complied with the procedure for substitution of Equals as set forth in the General Conditions.

b. If any proposed substitution of an Equal is determined by the County to not be an Equal, the Contractor must complete the Work in accordance with the Drawings and Specifications for the accepted bid amount.

1.09 SUBCONTRACTORS

a. In accordance with Sections 4100 to 4113, inclusive of the Public Contract Code of the State of California, Contractors shall list, on the form provided, the name, license number, business location and classification of work for each subcontractor who will perform work, labor, or render service on the construction work in excess of one-half (1/2) of one percent (1%) of the total bid.

1.10 FORM OF BID

a. The Form of bid is attached hereto. Additional copies may be obtained from Contracts Administration Section, Business Relations and Contracts Division, 8th Floor.

b. The bid price of each item on the form must be stated in words and numerals; in case of a conflict, words will take precedence. Bid prices must be given for all bid items shown on the Form of Bid, including all additive alternatives. Failure to provide prices for all bid items may result in a determination by the County that the Form of Bid is nonresponsive.

c. Bids by corporations must be executed in the corporate name by the President or a Vice-President (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of corporation shall be shown below the signature.

d. Bids by partnership must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

e. All names must be typed or printed below the signature.

f. Bid Documents, Form of Bid, Section 00 03 00, must confirm receipt of any Notice to Bidders (if any).

1.11 SUBMITTAL OF BIDS

a. Bids will only be accepted electronically through BidExpress, a secure online bidding service website, at www.bidexpress.com. Bids shall be submitted at the time indicated in the Information for Bidders.

1. The following documents shall be submitted at the time of bid.

Required bid form documents:

- **Section 00 03 00 Form of Bid**
- **Section 00 03 10 Best Management Practices**
- **Section 00 03 11 Construction and Demolition Debris Recycling Requirements**
- **Section 00 03 12 Insurance Requirements**
- **Section 00 04 00 Attestation of Contractor's Qualifications**
- **Section 00 04 10 Bid Bond (scanned copy)**
- **Section 00 04 30 List of Subcontractors**
- **Section 00 04 38 Request for Preference Consideration**
- **Section 00 04 38A Subconsultant Certification Form**
- **Section 00 04 78 SB 1439 Questionnaire-primary firm**
- **Section 00 04 79 Contribution and Agent Declaration Form-primary firm**

Failure to confirm receipt of any Notice to Bidder(s) provided to bidders on Form of Bid, Section 00 03 00, as required, may result in a determination that the apparent low bidder is nonresponsive and/or nonresponsible.

2. Original Bid Bond shall be mailed in within two (2) calendar days from the bid opening. This is required only from the first, second, and third apparent lowest bidders.

3. The following document shall <u>not</u> be submitted at time of bid. Section 00 04 40, Equals, will only be required from the first, second, and third apparent lowest bidders and returned to the County no later than two (2) calendar days from the bid opening.

- **Section 00 04 40 Equals**

b. No mention shall be made of sales tax or use tax, as all bid prices submitted will be considered as including such tax.

c. The County may consider nonresponsive any bid not prepared and submitted in accordance with the provisions herein and, therefore, reserves the right to

reject any or all bids so submitted. The County also reserves the right to accept alternative bids when called for and when items are to be bid on as units, to accept the bid for the list of such items in its entirety, or to accept any portion or portions of same.

d. **The following documents shall <u>not</u> be submitted at the time of bid. These forms will be required only from the first, second, and third apparent lowest bidders and returned to the County no later than seven (7) calendar days from the bid opening.**

Section 00 04 35	**Community Business Enterprises (CBE) Participation Form.**
Section 00 04 50	**Noncollusion Affidavit**
Section 00 04 60	**Attestation of Willingness to Consider GAIN/START Participants**
Section 00 04 65	**3-Year Contracting History**
Section 00 04 70	**False Claims**
Section 00 04 71	**Civil Litigation History**
Section 00 04 72	**Criminal Convictions**
Section 00 04 73	**Debarment**
Section 00 04 74	**Labor Law/Prevailing Wage**
Section 00 04 75	**Integrated Pest Management Program Compliance Certification**
Section 00 04 76	**Charitable Contributions Certification**
Section 00 04 77	**Prospective Contractor List of Terminated Contracts**
Section 00 04 78	**SB 1439 Questionnaire subconsultants/subcontractors**
Section 00 04 79	**Contribution and Agent Declaration Form-subconsultants/subcontractors**
Section 00 04 85	**Contractor Employee Jury Service Program-primary firm and subconsultants/subcontractors**
Section 00 04 90	**Contractor's Industrial Safety Record**
Section 00 04 91	**Injury and Illness Prevention Plan and Code of Safe Practices Affidavit**
Section 00 04 92	**Bidder's Organization Questionnaire/Affidavit**
Section 00 04 93	**Certification of Compliance with the County's Defaulted Property Tax Reduction Program**
Section 00 04 94	**Avoidance of Conflict of Interest**
Section 00 04 95	**Familiarity with the County Lobbyist Ordinance Certification**
Section 00 04 96	**Proposer's EEO Certification**

Section 00 04 97	**Compliance with Fair Chance Employment Hiring Practices Certification**
Section 00 04 98	**Zero Tolerance Human Trafficking Policy Certification**
Section 00 04 99	**Disallowed Cost Attestation**

e. Upon the County's request, each bidder agrees to provide the County with a cost breakdown of the bid in Construction Specification Institute (CSI) format. Failure to provide this information may result in a determination that the Bidder is nonresponsive and/or not responsible.

1.12 MODIFICATION AND WITHDRAWAL OF BIDS

a. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a bid must be executed) and delivered to the place where bids are to be submitted or by a Bidder's representative with proper identification and verification, at any time prior to the closing time for receipt of bids.

b. Relief of Bidders shall be as provided in Sections 5100-5107, inclusive, of the Public Contract Code of the State of California.

1.13 OPENING OF BIDS

a. Bids shall be opened publicly, read aloud, and the amount of the base bids and alternates (if any) shall be made available after the opening of bids.

b. Preliminary bids results will be posted on the same day on the Department of Public Works Website: http://dpw.lacounty.gov/general/contracts/opportunities/.

1.14 AWARD OF CONTRACT

a. If the County determines to award a contract, it shall be awarded to a responsive and responsible Bidder with the lowest bid price with preference to businesses that are certified by the County as a Local Small Business Enterprise, as set forth in Article 1.30 of these Instructions to Bidders. If there are alternatives, the lowest bid price shall be determined by adding the lump sum bid and the price of all alternatives. This does not preclude the Board of Supervisors from selecting any combination of alternates after the lowest responsible bidder has been determined. The Board of Supervisors reserves the right to reject any or all bids or to waive in the public interest technical errors and discrepancies in bids submitted.

b. The Board shall have the right to delay the award of the contract for 90 days after bids are opened and declared, unless otherwise agreed to by the

County and Bidders. Bidders may withdraw their bids 91 calendar days after bids are publicly opened and declared by submitting written notice addressed to the Department. In evaluating bids, the County shall consider whether or not the bids comply with requirements, alternatives, and unit prices, if requested in the Form of Bid.

c. Extended Overhead Daily Rate

Extended Overhead Daily Rate is the sum of the Contractor's home office and field office overhead as applicable to this project.

The Bid Form contains an Extended Overhead Daily Rate which will be used to determine the additional compensation due the Contractor for each day of Compensable Delay. The number of days of Compensable Delay shown as a multiplier in the paragraph below is not intended as an estimate of the number of days of Compensable Delay, as defined in Section 00 07 00, General Conditions, Article 17.F.2 may be greater or lesser than the 30 days shown below.

The Extended Overhead Daily Rate in the Bid Form will be used in the evaluation of bids by multiplying the Extended Overhead Daily Rate times 30 days of Compensable Delay and adding it to the bidder's Lump Sum Bid price. However, the amount of the multiplied Extended Overhead Daily Rate for 30 days of Compensable Delay will <u>not</u> be included in the base contract amount.

d. Consultant Services Agreement

Following the determination of the successful bidder by the County, the County will issue a consultant services agreement for the preparation of the baseline construction schedule. The successful bidder shall return the signed consultant services agreement within three days of the County's issuance. Upon the County's receipt of the signed consultant services agreement, the County will authorize preparation of the Detailed Network Construction Schedule in accordance with Section 01 32 00 and preparation of the Schedule of Values in accordance with Section 01 29 73 of the project specifications. Only after acceptance by the County of the Detailed Network Construction Schedule in accordance with the minimum requirements set forth in Section 01 32 00, Construction Schedule, Section 01 29 73, Schedule of Values, Section 01 33 00, Submittals, and execution by the bidder of a contract for the entire project will the County execute a contract for the construction of the project.

Upon receipt by the County, of an acceptable Detailed Network Construction Schedule, Schedule of Values, and list of Submittals, the Bidder shall receive payment of the sum of Five Thousand Dollars ($5,000) as compensation to perform the work required to provide a Detailed Network Construction

Schedule, Schedule of Values, and list of Submittals. The payment of $5,000 shall be deducted from the overall construction contract base bid and shall not be in addition to it.

e. Failure to Produce Detailed Network Schedule and Schedule of Values

The Contractor must have or obtain expertise in the type of automated scheduling specified. The successful Bidder will have ten (10) calendar days from the issuance of a Notice to Proceed under the consultant services agreement to submit its Detailed Network Construction Schedule and Schedule of Values. The successful Bidder will have three (3) calendar days to provide County requested revisions to the Detailed Network Construction Schedule and Schedule of Values provided under the Consultant Services Agreement.

Submission of an acceptable Detailed Network Construction Schedule and Schedule of Values is a condition precedent to the execution of the construction contract by the County. Failure to meet these requirements may result in a determination and a recommendation that the Board of Supervisors determine that the successful Bidder is non-responsible because such failure reflects on the Bidder's ability to manage the work.

f. Execution of Contract by Bidder

Following bid opening and upon notification from Public Works, the apparent successful Bidder will be required to deliver within fourteen (14) calendar days to the offices of Public Works certificate(s) issued by the insurance carrier(s), payment and performance bonds, and three (3) signed and notarized contract signature pages. The contract pages must be signed by the corporate president and secretary, managing partner or sole proprietor.

g. Execution of Contract by County

When the Board of Supervisors or the Director has formally awarded the contract to the Successful Bidder, the County will execute the contract and issue the fully executed contract to the Contractor followed by the Notice to Proceed.

h. Failure to Resolve Equals

In accordance with the General Conditions, paragraph 2, subparagraph d, the first, second and third apparent lowest bidders will have two (2) calendar days after the bid opening to submit their list of Equals and ten (10) calendar days after the bid opening to submit all substantiating data and test results.

i. Protest Policy

The County will handle and process any and all protests in connection with this Bid according to the County of Los Angeles Contracting Manual, Countywide Construction Contracting Policy Guidelines, no. P-05-04, "Bid Protests", dated March 31, 2003. Bidders who wish to file a protest shall do so in accordance with the requirements specified in Construction Contracting Policy Guideline no. P-05-04, which can be found at http://dpw.lacounty.gov/general/bids/BidProtests.pdf

Policy Overview
The County of Los Angeles will process bid protests in a timely and consistent manner to assure that all prospective contractors**/**consultants are accorded fair and equal consideration for the award of County contracts.

Purpose and Scope
The purpose of this Policy Guideline is to convey the County's general course of action for addressing bid protests asserted by prospective contractors. This guideline will address the administrative guidelines for protests arising from the acquisition of construction and construction-related services under both the Invitation for Bid (IFB) and Request for Proposal (RFP) methods of solicitation.

Application and Responsibility
This Policy Guideline applies to all County departments involved in the contractor selection process for construction and construction-related contracts.

Policy Guidelines

1. **Introduction.** Protests received by the County before contract award shall be immediately forwarded to the contract administrator issuing the IFB or RFP. The contract administrator will prepare a written response, reviewed by County Counsel if necessary, and approved by the department/agency head or his/her designee.

2. **Timely Filing**. The protest of a likely contract award to the apparent lowest bidder (IFB) or best-qualified firm or consultant (RFP) must be made prior to contract award. Untimely notice will not serve the interests of either party. Protests should be received by the County at the earliest practical time.

3. **Post-Award Protests.** With respect to protests received after contract award, the County will not suspend contract performance or terminate the awarded contract unless so directed by the Board.

4. **Protest Format.** The protesting party's protest should reference all pertinent County, State, Federal, or local laws or regulations that are relied upon in support of the protest. Any documents relevant to the protest should be submitted. The County, at its discretion, may decide the protest without requesting further submittal(s) from the party submitting the protest. Thus, the initial protest should include all matters that the party wishes the County to consider in deciding the protest outcome. Such matters include, but are not limited to, the following:
   (1) The name and address of the party and its relationship to the procurement.
   (2) Identification of the proposed project or contract.
   (3) Description of the nature of the protest.
   (4) Identification of the provision(s) of the solicitation, regulations, or laws upon which the protest is based (i.e., identification of the technical specifications or item of content in the IFB/RFP).
   (5) Copies of all (or any) documentation supporting the allegations in the protest.
   (6) Statement of the specific relief requested.

5. **Protest Submittal.** The best interests of the parties are served if the protest is (1) filed with the contract administrator, (2) filed in a timely fashion, and (3) filed in the format and detail described in Protest Format above. A contractor may also appear in person before the Board. The Board, acting in the best interests of the County, may decide to continue with the award and acquisition subject to resolution of the protest.

6. **Protest Remedies.** A decision by the responsible official will be made based on the merits of the protest. A written response will be provided by the County and all findings and specified remedies will be considered final. The Board may suspend a contract upon a finding that the protest has merit and is based on solid legal principles.

7. **Authority for Administration of Protests.** The responsible official may assign contract administrators to conduct the administrative processing of protests filed with the County. Assigned contract administrators shall be responsible for proper distribution of protest submittals and responses, coordination of staff evaluation of the protest, compliance with the time limits stated herein, and maintenance of all documents related to the protest. The responsible official shall request County Counsel to review and advise the contract administrator concerning any legal issues involved in protests.

1.15 PERFORMANCE AND OTHER BONDS

a. The General Conditions and Supplementary Conditions set forth requirements as to performance bonds and other bonds. When the successful Bidder delivers the executed Agreement to the County, it shall be accompanied by the required contract security.

1.16 COMMUNITY BUSINESS ENTERPRISE (CBE) PARTICIPATION

a. The County encourages the participation of Community Business Enterprises (CBE) in the project and has established a goal of twenty-five percent (25%) CBE participation which all contractors must aspire to meet. Participation in the Work is based on total monetary value of the proposed subcontract. CBEs are defined as Minority/Women/Disadvantaged/Disabled Veteran/ Lesbian, Gay, Bisexual, Transgender, Queer, and Questioning owned Business Enterprises (M/W/D/DVBE/LGBTQQ).

b. Bidders shall meet the established goal as indicated above. If the Bidder does not meet this established goal, Bidder shall document its good faith efforts to utilize CBEs. The Bidder shall submit the documentation of its good faith efforts to the County. County will evaluate the Bidder's good faith efforts to meet the CBE participation goal by the following criteria:

1. Bidder attended any pre-solicitation or pre-bid meetings scheduled by the County to inform all Bidders of the CBE program requirements for the Project.

2. Bidder identified and selected specific items of the Project for which the contract will be awarded to be performed by CBEs to provide an opportunity for participation by those enterprises.

3. Bidder advertised, not less than ten (10) calendar days before the date the bids are opened, in one or more daily or weekly newspaper trade association publications, minority- or trade-oriented publications, trade journals, or other media, specified by the local agency for CBEs that are interested in participating in the Project.

4. Bidder provided written notice of his or her interest in bidding on the contract to the CBEs required to be notified by the Project specifications not less than ten (10) calendar days prior to the opening of bids.

5. Bidder followed up initial solicitations of interest by contacting the enterprises to determine with certainty whether the enterprises were interested in performing specific items of the Project.

6. Bidder provided interested CBEs with information about the plans, specifications, and requirements for selected subcontracting or material supply work.

7. Bidder requested assistance from minority and women community organizations; minority and women contractor groups; local, state, or federal minority and women business assistance offices; or other organizations that provide assistance in the recruitment and placement of minority or women business enterprises, if any are available.

8. Bidder negotiated in good faith with the CBEs, and did not unjustifiably reject as unsatisfactory bids prepared by any CBE.

9. Where applicable, the Bidder advised and made efforts to assist interested CBEs in obtaining bonds, lines of credit, or insurance required by these Contract Documents.

10. Bidder's efforts to obtain CBE participation could reasonably be expected by the County to produce a level of participation sufficient to meet the goals and requirements of the County.

c. Bidder may request for a certified CBE listing via email the County of Los Angeles Office of Small Business at:

osb@dcba.lacounty.gov

For additional information, contact the County of Los Angeles Department of Consumer and Business Affairs (Small Business Services). The website is: dcba.lacounty.gov. The County of Los Angeles Certification Portal from the Office of Small business is at the same website for firms seeking County certification.

d. Contractors, material, and services and supplies vendors interested in becoming registered as certified minority or women business enterprises may contact the County of Los Angeles Countywide Contract Compliance Section, at (626) 943-5619.

e. The first, second, and third apparent lowest bidders are required to submit documentation which describes the Bidder's good faith efforts to utilize CBEs within the timeframe indicated in Article 1.11 Submittal of Bids, paragraph d.

1.17 BEST MANAGEMENT PRACTICE (BMP) REQUIREMENTS

a. Contractor shall comply with the Los Angeles County Department of Public Works Construction Site Best Management Practices (BMP's) Manual, latest edition. A copy of the BMP Manual can be obtained at the Los Angeles County Department of Public Works Cashier's Office, 900 South Fremont Avenue, Alhambra, CA 91803, or call (626) 458-6959. Specific requirements for this Project are listed in Sections 00 03 10, 01 00 00, and 01 57 00.

b. Contractor shall use Construction and Demolition Debris Recycling Best Management Practices. Specific requirements are listed in Section 01 74 19. Copies of the Best Management Practices handbook are available at the Cashier's Office at the Department of Public Works at no cost to bidders.

1.18 RECYCLED BOND PAPER-CONTRACT LANGUAGE

Consistent with the Board of Supervisor's policy to reduce the amount of solid waste deposited at the County landfills, the Contractor agrees to use recycled content paper to the maximum extent possible on the project.

1.19 IMPROPER CONSIDERATIONS

a. Attempt to Secure Favorable Treatment

It is improper for any County officer, employee, or agent to solicit consideration, in any form, from a Bidder with the implication, suggestion or statement that the Bidder's provision of the consideration may secure more favorable treatment for the Bidder in the award of a Contract or that the Bidder's failure to provide such consideration may negatively affect the County's consideration of the Bidder's submission. A Bidder must not offer or give either directly or through an intermediary, consideration, in any form, to a County officer, employee, or agent for the purpose of securing favorable treatment with respect to the award of a Contract.

b. Notification to County

A Bidder must immediately report any attempt by a County officer, employee, or agent to solicit such improper consideration. The report must be made to the Los Angeles County Fraud Hotline at (800) 544-6861 or https://fraud.lacounty.gov/. Failure to report such a solicitation may result in the Bidder's submission being eliminated from consideration.

c. Form of Improper Consideration

Among other items, such improper consideration may take the form of cash, discounts, services, the provision of travel or entertainment, or tangible gifts.

1.20 CONSIDERATION OF GAIN/START PROGRAM PARTICIPANTS FOR EMPLOYMENT

As a threshold requirement for consideration for contract award, Bidders/Proposers shall demonstrate a proven record of hiring the County's Department of Public Social Services' (DPSS) Greater Avenues for Independence (GAIN) or Skills and Training to Achieve Readiness for Tomorrow (START) participants or shall attest to a willingness to consider GAIN/START participants for any future employment opening if they meet the minimum qualifications for that opening. Additionally, Bidders/Proposers shall attest to a willingness to provide employed GAIN/START participants access to Bidders'/Proposers' employee mentoring program, if available, to assist these individuals in obtaining permanent employment and/or promotional opportunities.

The County will refer GAIN/START participants by job category to the Contractor. DPSS may be contacted at the following locations:

Central County	(323) 730-6452
East San Fernando Valley	(818) 729-8933
Palmdale-Lancaster	(661) 575-2646
Pomona	(909) 392-3071
San Gabriel Valley	(626) 927-2723
South County	(310) 603-8359
Southeast County	(323) 261-3065
West County	(310) 655-7725
West San Fernando Valley	(818) 718-4337

Bidders/Proposers who are unable to meet this requirement shall not be considered for contract award.

1.21 CHILD SUPPORT COMPLIANCE PROGRAM

Contractor is required to fully comply with all applicable state and federal reporting requirements relating to employment reporting for its employees. Contractor is required to fully comply with all lawfully served wage and earnings assignment orders and notices of assignment. Failure to comply with state and federal reporting requirements regarding employees, or failure to implement lawfully served wage and earnings assignment orders or notices of assignment, constitutes a default under the contract, and failure to cure the default within 90 days of notice by the County, shall subject the contract to termination. Failure to comply with these requirements may be cause for debarment.

1.22 FEDERAL EARNED INCOME CREDIT

Contractor shall notify its employees, and shall require each subcontractor to notify its employees, that they may be eligible for the Federal Earned Income Credit under the Federal income tax laws. Such notice shall be provided in accordance with the requirements set forth in Internal Revenue Service Notice 1015.

1.23 REDUCTION OF SOLID WASTE

Consistent with the Board of Supervisors' policy to reduce the amount of solid waste deposited at the County landfills, the Contractor agrees to use recycled-content paper to the maximum extent possible on the project.

1.24 INJURY AND ILLNESS PREVENTION PLAN (IIPP) AND CODE OF SAFE PRACTICES (CSP) AFFIDAVIT

The apparent low Bidder shall submit Section 00 04 91, INJURY and ILLNESS PREVENTION PLAN (IIPP) AND CODE OF SAFE PRACTICES (CSP) affidavit no later than seven (7) calendar days after the bid opening. The affidavit requires that the Bidder shall have an IIPP and a CSP which complies with Cal/OSHA Regulations, and that all subcontractors supplying employees to the jobsite will be required to prove to the Contractor that they have an IIPP and a CSP which complies with Cal/OSHA Regulations, and that their jobsite employees have been trained on IIPP and CSP.

Failure to submit this affidavit as required, may result in a determination that the apparent low Bidder is nonresponsive.

1.25 DETERMINATION OF BIDDER RESPONSIBILITY

a. A responsible Bidder is a Bidder who has demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity and experience to satisfactorily perform the contract. It is the County's policy to conduct business only with responsible consultants.

b. Bidders are hereby notified that, in accordance with Chapter 2.202 of the County Code, the County may determine whether the Bidder is responsible based on a review of the Bidder's performance on any contracts, including but not limited to County contracts. Particular attention will be given to violations of labor laws related to employee compensation and benefits, and evidence of false claims made by the Bidder against public entities. Labor law violations which are the fault of subcontractors and of which the Bidder had no knowledge shall not be the basis of a determination that the Bidder is not responsible.

c. The County may declare a Bidder to be non-responsible for purposes of this contract if the Board of Supervisors, in its discretion, finds that the Bidder has done any of the following: (1) violated a term of a contract with the County; (2) committed an act or omission which negatively reflects on the Bidder's quality, fitness or capacity to perform a contract with the County, any other public entity, or a nonprofit corporation created by the County, or engaged in a pattern or practice which negatively reflects on same; (3) integrity or business honesty; or (4) made or submitted a false claim against the County or any other public entity.

d. If there is evidence that the highest ranked Bidder may not be responsible, the Department shall notify the Bidder in writing of the evidence relating to the Bidder's responsibility, and its intention to recommend to the Board of Supervisors that the Bidder be found not responsible. The Department shall provide the Bidder and/or the Bidder's representative with an opportunity to present evidence as to why the Bidder should be found to be responsible and to rebut evidence which is the basis for the Department's recommendation.

e. If the Bidder presents evidence in rebuttal to the Department, the Department shall evaluate the merits of such evidence, and based on that evaluation, make a recommendation to the Board of Supervisors. The final decision concerning the responsibility of the Bidder shall reside with the Board of Supervisors.

f. The terms shall also apply to proposed subcontractors of Bidders on County contracts.

1.26 BIDDER DEBARMENT

a. The Bidder is hereby notified that, in accordance with Chapter 2.202 of the County Code, the County may debar the Bidder from proposing on, or being awarded, and/or performing work on other County contracts for a specified period of time, which generally will not exceed five years but may exceed five years or be permanent if warranted by the circumstances, and the County may terminate any or all of the Bidder's existing contracts with the County, if the Board of Supervisors finds, in it discretion, that the Bidder has done any of the following: (1) violated a term of a contract with the County or a nonprofit corporation created by the County; (2) committed an act or omission which negatively reflects on the Bidder's quality, fitness or capacity to perform a contract with the County, any other public entity, or a nonprofit corporation created by the County, or engaged in a pattern or practice which negatively reflects on same; (3) committed an act or offense which indicates a lack of business integrity or business honesty; or (4) made or submitted a false claim against the County or any other public entity.

b. If there is evidence that the highest ranked Bidder may be subject to debarment, the Department shall notify the Bidder in writing of the evidence which is the basis for the proposed debarment, and shall advise the Bidder of the scheduled date for a debarment hearing before the Contractor Hearing Board.

c. The Contractor Hearing Board shall conduct a hearing where evidence on the proposed debarment is presented. The Bidder and/or the Bidder's representative shall be given an opportunity to submit evidence at that hearing. After the hearing, the Contractor Hearing Board shall prepare a tentative proposed decision, which shall contain a recommendation regarding whether the Bidder should be debarred, and, if so, the appropriate length of time of the debarment. The Bidder and the Department shall be provided an opportunity to object to the tentative proposed decision prior to its presentation to the Board of Supervisors.

d. After consideration of any objections, or if no objections are received, a record of the hearing, the proposed decision and any other recommendation of the Contractor Hearing Board shall be presented to the Board of Supervisors. The Board of Supervisors shall have the right to modify, deny or adopt the proposed decision and recommendation of the Contractor Hearing Board.

e. If a Bidder has been debarred for a period longer than five years, that Bidder may, after the debarment has been in effect for at least five years; submit a written request for review of the debarment determination to reduce the period of debarment or terminate the debarment. The County may, in its discretion, reduce the period of debarment or terminate the debarment if it finds that the Bidder has adequately demonstrated one or more of the following: (1) elimination of the grounds for which the debarment was imposed; (2) a bona fide change in ownership or management; (3) material evidence discovered after debarment was imposed; or (4) any other reason that is in the best interests of the County.

f. The Contractor Hearing Board will consider requests for review of a debarment determination only where (1) the Bidder has been debarred for a period longer than five years; (2) the debarment has been in effect for at least five years; and (3) the request is in writing, states one or more of the grounds for reduction of the debarment period or termination of the debarment, and includes supporting documentation. Upon receiving an appropriate request, the Contractor Hearing Board will provide notice of the hearing on the request. After the hearing, the Contractor Hearing Board shall conduct a hearing where evidence on the proposed reduction of debarment period or termination of debarment is presented. This hearing shall be conducted and the request for review decided by the Contractor Hearing Board pursuant to the same procedures as for a debarment hearing.

The Contractor Hearing Board's proposed decision shall contain a recommendation on the request to reduce the period of debarment or terminate the debarment. The Contractor Hearing Board shall present its proposed decision and recommendation to the Board of Supervisors. The Board of Supervisors shall have the right to modify, deny, or adopt the proposed decision and recommendation of the Contractor Hearing Board.

g. These terms shall also apply to proposed subcontractors of Bidders on County contracts.

1.27 CONTRACTOR EMPLOYEE JURY SERVICE PROGRAM

The prospective contract is subject to provisions of the County's ordinance entitled Contractor Employee Jury Service ("Jury Service Program") as codified in Sections 2.203.010 through 2.203.090 of the Los Angeles County Code.

a. Unless Contractor has demonstrated to the County's satisfaction either that Contractor is not a "Contractor" as defined under the Jury Service Program (Section 2.203.020 of the County Code) or that Contractor qualifies for an exception to the Jury Service Program (Section 2.203.070 of the County Code), Contractor shall have and adhere to a written policy that provides that its Employees shall receive from the Contractor, on an annual basis, no less than five days of regular pay for actual jury service. The policy may provide that Employees deposit any fees received for such jury service with the Contractor or that the Contractor deduct from the Employee's regular pay the fees received for jury service.

b. For purposes of this Section, "Contractor" means a person, partnership, corporation or other entity which has a contract with the County or a subcontract with a County contractor and has received or will receive an aggregate sum of $50,000 or more in any 12-month period under one or more County contracts or subcontracts. "Employee" means any California resident who is a full-time employee of Contractor. "Full time" means 40 hours or more worked per week, or a lesser number of hours if the lesser number is a recognized industry standard and is approved as such by the County. If Contractor uses any subcontractor to perform services for the County under the Contract, the subcontractor shall also be subject to the provisions of this Section. The provisions of this Section shall be inserted into any such subcontract agreement and a copy of the Jury Service Program shall be attached to the agreement.

c. If a contractor does not fall within the Jury Service Program's definition of "Contractor" or if it meets any of the exceptions to the Jury Service Program, then the contractor must so indicate in the Certification Form and Application for Exception and include with its submission all necessary documentation to support the claim such as tax returns or a collective bargaining agreement, if applicable. Upon reviewing the contractor's application, the County will determine, in its sole discretion, whether the contractor falls within the definition of Contractor or meets any of the exceptions to the Jury Service Program. The County's decision will be final.

d. If a contractor is not required to comply with the Jury Service Program when the contract commences, the contractor will have a continuing obligation to review the applicability of its "exception status" from the Jury Service Program, and the contractor must immediately notify the County if the contractor at any time either comes within the Jury Service Program's definition of "contractor" or if the contractor no longer qualifies for an exception to the Program. In either event, the contractor must immediately implement a written policy consistent with the Jury Service Program. The County may also require, at any time during the contract and at its sole discretion, that a contractor demonstrate to the County's satisfaction that the contractor either continues to remain outside the Jury Service Program's definition of "Contractor" and/or the contractor continues to qualify for an exception to the Program.

e. If a contractor uses a subcontractor to perform services for the County under the contract, the subcontractor shall also be subject to the provisions of the Jury Service Program, unless the subcontractor 1) does not fall within the definition of "contractor" or 2) meets one of the exceptions to the Jury Service Program. The provisions of the Jury Service Program must be inserted into any applicable agreement and a copy of the Jury Service Program shall be attached to the agreement.

f. A contractor's violation of the Jury Service Program may constitute a material breach of the contract. In the event of such material breach, County may, in its sole discretion, terminate the contract and/or bar a contractor from the award of future County contracts for a period of time consistent with the seriousness of the breach.

1.28 VENDOR REGISTRATION WITH THE COUNTY OF LOS ANGELES

All potential bidders/proposers with the County of Los Angeles are required to register in WebVen and have a valid vendor number assigned to them. The vendor number is required by the Auditor-Controller and is necessary for any payments to be made to a contractor who is awarded a County project. Vendor registration can be done online at http://camisvr.co.la.ca.us/webven or calling the County's Internal Service Department Central Purchasing Vendor Relations Unit at (323) 267-2650. If you are awarded a contract and you do not have a valid vendor number, your payments will be delayed until you are registered.

1.29 NO PAYMENT FOR SERVICES PROVIDED FOLLOWING EXPIRATION/TERMINATION OF AGREEMENT

Contractor shall have no claim against County for payment for any money or reimbursement, of any kind whatsoever, for any service provided by Contractor after the expiration or other termination of this Agreement. Should Contractor receive any such payment it shall immediately notify County and shall immediately repay all such funds to County. Payment by County for services rendered after expiration/termination of this Agreement shall not constitute a waiver of County's right to recover such payment from Contractor. This provision shall survive the expiration or other termination of this Agreement.

1.30 COUNTY'S PREFERENCE PROGRAM: LOCAL SMALL BUSINESS ENTERPRISE

Overview of County's Preference Program

The County of Los Angeles has The Local Small Business Enterprise (LSBE) preference program. The Board of Supervisors encourages business participation in the County's contracting process by continually streamlining and simplifying our selection process and expanding opportunities for these businesses to compete for County opportunities.

The LSBE Preference Program requires that a business must complete County of Los Angeles certification prior to requesting a preference in a solicitation. This program and how to obtain certification are further explained in this solicitation.

The maximum percentage of a LSBE Preference Program preference shall be 7 percent of the lowest responsible bidder meeting specifications and the maximum financial value shall be one hundred fifty thousand dollars ($150,000) for any bid.

Sanctions and financial penalties may apply to a business that knowingly, and with intent to defraud, seeks to obtain or maintain certification as a certified LSBE when not qualified.

Local Small Business Enterprise (LSBE) Preference Program

The County will give LSBE preference during the solicitation process to businesses that meet the definition of a LSBE, consistent with Chapter 2.204.030C.1 of the Los Angeles County Code. An LSBE is defined as a business: 1) certified by the State of California as a small business and has had its principal place of business located in Los Angeles County for at least one year; or 2) certified as a small business enterprise with other certifying agencies pursuant to the Department of Consumer and Business Affair's (DCBA) inclusion policy that: a) has its principal place of business located in Los Angeles County, and b) has revenues and employee sizes that meet the State's Department of General Services requirements. **The business must be certified by the Department of Consumer and Business Affairs as meeting the requirements set forth above prior to requesting the LSBE Preference in a solicitation.**

To apply for certification as an LSBE, businesses should contact the County of Los Angeles Department of Consumer and Business Affairs at http://dcba.lacounty.gov

Certified LSBEs may only request the preference if the certification process has been completed and certification is affirmed. Businesses must complete and submit Section 00 04 38 Request for Preference Consideration Form and submit a letter of certification from the County of Los Angeles Department of Consumer and Business Affairs (DCBA) with their proposal. As shown on the County DCBA letter, the certification must be valid as of the bid due date.

Information about the State's small business enterprise certification regulations is in the California Code of Regulations, Title 2, Subchapter 8, Section 1896 et seq., and is also available on the California Department of General Services Office of Small Business Certification and Resources Web site at http://www.pd.dgs.ca.gov/smbus/default.

Should one or more of the Bidders request and be granted the Local Small Business Enterprise (LSBE) Preference, the bid amount shall be adjusted as follows:

Local Small Business Enterprise (LSBE) Preference: Seven percent of the lowest bid amount will be calculated, which shall not exceed $150,000, and that amount will be deducted from the bid amounts submitted by all LSBE bidders who requested and were granted the LSBE Preference.

The contract award will be the bidder's original bid price, not the price with preference(s) that is used for evaluation purposes.

Preference Program Enterprises (PPEs) - Prompt Payment Program
It is the intent of the County that Certified Preference Program Enterprises (PPEs) receive

prompt payment for services they provide to County Departments. Prompt payment is defined as fifteen (15) calendar days after receipt of an approved, undisputed invoice which has been properly matched against documents such as a receiving, shipping, or services delivered report, or any other validation of receipt document consistent with Board Policy 3.035 (Preference Program Payment Liaison and Prompt Payment Program).

1.31 NOTICE TO EMPLOYEES REGARDING THE SAFELY SURRENDERED BABY LAW

The Contractor shall notify and provide to its employees, and shall require each subcontractor to notify and provide to its employees, a fact sheet regarding the Safely Surrendered Baby Law, its implementation in Los Angeles County, and how to safely surrender a baby. The fact sheet is available on the Internet at www.babysafela.org for printing purposes.

The Contractor acknowledges that the County places a high priority on the implementation of the Safely Surrendered Baby Law. The Contractor understands that it is the County's policy to encourage all County Contractors to voluntarily post the County's "Safely Surrendered Baby Law" poster in a prominent position at the Contractor's place of business. The County's Department of Children and Family Services will supply the Contractor with the poster to be used.

1.32 REQUIRED CERTIFICATION/DISCLOSURE

Bids must provide full disclosure on violations and civil/criminal legal actions as provided for on the bidding requirement forms Sections 00 04 70, 00 04 71, 00 04 72, 00 04 73, and 00 04 74. Failure to complete these forms may result in a determination that the Bidder is nonresponsive and/or not responsible.

1.33 NOTIFICATION TO COUNTY OF PENDING ACQUISITIONS/MERGERS BY BIDDING COMPANY

The Bidder shall notify the County of any pending acquisitions/mergers of its company unless otherwise legally prohibited from doing so. If the Bidder is restricted from legally notifying the County of pending acquisitions/mergers, then it should notify the County of the actual acquisitions/mergers as soon as the law allows and provide to the County the legal framework that restricted it from notifying the County prior to the actual acquisitions/mergers. This information shall be provided by the Bidder on Section 00 04 92 - Bidder's Organization Questionnaire/Affidavit. Failure of the Bidder to provide this information may eliminate its bid from any further consideration. Bidder shall have a continuing obligation to notify the County and update any changes to its response in Section 00 04 92 - Bidder's Organization Questionnaire/Affidavit during the solicitation.

1.34 COUNTY'S DEFAULTED PROPERTY TAX REDUCTION PROGRAM

The prospective contract is subject to the requirements of the County's Defaulted Property Tax Reduction Program (Los Angeles County Code, Chapter 2.206). Prospective contractors should carefully read the Defaulted Tax Program Ordinance and the pertinent provisions of the sample contract which are incorporated by reference into and made a part of this solicitation. The Defaulted Tax Program applies to both contractors and their subcontractors.

Bidders/proposers shall be required to certify that they are in full compliance with the provisions of the Defaulted Tax Program and shall maintain compliance during the term of any contract that may be awarded pursuant to this solicitation or shall certify that they are exempt from the Defaulted Tax Program by completing Certification of Compliance with the County's Defaulted Property Tax Reduction Program required forms. Failure to maintain compliance, or to timely cure defects, may be cause for termination of a contract or initiation or debarment proceedings against the non-compliant contractor (Los Angeles County Code, Chapter 2.202).

Bids/proposals that fail to comply with the certification requirements of the Defaulted Tax Program will be considered non-responsive and excluded from further consideration.

1.36 LOCAL AND TARGETED WORKER HIRE PROGRAM

A. The County of Los Angeles has implemented a Local and Targeted Worker Hire Policy (LTWHP) to facilitate the hiring of Local and Targeted workers. Pursuant to this policy, this project has a best-efforts goal of at least 30 percent of total California Construction Labor Hours worked on this project be performed by qualified Local Residents. There is no Targeted Worker hiring requirement.

B. A Local Resident is defined as an individual living within the Tier 1 or Tier 2 ZIP Codes of the County. Before employing worker(s) from Tier 2 ZIP Codes, the available pool of local residents whose primary place of residence is within Tier 1 ZIP Codes must first be exhausted. Tier 1 means ZIP Codes within five (5) miles of the proposed project site, and where the average percentage of households living below 200 percent of the Federal Poverty Level (FPL) is greater than the County average for such households. Tier 2 means any ZIP Codes within the County where the average percentage of households living below 200 percent of the FPL is greater than the County average for such households. This definition shall also apply to affordable housing projects and for privately financed developments located on County property.

C. Contractor shall comply with the provisions required for the Local and Targeted Hire Program as outlined in Section 00 19 12 of the Project Manual.

1.37 Contractor CARD Track/Monitoring Database

The County maintains the Contractor Alert Reporting Database (CARD), which is used to track/monitor poorly performing contractors. When a County department identifies a significant performance/non-compliance issue(s) with a contractor, the department will provide notice to the contractor and will give the contractor an opportunity to correct the issue(s). If the contractor does not take any appropriate steps to correct the issue(s), the County department will enter the contractor, along with any other relevant information pertaining to the contractor's performance issue(s), into CARD.

The information entered into CARD can be accessed by all County departments, and will be used, along with any other relevant information not included in CARD, in determining bidder responsibility. If a department reviews this information and determines that a finding of non-responsibility should be pursued, the department will adhere to the guidelines specified in the Los Angeles County Code Chapter 2.202, and the County's Implementation Procedures for Determinations of Contractor Non-Responsibility and Contractor Debarment.

1.38 Time Off for Voting

The Contractor shall notify its employees, and shall require each subcontractor to notify and provide to its employees, information regarding the time off for voting law (Elections Code Section 14000). Not less than 10 days before every statewide election, every Contractor and subcontractors shall keep posted conspicuously at the place of work, if practicable, or elsewhere where it can be seen as employees come or go to their place of work, a notice setting forth the provisions of Section 14000.

1.39 ADDITIONAL BIDDER REQUIREMENTS

a. **A pre-bid conference** and site visitation will be **held on 2/19/2024, at 10:00AM ,** at the project site to provide information regarding the project, bidding process and answer questions that potential bidders may have. Interested parties are requested to meet promptly at**1900 Sycamore Canyon Road, San Dimas, CA 91773**. Attendance is strongly encouraged but not mandatory.

b. NO ADDITIONAL REQUIREMENTS.

1.40 PUBLIC WORKS CONTRACTOR REGISTRATION PROGRAM

a. This project is a public work as defined in Section 1720 of the California Labor Code, and subject to compliance monitoring and enforcement by the Department of Industrial Relations (DIR).

b. A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to requirements of Section 4104 of the California Public Contract Code, or engage in the performance of any contract for public works, unless currently registered with the Department of Industrial Relations and qualified to perform public work pursuant to California Labor Code Section 1725.5.

c. The County shall not accept any bid nor award any contract without proof of the contractor and subcontractor's current registration to perform the project. A copy of the confirmed registration from the Department of Industrial Relations website (https://services.dir.ca.gov/gsp) must be attached in applicable part of the bid package. The bid submitted by an unregistered contractor shall be basis for considering the bid non-responsive [with limited exceptions from this requirement for bid purposes only under Labor Code Section 1771.1].

d. An inadvertent error in listing an unregistered subcontractor pursuant to Labor Code Section 1725.5 in a bid proposal shall be grounds for considering the bid non-responsive, unless:

(1) The subcontractor is registered prior to the bid opening.

(2) Within 24 hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in subparagraph (E) of paragraph (2) of subdivision (a) of Section 1725.5.

(3) The subcontractor is replaced by another registered subcontractor pursuant to Section 4107 of the Public Contract Code.

e. All contractors and subcontractors must furnish certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement) in a format prescribed by the Labor Commission.

f. The prime contractor is required to post job site notices prescribed below:

8 Calif. Code Reg. §16451(d):

"This public works project is subject to monitoring and investigative activities by the Compliance Monitoring Unit (CMU) of the Division of Labor Standards Enforcement, Department of Industrial Relations, State of California. This Notice is intended to provide information to all workers employed in the execution of the contract for public work and to all contractors and other persons having access to the job site to

enable the CMU to ensure compliance with and enforcement of prevailing wage laws on public works projects.

"The prevailing wage laws require that all workers be paid at least the minimum hourly wage as determined by the Director of Industrial Relations for the specific classification (or type of work) performed by workers on the project. These rates are listed on a separate job site posting of minimum prevailing rates required to be maintained by the public entity which awarded the public works contract. Complaints concerning nonpayment of the required minimum wage rates to workers on this project may be filed with the CMU at any office of the Division of Labor Standards Enforcement (DLSE).

Local Office Telephone Number:

Division of Labor Standards Enforcement Office
320 W. Fourth Street, Suite 450
Los Angeles, CA 90013
(213) 620-6330

"Complaints should be filed in writing immediately upon discovery of any violations of the prevailing wage laws due to the short period of time following the completion of the project that the CMU may take legal action against those responsible.

"Complaints should contain details about the violations alleged (for example, wrong rate paid, not all hours paid, overtime rate not paid for hours worked in excess of 8 per day or 40 per week, etc) as well as the name of the employer, the public entity which awarded the public works contract, and the location and name of the project.

"For general information concerning the prevailing wage laws and how to file a complaint concerning any violation of these prevailing wage laws, you may contact any DLSE office. Complaint forms are also available at the Department of Industrial Relations website found at http://www.dir.ca.gov/Public-Works/PublicWorks.html."

In addition, electronic certified payroll records must be submitted to the County through an online system designated by the County when requested by County.

1.41 MENTAL HEALTH SERVICES FOR CRITICAL INCIDENTS

In the event of a serious accident on the Project site, the Los Angeles County Department of Mental Health (DMH) will, if requested, respond. The response may be within a few hours or as long as a few days after the incident, depending on when the request was made. The services DMH will provide include crisis intervention, normalization of the stress response that survivors may be experiencing, stress management techniques and resources if the stress reactions increase in frequency or intensity. Requests for services may be made by calling

the DMH Emergency Outreach Bureau Deputy Director, (213) 738-4924, during normal business hours or the ACCESS Center, (800) 854-7771, evenings, holidays, and weekends.

1.42 CONTRACTOR INDEPENDENCE/PROHIBITION FROM PARTICIPATION IN FUTURE SOLICITATION(S)

In accordance with Board Policy No. 5.090, Contractor Independence,
The County Board of Supervisors has adopted a countywide policy that prohibits any person, or any firm or any subsidiary of a firm (collectively "firm") from submitting a bid or proposal in any County solicitation process where the person or firm, assisted in the development of the solicitation document(s).

A Bidder/Proposer, or a Contractor or its subsidiary or Subcontractor ("Bidder/Proposer/Contractor"), is prohibited from submitting a bid or proposal in a County solicitation if the Bidder/Proposer/Contractor has provided advice or consultation for the solicitation. A Bidder/Proposer/Contractor is also prohibited from submitting a bid or proposal in a County solicitation if the Bidder/Proposer/Contractor has developed or prepared any of the solicitation materials on behalf of the County. A violation of this provision will result in the disqualification of the Bidder/Contractor/Proposer from participation in the County solicitation or the termination or cancellation of any resultant County contract.

1.43 Background and Security Investigations

Background and security investigations of Contractor's staff may be required at the discretion of the County as a condition of beginning and continuing work under any resulting Contract. The cost of background checks is the responsibility of the Contractor.

1.44 LOCAL SMALL BUSINESS ENTERPRISE/SOCIAL ENTERPRISE/DISABLED VETERANS BUSINESS ENTERPRISE UTILIZATION

Local Small Business Enterprise means a business that is certified by the County of Los Angeles as a Local Small Business Enterprise (Local SBE), consistent with Chapter 2.204 of the Los Angeles County Code.

1. When requested by the County, the contractor shall provide to the County via methods specified by the County, such as submission of electronic live (or dynamic) data on invoices for the prime and all subcontractors using County-designated third party software system or to a County approved website, or other means of submitting expenditure information on subcontractors, including but not limited to the following information: the name, business address, California Contractor License number and telephone number/email address of each subcontractor who will perform work or labor for the contractor on the Project in an amount in excess of one-half of 1 percent of the contractor's total bid. In addition, the contractor shall be required to provide each of the specified subcontractors' Local SBE status (i.e., whether any of the listed subcontractors are Local SBE's), Social

Enterprise (SE) status, and Disabled Veterans Business Enterprise status, and the proposed monetary amount of the work the subcontractor will perform on the Project. In addition, at the time of submittal of the final invoice, the contractor shall indicate, via methods specified by the County, the actual dollar amounts paid to each listed subcontractor who performed work on the project.

2. Contractor's failure to comply with the provisions of this Article is a material breach of the Agreement. The parties agree that it will be impracticable or extremely difficult to fix the extent of actual damages resulting from the failure to the Contractor to comply with this Article. The parties agree that under the current circumstances a reasonable estimate of such damages is specified in the Schedule for Liquidated Damages for Local Small Business Enterprise Utilization hereunder, and that the Contractor shall be liable to the County for said amounts.

   If in the judgment of the Director, or his/her designee, the Contractor is deemed to be in non-compliance with the terms and obligations assumed hereby, the Director or his/her designee, at his/her option, in addition to, or in lieu of, other remedies provided herein in this Agreement, may deduct and withhold liquidated damages from County's final payment to the Contractor as follows:

SCHEDULE FOR LIQUIDATED DAMAGES FOR LOCAL SMALL BUSINESS ENTERPRISE/SOCIAL ENTERPRISE/DISABLED VETERANS BUSINESS ENTERPRISE UTILIZATION

Final Invoice Price	Liquidated Damages
Up to $100,000	$50.00 plus 0.1% of contract amount
$100,001 to $500,000	$150.00 plus 0.07% of all over $100,000
Over $500,000	$430.00 plus 0.05% of all over $500,000

1.45 Proposer's Acknowledgement of County's Commitment to Zero Tolerance Human Trafficking

On October 4, 2016, the Los Angeles County Board of Supervisors approved a motion taking significant steps to protect victims of human trafficking by establishing a zero tolerance human trafficking policy. The policy prohibits contractors engaged in human trafficking from receiving contract awards or performing services under a County contract.

Contractors are required to complete 00 04 98 Zero Tolerance Human Trafficking Policy Certification, certifying that they are in full compliance with the County's Commitment to Zero Tolerance Human Trafficking provision as defined in "Compliance with County's Zero Tolerance Human Trafficking" in the

Agreement. Further, contractors are required to comply with the requirements under said provision for the term of any contract awarded pursuant to this solicitation.

1.46 Claims

Notwithstanding Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, Section 9204 of the Public Contract Code shall apply to any claim by the Contractor in connection with the Project.

a) Upon receipt of a claim pursuant to Section 9204 of the Public Contract Code, the County will conduct a reasonable review of the claim and, within a period not to exceed 45 Days, provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, the Contractor and the County may, by mutual agreement, extend the aforementioned time period.

b) The Contractor shall furnish reasonable documentation to support the claim.

c) If Board approval is needed to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the claim, and the Board does not meet within the 45 Days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the County will have up to 3 Days following the next duly publicly noticed meeting of the Board after the 45-Day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.

d) Any payment due on an undisputed portion of the claim will be processed and made within 60 Days after the County issues its written statement. If the County fails to issue a written statement, paragraph (j) shall apply.

e) If the Contractor disputes the County's written response, or if the County fails to respond to a claim issued pursuant to Section 9204 within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the County will schedule a meet and confer conference within 30 Days for settlement of the dispute.

f) Within 10 business days (Monday-Thursday) following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the County will provide the Contractor a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim will be processed and made within 60 Days after the County issues its written statement. Any disputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the County and the Contractor sharing the associated costs equally. The County and the Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the

claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside those established in Section 9204.

g) Mediation shall include any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in Section 9204.

h) Unless otherwise agreed to by the County and the Contractor in writing, the mediation conducted pursuant to Section 9204 shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

i) Section 9204 does not preclude the County from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under Section 9204 does not resolve the parties' dispute.

j) Failure by the County to respond to a claim from the Contractor within the time periods described in this subdivision or to otherwise meet the time requirements of Section 9204 shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the County's failure to have responded to a claim, or its failure to otherwise meet the time requirements of Section 9204, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

k) Amounts not paid in a timely manner as required by Section 9204 will bear interest at 7 percent per annum.

l) If a Subcontractor or a lower tier Subcontractor lacks legal standing to assert a claim against the County because privity of the Contract does not exist, the Contractor may present to the County a claim on behalf of a Subcontractor or lower tier Subcontractor. A Subcontractor may request in writing, either on its own behalf or on behalf of a lower tier Subcontractor, that the Contractor present a claim for work which was performed by the Subcontractor or by a lower tier Subcontractor on behalf of the Subcontractor. The Subcontractor requesting that the claim be presented to the County shall furnish reasonable documentation to support the claim. Within 45 Days of receipt of this written request, the Contractor shall notify the Subcontractor in writing as to whether the Contractor presented the claim to the County and, if the original Contractor did not present the claim, provide the Subcontractor with a statement of the reasons for not having done so.

m) A waiver of the rights granted by Section 9204 is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the Contractor and the County may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) the County may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of Section 9204, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in Section 9204.

1.47 Proposer's Acknowledgement of County's Commitment to Fair Chance Employment Hiring Practices

On May 29, 2018, the Los Angeles County Board of Supervisors approved a Fair Chance Employment Policy in an effort to remove job barriers for individuals with criminal records. The policy requires businesses that contract with the County to comply with fair chance employment hiring practices set forth in California Government Code Section 12952, Employment Discrimination: Conviction History (Section 12952).

Contractors are required to complete Compliance with Fair Chance Employment Hiring Practices Certification (Required Forms), certifying that they are in full compliance with Section 12952, as indicated in the Sample Contract. Further, contractors are required to comply with the requirements under Section 12952 for the term of any contract awarded pursuant to this solicitation.

1.48 Default Method of Payment: Direct Deposit or Electronic Funds Transfer (EFT)

The County, at its sole discretion, has determined that the most efficient and secure default form of payment for goods and/or services provided under an agreement/contract with the County shall be Electronic Funds Transfer (EFT) or direct deposit, unless an alternative method of payment is deemed appropriate by the Auditor-Controller (A-C).

Upon contract award or at the request of the A-C and/or the contracting department, the Contractor shall submit a direct deposit authorization request with banking and vendor information, and any other information that the A-C determines is reasonably necessary to process the payment and comply with all accounting, record keeping, and tax reporting requirements.

Any provision of law, grant, or funding agreement requiring a specific form or method of payment other than EFT or direct deposit shall supersede this requirement with respect to those payments.

Upon contract award or at any time during the duration of the agreement/contract, a Contractor may submit a written request for an exemption to this requirement. The A-C, in consultation with the contracting department(s), shall decide whether to approve exemption requests.

1.49 Disallowed Cost

If Proposer's compliance with a County contract has been reviewed by the Department of the Auditor-Controller within the last 10 years, Proposer must not have unresolved questioned costs identified by the Auditor-Controller, in an amount over $100,000.00, that are confirmed to be disallowed costs by the contracting County department, and remain unpaid for six months or more from the date of disallowance, unless such disallowed costs are the subject of current good faith negotiations to resolve the disallowed costs, in the opinion of the County.

1.50 Compliance with the County Policy of Equity

The consultant acknowledges that the County takes its commitment to preserving the dignity and professionalism of the workplace very seriously, as set forth in the County Policy of Equity (CPOE) (https://ceop.lacounty.gov/). The consultant further acknowledges that the County strives to provide a workplace free from discrimination, harassment, retaliation and inappropriate conduct based on a protected characteristic, and which may violate the CPOE. The consultant, its employees and subconsultants acknowledge and certify receipt

and understanding of the CPOE. Failure of the consultant, its employees or its subconsultants to uphold the County's expectations of a workplace free from harassment and discrimination, including inappropriate conduct based on a protected characteristic, may subject the consultant to termination of contractual agreements as well as civil liability.

1.51 Integrated Pest Management (IPM) Program Compliance

1.51.1 The County of Los Angeles is a permittee to a National Pollutant Discharge Elimination System Permit (NPDES Permit) issued by the Los Angeles Regional Water Quality Control Board to reduce or eliminate pollutants moved into surface water through storm water management systems and facilities. One of the conditions of the NPDES Permit is the implementation of an Integrated Pest Management Program (IPM Program) crafted to reduce the impact of pesticides and fertilizers to surface water.

1.51.2 The prospective contract is subject to the requirements of the County's IPM Program. Two main components of the Program include a training component for contractor employees who apply pesticides on County owned or maintained property, as well as monthly and annual reporting to the Los Angeles County Department of Agricultural Commissioner/ Weights and Measures (ACWM).

1.51.3 Proposers are required to complete Integrated Pest Management Program Compliance Certification in Required Forms, acknowledging and certifying compliance with the County's Integrated Pest Management Program, Compliance with County's Integrated Pest Management Program in Sample Contract. Further, contractors are required to comply with the requirements under said provision for the term of any contract awarded pursuant to this solicitation.

1.52 COVID-19 Vaccinations of County Contractor Personnel

When applicable and required by the County, the Contractor shall comply with all other applicable local, departmental, State, and federal laws, regulations, and requirements for COVID-19.

1.53 Contractor Development and Bonding Program

Contractor Development and Bonding Program (CDABP) - Administered by the Chief Executive Office of the County of Los Angeles for all County Construction Contracting Departments. The CDABP provides a broad range of contractor technical assistance, training, and support in qualifying for bonds, as well as contract financing for County awarded contracts. CDABP assistance is available to prime and subcontractors. The CDABP is a County funded resource designed to reduce the barriers to small and diverse firms seeking to bid and contract on County projects. For information on the CDABP, please contact contract administrator.

1.55 Contribution and Agent Declaration

Government Code Section 84308 requires a party to a contract proceeding to disclose any contribution of more than $250 made to a County officer within the preceding twelve (12) months by the party or their agent. State regulations require this disclosure to be made at the time an application is filed, and, if a contribution is made during the contract proceeding, within 30 days of making a contribution or on the date on which the party first appears before or communicates with the agency regarding the proceeding after making the contribution, whichever is earliest. All Bidders are advised that they and all of their Subcontractors must complete and return as part of the bid, the **Contribution and Agent Declaration Form**. Bidders are further advised that they and their Subcontractors must update the Contribution and Agent Declaration Form throughout the pendency of the solicitation if a contribution is made after the initial disclosure when the proposal is submitted, and as requested at any time by the County prior to contract award. Failure by the Bidder or any Subcontractor(s) to complete and submit the required **Contribution and Agent Declaration Form**, and failure by the Bidder or any Subcontractor(s) to update the declaration as required by law or as otherwise requested by the County, may eliminate the proposal from further consideration and/or the Proposer may be disqualified from a contract award, as determined in the County's sole discretion. Further, all Bidders and their Subcontractors are prohibited under Government Code Section 84308 from making a contribution of more than $250 to a County officer for twelve (12) months after the date a final decision is made in the contract proceeding involving this solicitation.

Americans with Disabilities Act (ADA) Information

Individuals requiring reasonable accommodations may request written materials in alternate formats, physical accessibility accommodations, sign language interpreters or other reasonable accommodations by contacting our departmental Americans with Disabilities Act Coordinator at (626) 458-7337, from 7:30 a.m. to 5:00 p.m., Monday through Thursday (excluding holidays). Persons who are hearing impaired may make contact by first dialing the California Relay Service at 7-1-1. Requests should be made at least one week in advance to ensure availability. When making a reasonable accommodation request, please reference Business Relations and Contracts Division **[BRC-2]**.

* * *

_____ _____

Name of Bidder (Firm Name) Vendor Identification Number

SECTION 00 03 00

FORM OF BID TO BE USED BY BIDDERS

The undersigned proposes to furnish all materials, labor, and equipment required for the construction to complete the Camp Glenn Rockey Security Upgrades Project, in accordance with Drawings and Specifications 7879, including addenda thereto, if any, adopted by the Board of Supervisors, and on file in the office of the Board of Supervisors, as follows:

The lowest bid price shall be determined by adding the following items: Lump Sum Bid in Words (1) +Bid Alternate (2) + [Extended Overhead Daily Rate (3) x Multiplied by 30 days] = Total Lump Sum Bid. Preference as stated in Section 00 01 00, 1.30, will be applied to the Total Lump Sum Bid, if applicable, to determine the final total bid amount.

1. LUMP SUM BID:

The lump sum bid for the work, including Best Management Practices (BMP) and Construction and Demolition Debris Recycling, requirements complete according to the Drawings and Specifications, will be:

($_____) (_____)

Lump sum bid in figures Lump sum bid in words

2. BID ALTERNATE 1:

The amount to be added to the Lump Sum Bid for inclusion of the work of Additive Alternate 1:

($_____) (_____)

Daily rate in figures Daily rate in words

3. EXTENDED OVERHEAD DAILY RATE:

The daily rate for the sum of the Contractor's field office and home office overhead applicable to this project, for each day of compensable delay will be:

($_____) (_____)

Daily rate in figures Daily rate in words

4. COUNTY PROGRAM PREFERENCE:

The Local Small Business Enterprise Program Preference is provided by the County for purposes of bid evaluation only, as specified in Article 1.30 of Section 00 01 00. If Bidder is a qualifying Local Small Business Enterprise, check "yes" in the box below. Section 00 04 38 Request for County Program Preference Consideration must be submitted at the time of bid with a copy of the certification letter issued by the County of Los Angeles Department of Consumer and Business Affairs. If non-qualifying, check "no" in the appropriate box.

LSBE Yes ☐ No ☐

NOTE: Any alteration or addition to the Form of Bid may invalidate same. All blank spaces shall be filled out completely. Line out nonapplicable blanks. An incomplete form may invalidate bid. The County reserves the right to waive any informalities or to reject any or all bids or to accept any alternatives when called for.

I (We) certify that on _____, 20____, License No. _____, license classification(s) _____, was issued to me (us), in the name of _____, by the Contractors' State License Board, pursuant to California Statutes of 1929, as amended, and that said license has not been revoked.

Firm Ownership Information
Check where applicable:

1. ( ) Minority-Owned
   ( ) Woman-Owned
   ( ) Disadvantaged-Owned
   ( ) Disabled Veteran-Owned
   ( ) LGBTQQ-Owned

2. ( ) An individual
   ( ) A corporation. Name state or territory of Incorporation
   _____
   ( ) A copartnership
   ( ) A joint venture

Race/Ethnic Composition
For statistical purposes only.

( ) Black/African American
( ) Hispanic/Latino
( ) Asian or Pacific Islander
( ) Native Americans
( ) Subcontinent Asian
( ) White

If a copartnership or joint venture, list names of individuals comprising same below

_____
_____
_____

Date signed _____, 20_____

Place _____
City and State

Respectfully submitted,

_____
Firm Name (if applicable)

Bidder's address, E-mail address, and telephone:

_____
Number and Street

_____
City and State Zip Code

_____
Telephone

_____
Fax

_____
Signature and Print Name

_____
Title and E-mail Address

_____
Signature and Print Name

_____
Title and E-mail Address

SECTION 00 03 10

BEST MANAGEMENT PRACTICES (BMP) REQUIREMENTS

Best Management Practices (BMPs) shall be defined as any program, technology, process, siting criteria, operating method, measure or device which controls, prevents, removes, or reduces Storm Water pollution. The Contractor shall comply with the Los Angeles County Department of Public Works Construction Site Best Management Practices (BMP's) Manual, latest edition.

BMPs for contractor activities shall be continuously implemented throughout the year. BMPs for erosion and sediment control shall be implemented as required in Section 01 57 00. BMPs for erosion and sediment control shall also be implemented prior to the commencement of any contractor activity or construction operation.

The County, as a permittee, is subject to enforcement actions by the State Water Resources Control Board, Environmental Protection Agency, and private citizens. The County will assess the Contractor a penalty of $1,000 for each calendar day that the Contractor has not fully implemented the BMPs specified for the Contract and/or is otherwise in noncompliance with these provisions in accordance with Section 01 57 00. In addition, the County will deduct from the final payment due the Contractor, the total amount of any fines levied on the County, plus legal and staff costs, as a result of the Contractor's lack of compliance with these provisions and/or less than complete implementation of the specified BMPs.

Full compensation for the implementation of BMPs, including the construction, deployment, maintenance, removal, and the furnishing of all necessary labor, equipment, and materials, shall be considered as included in the bid price of the total lump sum price bid in Section 00 03 00.

The lump sum bid for the IMPLEMENTATION OF BMPs for construction work according to Sections 01 00 00, 01 57 00, and 01 74 23 Specifications, will be:

($_____) (_____)

BMP's lump sum bid in figures BMP's lump sum bid in words

SECTION 00 03 11

CONSTRUCTION AND DEMOLITION DEBRIS RECYCLING REQUIREMENTS

Contractor shall submit a Construction and Demolition Recycling and Reuse Plan (RRP) for any work done for or on behalf of the County to the Los Angeles County Department of Public Works, Environmental Programs Division in accordance with Part 2.2 of Section 01 74 19.

Full compensation for complying with the Construction and Demolition Debris Recycling Requirements, including the construction, removal, and the furnishing of all necessary labor, equipment, and materials, shall be included in the lump sum price bid.

The lump sum bid for COMPLYING WITH THE CONSTRUCTION AND DEMOLITION DEBRIS RECYCLING REQUIREMENTS according to Section 01 74 19, will be:

($_____) (_____)

Lump sum bid in figures Lump sum bid in words

_____

Name of Bidder (Firm Name)

SECTION 00 03 12

INSURANCE REQUIREMENTS

The premium for the Builders Risk shall be included with the Lump Sum Bid, Section 00 03 00, and shall not be in addition to it.

Builders Risk:

Such coverage is required for this Project and shall supersede Section 00 07 00, Builder's Risk Course of Construction Insurance, Article 45, and shall:

1. Insure against damage from perils covered by the Causes-of-Loss Special Form (ISO form CP 10 30), and the perils of earthquake, flood, risk of transit loss, loss during storage (both onsite and offsite), and collapse during construction (without restricting collapse coverage to specified perils).

2. If Contractor's work involves testing air conditioning systems, boilers, pressure vessels, major machinery or major electrical panels, policy shall include coverage for such testing.

3. Be written on a completed-value basis and cover the entire value of the construction Project, including County-furnished materials and equipment, against loss or damage until completion and acceptance by the County.

   The amount for Builders Risk according to Section 00 08 00 of the Specifications, will be:

($_____) (_____)

Amount in figures Amount in words

SECTION 00 04 00

ATTESTATION OF CONTRACTOR'S QUALIFICATIONS

General Contractor's Firm Name (as shown on bid): _____

As specified in the bidding documents, in order to qualify to bid on this project, the General Contractor must, have successfully completed within the last five years, at least three separate projects each with an accumulative total construction value of $800,000. Each project must include the installation of a generator and/or a security booth, at a minimum installation of a generator.

In addition to a Class B License, the General Contractor or its subcontractors must have an electrical license.

The assigned Project Manager and Field Activities Construction Coordinator must each have a minimum of 8 years of experience. Must include a list of projects demonstrating the 8 years of experience.

The general contractor hereby certifies to the County of Los Angeles that it possesses the qualifying experience.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge.

Executed this _____ day of _____, 20XX at _____
(Month) (City and State)

By: _____
(Signature of owner or officer of the General Contractor)

_____
(Title)

SECTION 00 04 00

ATTESTATION OF CONTRACTOR'S QUALIFICATIONS

The general contractor shall submit verification and justification of its qualifying experience on this County provided form as part of its bid submittal. Failure to submit the information at the time of bid and to meet requirements for qualifying experience may result in a determination by the County that the Bidder is non-responsive and/or not qualified.

The County will determine, in its sole discretion, whether or not the information provided meets the requirements for qualifying experience in order for the general contractor to be considered a qualified bidder for this project.

PROJECT 1:

Project Name	Total Square Footage	Owner Contact Name and Address	Owner Phone and Email Address	Final Contract Value	Date Completed

Project description:

PROJECT 2:

Project Name	Total Square Footage	Owner Contact Name and Address	Owner Phone and Email Address	Final Contract Value	Date Completed

Project description:

SECTION 00 04 10
BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____
_____
(Bidder and Address)

as Principal and _____
_____
(Surety and Address)
as Surety, as held and firmly bound unto the County of Los Angeles, hereinafter called the County, in the penal sum of ten percent (10%) of the total amount of the bid of the Principal above named, submitted by said Principal to the County, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION of this obligation of such that:

WHEREAS, the Principal has submitted the above-mentioned Bid to the County, for certain construction specifically described as follows, for which bids are to be opened on _____

_____ for _____
(date of bid opening) (description of work, including location, project name, and project ID as it appears on the bid)
_____

Now, THEREFORE, if the aforesaid Principal is awarded the contract and, within the time and manner required under the bidding or contract documents, after prescribed forms are presented to him for signature, enters into written contract, in the prescribed form, in accordance with the bids, and files the two bonds with the County, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by the law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

In the event suit is brought upon this bond by the County and judgment is recovered, the Surety shall pay all costs incurred by the County in such suit, including a reasonable attorney's fee to be fixed by the court.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____, 20_____.

_____
Principal

(SEAL)

_____
Signature and Title

(SEAL)

_____
Surety

_____
Signature and Title

SECTION 00 04 30

SUBCONTRACTOR LISTING AND SUBCONTRACTING

Prime Contractors shall be governed by the provisions of Sections 4100 to 4113, inclusive, of the Public Contract Code of the State of California and shall set forth in their bids, on forms provided for same, the name and California contractor license number of each Subcontractor who will perform work or labor or render service to the prime Contractor in or about the construction of the work or improvement in amount in excess of one-half (1/2) of one percent (1%) of the prime Contractor's total bid.

Failure by a prime Contractor to specify a Subcontractor for any portion of the work in excess of one-half (1/2) of one percent (1%) of the total bid constitutes an agreement between the prime Contractor and the County that he is fully qualified to perform that portion of the work himself and will perform that portion of the work himself.

No prime Contractor whose bid is accepted shall substitute any person as subcontractor in place of the subcontractor listed, nor shall any subcontract be assigned or transferred except as provided for in the above Sections of the Public Contract Code of the State of California.

Prime Contractors in violation of any of the provisions of Sections 4100 to 4113, inclusive, of the Public Contract Code of the State of California are subject to possible cancellation of contract and monetary penalties as well as disciplinary action by the Contractors' State License Board.

LIST OF SUBCONTRACTORS

The following is a list of the proposed subcontractors to whom I (we) propose to sublet a portion or portions of this work.

NAME	LICENSE NUMBER	LOCATION OF THE PLACE OF BUSINESS	CLASSIFICATION OF WORK TO BE EXECUTED	DIR REGISTRATION NUMBER AND EXPIRATION DATE

NAME	LICENSE NUMBER	LOCATION OF THE PLACE OF BUSINESS	CLASSIFICATION OF WORK TO BE EXECUTED	DIR REGISTRATION NUMBER AND EXPIRATION DATE

SECTION 00 04 35

COMMUNITY BUSINESS ENTERPRISES (CBE) PARTICIPATION FORM

Contractors are required to indicate their good faith effort in CBE participation by indicating on this form their proposed involvement on this project. CBEs are Minority/Women/Disadvantaged/Disabled Veteran/Lesbian, Gay, Bisexual, Transgender, Queer, and Questioning owned Business Enterprises (MBE/WBE/DBE/DVBE/LGBTQQ).

LIST OF CBE PARTICIPATION

The following is a list of certified CBE subcontractors or suppliers to whom I (we) propose to sublet or procure a portion or portions of this work.

NAME/ADDRESS	TYPE OF WORK OR PRODUCT	INDICATE MBE/ WBE/DBE/ DVBE/LGBTQQ	PERCENTAGE OF TOTAL CONTRACT VALUE
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

NAME/ADDRESS	TYPE OF WORK OR PRODUCT	INDICATE MBE/ WBE/DBE/ DVBE/LGBTQQ	PERCENTAGE OF TOTAL CONTRACT VALUE

SECTION 00 04 38

REQUEST FOR PREFERENCE CONSIDERATION–LOW BID SOLICITATION

INSTRUCTIONS: Bidders requesting preference consideration must complete and include this form in their bid. **In order to qualify for preference, firm must be certified by the County of Los Angeles Department of Consumer and Business Affairs (DCBA). Please reference and ATTACH your Certification Letter issued by DCBA to determine Federal/Non-Federal preference eligibility.**

☐ PREFERENCE NOT REQUESTED

OR

☐ PREFERENCE REQUESTED (SELECT ALL THAT APPLY) Preference	
Program	**Reference**
☐ Request for **Local Small Business Enterprise (LSBE) Program** Preference ☐ Certification for Non-Federally Funded County Solicitations ☐ Certification for Federally Funded County Solicitations	**LACC 2.204** **PCC 2002**
	_____
	_____

DECLARATION: **I DECLARE UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE INFORMATION IS TRUE AND CORRECT.**

PRIMARY FIRM NAME:_____

PRINT NAME: _____ **TITLE**: _____

SIGNATURE: _____ **DATE**: _____

LOS ANGELES COUNTY COMMUNITY BUSINESS ENTERPRISE (CBE) INFORMATION

TITLE	REFERENCE
1 FIRM/ORGANIZATION INFORMATION	The information requested below is for statistical purposes only. On final analysis and consideration of award, contractor/vendor will be selected without regard to race/ethnicity, color, religion, sex, national origin, age, sexual orientation or disability.

Total Number of Employees in California:	
Total Number of Employees (including owners). If the firm has more than one office location, all personnel from all offices must be included**:**	

Race/Ethnic Composition of Firm. Enter the make-up of Owners/Partners/Associate Partners into the following categories:

Race/Ethnic Composition	Owners/Partners/ Associate Partners		Percentage of how ownership of the firm is distributed	
	Male	Female	Male	Female
Black/African American			%	%
Hispanic/Latino			%	%
Asian or Pacific Islander			%	%
Native Americans			%	%
Subcontinent Asian			%	%
White			%	%

TITLE	REFERENCE
2 CERTIFICATION AS MINORITY, WOMEN, DISADVANTAGED, DISABLED VETERAN, AND LESBIAN, GAY, BISEXUAL, TRANSGENDER, QUEER, AND QUESTIONING-OWNED (LGBTQQ) BUSINESS ENTERPRISE	If your firm is currently certified as a minority, women, disadvantaged, disabled veteran or lesbian, gay, bisexual, transgender, queer, and questioning-owned business enterprise by a public agency, complete the following. ☐ **Check if not applicable**

Agency Name	Minority	Women	Disadvantaged	Disabled Veteran	LGBTQQ

SECTION 00 04 38 A Subconsultant Certification Form

1. Certification as Minority, Women, Disadvantaged, Disabled Veteran, and Lesbian, Gay, Bisexual, Transgender, Queer, and Questioning-Owned Business Enterprises: If any of your subconsultants/subcontractors is currently certified as these certifications by a public agency, complete the following and attach a copy of the proof of certification. Also include County of Los Angeles Local Small Business Enterprise/Social Enterprise/Disabled Veteran Business Enterprise certified subconsultants/subcontractors. All Subcontractors/Subconsultants listed in the bid/proposal shall be listed below. (Make a copy of this form, if necessary).

	Subconsultant Name	Local Small Business Enterprise	Small Business Enterprise	Minority	Women-Owned	Disadvantaged Business	Disabled Veteran Business Enterprise	Social Enterprise	Lesbian, Gay, Bisexual, Transgender, Queer, and Questioning-Owned Business Enterprise
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

2. Declaration: I declare under penalty of perjury under the laws of the State of California that the above information is true and accurate.

Print Name:	Authorized Signature	Title	Date

SECTION 00 04 40
EQUALS

The undersigned desires to use the material, product, thing, or service described below, as "an equal" to such items as specified. In accordance with the General Conditions, Paragraph 2, Sub-paragraph D, the first, second, and third apparent low bidder will have two (2) calendar days after the bid opening to submit their list of equals and ten (10) calendar days after the bid opening to submit all substantiating data and test results. In accordance with Sub-paragraph E, the County, in its sole discretion, shall determine whether the substantiating data demonstrates that “an equal” submittal(s) is equal in all respects to the item specified in the bid documents. If the County determines that “an equal” submittal(s) has not been substantiated to be equal in all respects, the item specified in the bid documents shall be furnished and/or installed by Contractor without modification of the bid amount or contract documents. If the County finds that “an equal” submittal(s) is equivalent to the respective item(s) specified in the bid documents, then the undersigned may furnish such item(s), together with all necessary labor, materials, equipment, and incidentals required to perform and complete the work.

Date _____, 20____

_____
Contractor's Name

Phone No. _____

_____
Contractor’s Address

	Materials, apparatus, or equipment specified for which Bidder proposes "an equal." (Indicate where specified and page number.)	Complete description of the materials, apparatus, or equipment the Bidder desires to use as "an equal" and name of Subcontractor if different.
1.	_____	_____
	_____	_____
	_____	_____
	_____	_____
2.	_____	_____
	_____	_____
	_____	_____
	_____	_____

3.

4.

5.

6.

SECTION 00 04 50

NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER

State of California

ss.

County of

_____, being first duly sworn, deposes and says that he or she is _____ of _____ the party making the foregoing bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other Bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the Bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____[date], at _____[city], _____[state].”

_____

Signature

_____

Date

ATTESTATION OF WILLINGNESS TO CONSIDER GAIN/START PARTICIPANTS

As a threshold requirement for consideration for contract award, Bidder/Proposer shall demonstrate a proven record for hiring GAIN/START participants or shall attest to a willingness to consider GAIN/START participants for any future employment opening if they meet the minimum qualifications for that opening. Additionally, Bidder/Proposer shall attest to a willingness to provide employed GAIN/START participants access to the Bidder/Proposer's employee mentoring program, if available, to assist these individuals in obtaining permanent employment and/or promotional opportunities.

To report all job openings with job requirements to obtain qualified GAIN/START participants as potential employment candidates, Bidder/Proposer shall email: GAINGROW@DPSS.LACOUNTY.GOV and BSERVICES@WDACS.LACOUNTY.GOV.

Bidder/Proposers unable to meet this requirement shall not be considered for contract award.

Bidder/Proposer shall complete all of the following information, sign where indicated below, and return this form with their proposal.

A. Bidder/Proposer has a proven record of hiring GAIN/START participants.

_____ YES (subject to verification by County) _____ NO

B. Bidder/Proposer is willing to provide DPSS with all job openings and job requirements to consider GAIN/START participants for any future employment openings if the GAIN/START participant meets the minimum qualifications for the opening. "Consider" means that Proposer is willing to interview qualified GAIN/START participants.

_____ YES _____ NO

C. Bidder/Proposer is willing to provide employed GAIN/START participants access to its employee-mentoring program, if available.

_____ YES _____ NO _____ N/A (Program not available)

Proposer's Organization: _____

Signature: _____

Print Name: _____

Title: _____ Date: _____

Telephone No: _____ Email: _____

SECTION 00 04 65 3-YEAR CONTRACTING HISTORY

LIST ALL CURRENT AND COMPLETED CONTRACTS WITH THE COUNTY FOR THE PAST THREE YEARS (Begin with the most recent project)

Contract Type/Description _____ Contract Number

Type of Work _____ _____

Department _____ Contract Amount

Address _____ $ _____

County Contact Name/Phone _____ / _____ Date of Contract

IF CONSTRUCTION
Architect Name/Phone _____ / _____ _____

Type of Facility _____

Contract Type/Description _____ Contract Number

Type of Work _____ _____

Department _____ Contract Amount

Address _____ $ _____

County Contact Name/Phone _____ / _____ Date of Contract

IF CONSTRUCTION
Architect Name/Phone _____ / _____ _____

Type of Facility _____

Contract Type/Description _____ Contract Number

Type of Work _____ _____

Department _____ Contract Amount

Address _____ $ _____

County Contact Name/Phone _____ / _____ Date of Contract

IF CONSTRUCTION
Architect Name/Phone _____ / _____ _____

Type of Facility _____

Contract Type/Description _____ Contract Number

Type of Work _____ _____

Department _____ Contract Amount

Address _____ $ _____

County Contact Name/Phone _____ / _____ Date of Contract

IF CONSTRUCTION
Architect Name/Phone _____ / _____ _____

Type of Facility _____

Contract Type/Description _____ Contract Number

Type of Work _____ _____

Department _____ Contract Amount

Address _____ $ _____

County Contact Name/Phone _____ / _____ Date of Contract

IF CONSTRUCTION
Architect Name/Phone _____ / _____ _____

Type of Facility _____

Contract Type/Description _____ Contract Number

Type of Work _____ _____

Department _____ Contract Amount

Address _____ $ _____

County Contact Name/Phone _____ / _____ Date of Contract

IF CONSTRUCTION
Architect Name/Phone _____ / _____ _____

Type of Facility _____

SECTION 00 04 70

FALSE CLAIMS

Bidders/Proposers shall provide either the certification requested below or the information requested on the next page. **Failure to certify or provide the requested information may result in a determination that the Bidder/Proposer is non-responsive. Failure to fully and accurately provide the requested certification or information may result in a determination that the Bidder/Proposer is not responsible.**

"False Claims Act", as used herein, is defined as either or both the Federal False Claims Act, 31 U.S.C. Sections 3729 et seq., and the California False Claims Act, Government Code Sections 12650 et seq.

FALSE CLAIMS ACT CERTIFICATION

If the Bidder/Proposer has no False Claims Act violations as described above, complete the following:

I,_____, hereby certify that neither
(print name of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

_____
(Bidder/Proposer name as shown on Bid/Proposal)

nor_____
(name of responsible managing person licensed by Contractors' State License Board)

has been determined by a court or tribunal of competent jurisdiction to have violated the False Claims Act as defined above.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this_____ day _____at_____
(month and year) (city and state)

by_____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

FALSE CLAIMS ACT VIOLATIONS

With regard to any determinations by a tribunal or court of competent jurisdiction that the False Claims Act, as defined above, has been violated by (1) the Bidder/Proposer submitting this Bid/Proposal, including any person who is an officer of, or in a management position with, or has an ownership interest in the contracting entity which is submitting this Bid/Proposal, or (2) the qualifying person licensed by the State Contractors' License Board to perform the work described in the Bid/Proposal, including any such person when they were an officer, manager, owner, or responsible managing employee of a construction contractor other than the Bidder/Proposer submitting this Bid/Proposal, Bidder/Proposer shall provide on the following page labeled "False Claim Act Violations Information:" (1) the date of the determination of the violation, (2) the identity of tribunal or court and the case name or number, if any, (3) the identity of government contract or project involved, (4) the identity of government agency involved, 5) the amount of fine imposed, and (6) any exculpatory information of which the County should be aware.

FALSE CLAIMS ACT VIOLATIONS INFORMATION

(1) Date of determination of the violation:

_____

(2) Identity of tribunal or court and the case name or number, if any: _____

_____

(3) Government contract or project involved: _____

_____

_____

(4) Government agency involved: _____

_____

_____

(5) Amount of fine imposed: _____

(6) Exculpatory information: _____

_____

_____

_____

_____

_____

_____

_____

Declaration: I declare under penalty of perjury that the above information is true and correct.

Executed this _____ day of _____ at _____
(month and year) (city and state)

by_____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

SECTION 00 04 71
CIVIL LITIGATION HISTORY

Bidder/Proposer shall provide either the certification requested below or information requested on the next page. **Failure to provide such certification or information may result in a determination that the Bidder/Proposer is nonresponsive. Failure to fully and accurately provide the requested certification or information may result in a determination that the Bidder/Proposer is not responsible.**

For the two (2) years preceding the date of submittal of this Bid/Proposal, identify any civil litigation arising out of the performance of a construction contract within the State of California in which the (1) Bidder/Proposer submitting this Bid/Proposal, including any person who is an officer of, or in a management position with, or has an ownership interest in the contracting entity which is submitting this Bid/Proposal, or (2) the qualifying person licensed by the State Contractors' License Board to perform the work described in this Bid/Proposal, including any such person when they were an officer, manager, owner, or responsible managing employee of a construction contractor other than the Bidder/Proposer submitting this Bid/Proposal, was a named plaintiff or defendant in a lawsuit brought by or against the Owner. Do not include litigation which is limited solely to enforcement of mechanics' liens or stop notices. Provide on the following page labeled "Civil Litigation History Information:" (1) the name and court case identification number of each case, (2) the jurisdiction in which it was filed, and (3) the outcome of the litigation, e.g., whether the case is pending, a judgment was entered, a settlement was reached, or the case was dismissed. If a settlement was reached within the two years preceding the date of submittal of this Bid/Proposal, please provide the dollar value of the settled claim(s). The dollar value may be marked as confidential if Bidder/Proposer does not want the settlement information to be public record.

CIVIL LITIGATION CERTIFICATION

If the Bidder/Proposer has no civil litigation history to report as described above, complete the following:

I, _____, hereby certify that neither
(print name of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

_____
(Bidder/Proposer name as shown on Bid/Proposal)

nor _____
(name of responsible managing person licensed by the Contractors' State License Board)

has been involved in civil litigation as described above.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this _____ day of _____ at _____
(month and year) (city and state)

by _____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

CIVIL LITIGATION HISTORY INFORMATION

(1) Name of Case: _____

_____

Court case identification number: _____

(2) Jurisdiction in which case was filed: _____

_____

(3) Outcome of the case: _____

_____

_____

_____

_____

(1) Name of Case: _____

_____

Court case identification number: _____

(2) Jurisdiction in which case was filed: _____

_____

(3) Outcome of the case: _____

_____

_____

_____

_____

Declaration: I declare under penalty of perjury that the above information is true and correct.

Executed this _____ day of _____ at _____
(month and year) (city and state)

by _____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

SECTION 00 04 72

CRIMINAL CONVICTIONS

Bidder/Proposer shall provide either the certification requested below or information requested on the next page. **Failure to provide such certification or information may result in a determination that the Bidder/Proposer is nonresponsive. Failure to fully and accurately provide the requested certification or information may result in a determination that the Bidder/Proposer is not responsible.**

For the five (5) years preceding the date this Bid/Proposal is due, identify on the following page any criminal conviction in any jurisdiction of the United States for a violation of law arising out of the performance of a construction contract (1) by the Bidder/Proposer submitting this Bid/Proposal, including any person who is an officer of, or in a management position with, or has an ownership interest in the contracting entity which is submitting this Bid/Proposal, or (2) by the qualifying person licensed by the State Contractors' License Board to perform the work described in the Bid/Proposal, including any such person when they were an officer, manager, owner, or responsible managing employee of a construction contractor other than the Bidder/Proposer submitting this Bid/Proposal. Provide on the following page labeled "Criminal Convictions Information:" (1) the date of conviction, (2) the name and court case identification number, (3) the identity of the law violated, (4) the identity of the prosecuting agency, (5) the contract or project involved, (6) the punishment imposed, and (7) any exculpatory information of which the Agency should be aware.

CRIMINAL CONVICTION CERTIFICATION

If the Bidder/Proposer has no criminal convictions to report as described above, complete the following:

I, _____, hereby certify that neither
(print name of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

_____
(Bidder/Proposer name as shown on Bid/Proposal)

nor _____
(name of responsible managing person licensed by the Contractors' State License Board)

has been convicted of a criminal violation as described above.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this _____ day of _____ at _____
(month and year) (city and state)

by _____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

CRIMINAL CONVICTIONS INFORMATION

(1) Date of conviction: _____

(2) Name of case: _____

Court case identification number: _____

(3) Identity of the law violated: _____

_____

(4) Identity of the prosecuting agency: _____

_____

(5) Contract or project involved: _____

_____

(6) Punishment imposed: _____

_____

_____

(7) Exculpatory information: _____

_____

_____

_____

_____

Declaration: I declare under penalty of perjury that the above information is true and correct.

Executed this _____ day of _____ at _____
(month and year) (city and state)

by _____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

SECTION 00 04 73

DEBARMENTS

Bidder/Proposer shall provide either the certification requested below or the information requested on the next page. **Failure to provide such certification or information may result in a determination that the Bidder/Proposer is nonresponsive. Failure to fully and accurately provide the requested certification or information may result in a determination that the Bidder/Proposer is not responsible.**

For the ten (10) years preceding the date this Bid/Proposal is due, identify on the following page any debarment by any Federal, State, or local public agency arising out of the performance of a construction contract (1) by the Bidder/Proposer submitting this Bid/Proposal, including any person who is an officer of, or in a management position with, or has an ownership interest in the contracting entity which is submitting this Bid/Proposal, or (2) by the qualifying person licensed by the Contractors' State License Board to perform the work described in the Bid/Proposal, including any debarment of any such person when they were an officer, manager, owner, or responsible managing employee of a construction contractor other than the Bidder/Proposer submitting this Bid/Proposal. Provide on the following page labeled "Debarment Information:" (1) the date of debarment and the duration of the debarment, (2) the project name or contract from which the debarment arose, (3) the identify of the debarring agency, (4) stated reason for debarment, and (5) any exculpatory information of which the Agency should be aware.

HISTORY OF DEBARMENT CERTIFICATION

If the Bidder/Proposer has no debarments to report as described above, complete the following:

I, _____, hereby certify that neither
(print name of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

_____
(Bidder/Proposer name as shown on Bid/Proposal)

nor _____
(name of responsible managing person licensed by Contractors' State License Board)

has been debarred as described above.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this _____ day of _____ at _____
(month and year) (city and state)

by _____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

DEBARMENT INFORMATION

(1) Date and duration of debarment: _____

_____

(2) Project name or contract involved: _____

_____

(3) Debarring agency: _____

_____

(4) Stated reason for debarment: _____

_____

_____

_____

_____

(5) Exculpatory information: _____

_____

_____

_____

_____

_____

_____

Declaration: I declare under penalty of perjury that the above information is true and correct.

Executed this _____ day of _____ at _____
(month and year) (city and state)

by_____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

SECTION 00 04 74
LABOR LAW/PAYROLL VIOLATIONS

Bidder/Proposer shall provide the certification requested below or the information requested on the next page. **Failure to provide such certification or information may result in a determination that the Bidder/Proposer is nonresponsive. Failure to fully and accurately provide the requested certification or information may result in a determination that the Bidder/Proposer is not responsible.**

"Labor law/payroll violation" means for purposes of this disclosure a violation of the Davis-Bacon Act (40 USC section 276a) and/or a violation of California Labor Code sections 1720 through 1861 concerning the payment of prevailing wages, employment of apprentices and hours and working conditions.

For the three (3) years preceding the date this Bid/Proposal is due, identify on the following page any determination made by any Federal, State, or local public agency of a labor law/payroll violation arising out of the performance of a construction contract (1) by the Bidder/Proposer submitting this Bid/Proposal, including any person who is an officer of, or in a management position with, or has an ownership interest in the contracting entity which is submitting this Bid/Proposal, or (2) by the qualifying person licensed by the Contractors' State License Board to perform the work described in the Bid/Proposal, including any such person when they were an officer, manager, owner, or responsible managing employee of a construction contractor other than the Bidder/Proposer submitting this Bid/Proposal. Provide on the following page labeled "Labor Law/Payroll Violations Information:" (1) the date of the determination of the violation, (2) the case number, if any, or other identifying information for the proceeding, (3) the identity of the government contract or project involved, (4) the identity of the government agency involved, (5) the description of violation, (6) the amount of any civil wage and penalty assessment, and (7) any exculpatory information of which the Agency should be aware.

LABOR LAW/PAYROLL VIOLATION CERTIFICATION

If the Bidder/Proposer has no labor law/payroll violations to report as described above, complete the following:

I, _____, hereby certify that neither
(print name of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

_____
(Bidder/Proposer name as shown on Bid/Proposal)

nor_____
(name of responsible managing person licensed by Contractors' State License Board)

has been determined to have violated any Federal, State, or local labor laws as described above.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this _____ day of _____ at _____
(month and year) (city and state)

by _____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

LABOR LAW/PAYROLL VIOLATIONS INFORMATION

(1) Date of violation determination: _____

(2) Case number: _____

(3) Government contract or project involved: _____

_____

_____

(4) Government agency involved: _____

_____

(5) Description of the violation (attach disposition letter): _____

_____

_____

_____

_____

(6) Amount of any civil wage and penalty assessment: _____

_____

_____

(7) Exculpatory information: _____

_____

_____

_____

_____

Declaration: I declare under penalty of perjury that the above information is true and correct.

Executed this _____ day of _____ at _____
(month and year) (city and state)

by _____
(signature of owner, officer, manager, or licensee responsible for submission of Bid/Proposal)

SECTION 00 04 75

INTEGRATED PEST MANAGEMENT PROGRAM COMPLIANCE CERTIFICATION

Company Name:		
Company Address:		
City:	State:	Zip Code:
Telephone Number:	Email address:	
Solicitation/Contract for	Services	

PROPOSER CERTIFICATION

The County of Los Angeles is a permittee to a National Pollutant Discharge Elimination System Permit (NPDES Permit) issued by the Los Angeles Regional Water Quality Control Board to reduce or eliminate pollutants moved into surface water through storm water management systems and facilities. One of the conditions of the NPDES Permit is the Integrated Pest Management Program (IPM Program) which was developed to reduce the impact of pesticides and fertilizers to surface water. Among other things, the IPM Program imposes requirements to County Purchasing and Contracting, which are outlined in Integrated Pest Management Program Compliance of the proposed Contract. The entire Countywide IPM Program is available at Los Angeles County Department of Agricultural Commissioner/ Weights and Measures (ACWM) and Home Page - Current - Integrated Pest Management (lacounty.gov)

Proposer acknowledges and certifies compliance with Integrated Pest Management Program Compliance of the proposed Contract and agrees that proposer or a member of its staff performing work under the proposed Contract will be in compliance, when applicable. Proposer further acknowledges that noncompliance with the County's IPM Program may result in rejection of any proposal, or cancellation of any resultant Contract, at the sole judgment of the County.

I declare under penalty of perjury under the laws of the State of California that the information herein is true and correct and that I am authorized to represent this company.

Print Name:	Title:
Signature:	Date:

SECTION 00 04 76

CHARITABLE CONTRIBUTIONS CERTIFICATION

_____

Company Name

_____

Address

_____

Internal Revenue Service Employer Identification Number

_____

California Registry of Charitable Trusts "CT" number (if applicable)

The Nonprofit Integrity Act (SB 1262, Chapter 919) added requirements to California's Supervision of Trustees and Fundraisers for Charitable Purposes Act which regulates those receiving and raising charitable contributions.

Check the Certification below that is applicable to your company.

☐ Proposer or Contractor has examined its activities and determined that it does not now receive or raise charitable contributions regulated under California's Supervision of Trustees and Fundraisers for Charitable Purposes Act. If Proposer engages in activities subjecting it to those laws during the term of a County contract, it will timely comply with them and provide County a copy of its initial registration with the California State Attorney General's Registry of Charitable Trusts when filed.

OR

☐ Proposer or Contractor is registered with the California Registry of Charitable Trusts under the CT number listed above and is in compliance with its registration and reporting requirements under California law. Attached is a copy of its most recent filing with the Registry of Charitable Trusts as required by Title 11 California Code of Regulations, sections 300-301 and Government Code sections 12585-12586.

_____ _____

Signature Date

_____

Please Print Name and Title of Signer

PROSPECTIVE CONTRACTOR LIST OF TERMINATED CONTRACTS

Contractor's Name: _____

Proposer must list all contracts that have been terminated within the past three years. Terminated contracts are those contracts terminated by an agency or firm before the contract's expiration date. Any and all terminated contracts should be accompanied with "Reason for termination". It should be noted that contracts that naturally expired need not be listed. The County is only seeking information on contracts that were terminated prior to expiration.

1. Name of Firm	**Address of Firm**	**Contact Person**	**Telephone #** ( )	**Email**
Name or Contract No.	Reason for Termination:			
2. Name of Firm	**Address of Firm**	**Contact Person**	**Telephone #** ( )	**Email**
Name or Contract No.	Reason for Termination:			
3. Name of Firm	**Address of Firm**	**Contact Person**	**Telephone #** ( )	**Email**
Name or Contract No.	Reason for Termination:			
4. Name of Firm	**Address of Firm**	**Contact Person**	**Telephone #** ( )	**Email**
Name or Contract No.	Reason for Termination:			

SB 1439 QUESTIONNAIRE
Camp Glenn Rockey Security Upgrades Project
BRC0000582

Proposers/Subconsultants/Subcontractors are all required to complete the SB 1439 Questionnaire.

If a question is not applicable, enter "N/A."

PARTIES **All applicants, bidders, or proposers for a license/permit/franchise or other entitlement for use.**	Individual/Company Name: Prime or subcontractor? Parent? Subsidiaries Related Business Entities? Any other entities directed or controlled by the individual or company? Name of party who signs an agreement:
PARTIES' AGENTS **List all agents paid by each applicant or bidder for license/permit/franchise, or other entitlement for use.**	Name: Company name (if any): Name: Company name (if any):
PARTICIPANTS **List all individuals and/or businesses who contacted your Department to oppose or support the application with a financial interest in the decision.**	Individual/Company Name: Prime or subcontractor? Parent? Subsidiaries? Related Business Entities? Any other entities directed or controlled by the individual or company?
PARTICIPANTS' AGENTS **List all agents paid by each participant who contacted your Department opposed or supported the application who has a financial interest in the decision.**	Name: Company name (if any):
CONTRIBUTIONS **Did any party, participant or their agents to this agenda item disclose they made a campaign contribution of $250 or more to a decision-maker during the permit, licensing, leasing or approval process *on or after Jan. 1, 2023*?**	Date of contribution: Name of Contributor: Recipient Name: Amount:

SB 1439 QUESTIONNAIRE
Camp Glenn Rockey Security Upgrades Project
BRC0000582

It is Proposers'/Subconsultants'/Subcontractors' sole responsibility to inform Public Works immediately of any changes in the submitted information after submission.

Proposers/Subconsultants/Subcontractors declare under penalty of perjury that the information stated in this form is true and accurate.

I declare under penalty of perjury under the laws of the State of California that the information herein is true and correct and that I am authorized to represent this company.

Print Name:	Title:
Signature:	Date:

REQUIRED FORM
CONTRIBUTION AND AGENT DECLARATION FORM

This form must be completed separately by all bidders/proposers, including all prime contractors and subcontractors, and by all applicants for licenses, permits, and other entitlements for use issued by the County of Los Angeles ("County").

Pursuant to the Levine Act (Government Code section 84308), a member of the Board of Supervisors, other elected County officials (the Sheriff, Assessor, and the District Attorney), and other County employees and/or officers ("County Officers") are disqualified and not able to participate in a proceeding involving contracts, franchises, licenses, permits and other entitlements for use if the County Officer received more than $250 in contributions in the past 12 months from the bidder, proposer or applicant, any paid agent of the bidder, proposer, or applicant, or any financially interested participant who actively supports or opposes a particular decision in the proceeding.

State law requires you to disclose information about contributions made by you, your company, and lobbyists and agents paid to represent you. Failure to complete the form in its entirety may result in significant delays in the processing of your application and potential disqualification from the procurement or application process.

You must fully answer the applicable questions below. You ("Declarant"), or your company, if applicable, including all entities identified below (collectively, "Declarant Company") must also answer the questions below. The term "employee(s)" shall be defined as employees, officers, partners, owners, or directors of Declarant Company.

An affirmative response to any questions will not automatically cause the disqualification of your bid/proposal, or the denial of your application for a license, permit or other entitlement. However, failure to answer questions completely, in good faith, or providing materially false answers may subject a bidder/proposer to disqualification from the procurement.

This material is intended for use by bidders/proposers, including all prime contractors and subcontractors, and by all applicants for licenses, permits, and other entitlements for use issued by the County of Los Angeles and does not constitute legal advice*. If you have questions about the Levine Act and how it applies to you, you should call your lawyer or contact the Fair Political Practices Commission for further guidance.*

REQUIRED FORM

Complete each section below. State "none" if applicable.

A. COMPANY OR APPLICANT INFORMATION

1) Declarant Company or Applicant Name:

   a) If applicable, identify all subcontractors that have been or will be named in your bid or proposal:

   b) If applicable, variations and acronyms of Declarant Company's name used within the past 12 months:

   c) Identify all entities or individuals who have the authority to make decisions for you or Declarant Company about making contributions to a County Officer, regardless of whether you or Declarant Company have actually made a contribution:

[IF A COMPANY, ANSWER QUESTIONS 2 - 3]

2) Identify only the Parent(s), Subsidiaries and Related Business Entities that Declarant Company has controlled or directed, or been controlled or directed by. "Controlled or directed" means shared ownership, 50% or greater ownership, or shared management and control between the entities.

   a) Parent(s):

   b) Subsidiaries:

   c) Related Business Entities:

3) If Declarant Company is a closed corporation (non-public, with under 35 shareholders), identify the majority shareholder.

4) Identify all entities (proprietorships, firms, partnerships, joint ventures, syndicates, business trusts, companies, corporations, limited liability companies, associations, committees, and any other organization or group of persons acting in concert) whose contributions you or Declarant Company have the authority to direct or control.

5) Identify any individuals such as employees, agents, attorneys, law firms, lobbyists, and lobbying firms who are or who will act on behalf of you or Declarant Company and who will receive compensation to communicate with a County Officer regarding the award or approval of **this** contract or project, license, permit, or other entitlement for use.

   *(Do **not** list individuals and/or firms who, as part of their profession, either (1) submit to the County drawings or submissions of an architectural, engineering, or similar nature, **or** (2) provide purely technical data or analysis, **and** who will not have any other type of communication with a County agency, employee, or officer.)*

6) If you or Declarant Company are a 501(c)(3) non-profit organization, identify the compensated officers of your organization and the compensated members of your board.

B. CONTRIBUTIONS

1) Have you or the Declarant Company solicited or directed your employee(s) or agent(s) to make contributions, whether through fundraising events, communications, or any other means, to a County Officer in the past 12 months? If so, provide details of each occurrence, including the date.

Date (contribution solicited, or directed)	**Recipient Name** (elected official)	**Amount**

*Please attach an additional page, if necessary.

2) Disclose all contributions made by you or any of the entities and individuals identified in Section A to a County officer in the past 12 months.

Date (contribution made)	**Name** (of the contributor)	**Recipient Name** (elected official)	**Amount**

*Please attach an additional page, if necessary.

REQUIRED FORM

CONTRIBUTION AND AGENT DECLARATION FORM

C. DECLARATION

By signing this Contribution and Agent Declaration form, you (Declarant), or you and the Declarant Company, if applicable, attest that you have read the entirety of the Contribution Declaration and the statements made herein are true and correct to the best of your knowledge and belief. (Only complete the one section that applies.)

There are _____ additional pages attached to this Contribution Declaration Form.

COMPANY BIDDERS OR APPLICANTS

I, _____ (Authorized Representative), on behalf of _____(Declarant Company), at which I am employed as _____ (Title), attest that after having made or caused to be made a reasonably diligent investigation regarding the Declarant Company, the foregoing responses, and the explanation on the attached page(s), if any, are correct to the best of my knowledge and belief. Further, I understand that failure to answer the questions in good faith or providing materially false answers may subject Declarant Company to consequences, including disqualification of its bid/proposal or delays in the processing of the requested contract, license, permit, or other entitlement.

IMPORTANT NOTICE REGARDING FUTURE AGENTS AND FUTURE CONTRIBUTIONS:

By signing this Contribution and Agent Declaration form, you also agree that, if Declarant Company hires an agent, such as, but not limited to, an attorney or lobbyist during the course of these proceedings and will compensate them for communicating with the County about this contract, project, permit, license, or other entitlement for use, you agree to inform the County of the identity of the agent or lobbyist and the date of their hire. You also agree to disclose to the County any future contributions made to members of the County Board of Supervisors, another elected County officer (the Sheriff, Assessor, and the District Attorney), or any other County officer or employee by the Declarant Company, or, if applicable, any of the Declarant Company's proposed subcontractors, agents, lobbyists, and employees who have communicated or will communicate with the County about this contract, license, permit, or other entitlement after the date of signing this disclosure form, and within 12 months following the approval, renewal, or extension of the requested contract, license, permit, or entitlement for use.

_____ _____

Signature Date

REQUIRED FORM

CONTRIBUTION AND AGENT DECLARATION FORM

INDIVIDUAL BIDDERS OR APPLICANTS

I, _____, declare that the foregoing responses and the explanation on the attached sheet(s), if any, are correct to the best of my knowledge and belief. Further, I understand that failure to answer the questions in good faith or providing materially false answers may subject me to consequences, including disqualification of my bid/proposal or delays in the processing of the requested license, permit, or other entitlement.

IMPORTANT NOTICE REGARDING FUTURE AGENTS AND FUTURE CONTRIBUTIONS:

If I hire an agent or lobbyist during the course of these proceedings and will compensate them for communicating with the County about this contract, project, permit, license, or other entitlement for use, I agree to inform the County of the identity of the agent or lobbyist and the date of their hire. I also agree to disclose to the County any future contributions made to members of the County Board of Supervisors, another elected County official (the Sheriff, Assessor, and the District Attorney), or any other County officer or employee by me, or an agent such as, but not limited to, a lobbyist or attorney representing me, that are made after the date of signing this disclosure form, and within 12 months following the approval, renewal, or extension of the requested contract, license, permit, or entitlement for use.

_____ _____

Signature Date

SECTION 00 04 85
COUNTY OF LOS ANGELES CONTRACTOR EMPLOYEE JURY SERVICE PROGRAM
APPLICATION FOR EXCEPTION AND CERTIFICATION FORM

The County's solicitation for this contract/purchase order (Request for Proposal or Invitation for Bid) is subject to the County of Los Angeles Contractor Employee Jury Service Program (Program), Los Angeles County Code, Chapter 2.203. All bidders or proposers, whether a contractor or subcontractor, must complete this form to either: 1) request an exception from the Program requirements; or 2) certify compliance. Upon review of the submitted form, the County department will determine, in its sole discretion, whether the bidder or proposer is exempted from the Program.

Company Name:		
Company Address:		
City:	**State:**	**Zip Code:**
Telephone Number:		
Solicitation For (Type of Goods or Services):		

If you believe the Jury Service Program does not apply to your business, check the appropriate box in Part I (attach documentation to support your claim); or, complete Part II to certify compliance with the Program. Whether you complete Part I or II, please sign and date this form below.

Part I: Jury Service Program is not Applicable to my Business

- ❑ My business does not meet the definition of "contractor," as defined in the Program as it has not received an aggregate sum of $50,000 or more in any 12-month period under one or more County contracts or subcontracts (this exception is not available if the contract/purchase order itself will exceed $50,000). I understand that the exception will be lost and I must comply with the Program if my revenues from the County exceed an aggregate sum of $50,000 in any 12-month period.

- ❑ My business is a small business as defined in the Program. It: 1) has ten or fewer employees; and, 2) has annual gross revenues in the preceding 12 months which, if added to the annual amount of this contract, are $500,000 or less; and 3) is not an affiliate or subsidiary of a business dominant in its field of operation as defined below. I understand that the exemption will be lost and I must comply with the Program if the number of employees in my business and my gross annual revenues exceed the above limits.

  "**Dominant in its field of operation**" means having more than ten employees, including full-time and part-time employees, and annual gross revenues in the preceding 12 months, which, if added to the annual amount of the contract awarded, exceed $500,000.

  "**Affiliate or subsidiary of a business dominant in its field of operation"** means a business which is at least 20 percent owned by a business dominant in its field of operation, or by partners, officers, directors, majority stockholders, or their equivalent of a business dominant in that field of operation.

- ❑ My business is subject to a Collective Bargaining Agreement (attach agreement) that expressly provides that it supersedes all provisions of the Program.

OR

Part II: Certification of Compliance

- ❑ My business has and adheres to a written policy that provides, on an annual basis, no less than five days of regular pay for actual jury service for full-time employees of the business who are also California residents, **or** my company will have and adhere to such a policy prior to award of the contract.

I declare under penalty of perjury under the laws of the State of California that the information stated above is true and correct.

Print Name:	**Title:**
Signature:	**Date:**

To be submitted with each Bid for a contract

Project Identification_____

_____

Bid Date_____

This information must include all construction work undertaken in the State of California by the Bidder and any partnership, joint venture, or corporation that any principal of the Bidder participated in as a principal or owner for the last five calendar years and the current calendar year prior to the date of Bid submittal. Separate information shall be submitted for each particular partnership, joint venture, corporate, or individual Bidder. The Bidder may attach any additional information or explanation of data which he would like taken into consideration in evaluating the safety record. An explanation must be attached of the circumstances surrounding any and all fatalities.

SECTION 00 04 90

CONTRACTOR'S INDUSTRIAL SAFETY RECORD

5-Calendar Years Prior to Current Year

	2019	2020	2021	2022	2023	TOTAL	CURRENT YEAR (2024)
1. No. of Contracts							
2. Total dollar amount of contracts (in thousands of dollars)							
*3. No. of fatalities							
*4. No. of lost workdays due to injuries							
*5. No. of days of restricted work activity due to injuries							
*6. Injuries without lost workdays							

*The information required for these items is the same as required for columns 1, 4, 5, and 6, Log and Summary of Occupational Injuries and Illnesses, CAL/OSHA Form 200.

The above information was compiled from the records that are available to me at this time and I declare under penalty of perjury that the information is true and accurate within the limitations of those records.

_____ _____

Name of Bidder (Print) Signature

_____ _____

Address Contractors' State License No. & Classification

_____ _____

City Telephone

SECTION 00 04 91

INJURY AND ILLNESS PREVENTION PLAN (IIPP) AND CODE OF SAFE PRACTICES (CSP) AFFIDAVIT

The apparent low Bidder shall submit this form to the County which states that the Bidder has an IIPP which complies with Cal/OSHA Regulations and CSP, that all subcontractors supplying employees to the jobsite will be required to prove to the Contractor that they have an IIPP which complies with Cal/OSHA Regulations and a CSP, and that their jobsite employees have been trained on IIPP and CSP.

Failure to submit this affidavit as required may result in a determination that the successful Bidder is nonresponsive and/or nonresponsible.

I, _____, hereby certify to the County

of Los Angeles on behalf of _____ the following:

1. The Contractor identified above has an injury and illness Prevention Plan (IIPP) and a Code of Safe Practices (CSP) which comply with Cal/OSHA Regulations.

2. The employees of the Contractor identified above who will be assigned to the jobsite have been trained on the IIPP and CSP.

3. All subcontractors supplying employees to the jobsite will be required to prove to the Contractor that they have an IIPP and a CSP which comply with Cal/OSHA Regulations and their jobsite employees have been trained on the IIPP and CSP.

I declare under penalty of perjury under the law of the State of California that the foregoing is true and correct.

Executed this_____day of _____
(month and year)

at _____

By_____

SECTION 00 04 92

BIDDER'S ORGANIZATION QUESTIONNAIRE/AFFIDAVIT

Please complete, date and sign this form and place it in your Bid. The person signing the form must be authorized to sign on behalf of the Bidder and to bind the applicant in a Contract.

1. If your firm is a corporation, state its legal name (as found in your Articles of Incorporation) and State of Incorporation:

   _____ _____ _____
   Name State Year Inc.

2. If your firm is a partnership or a sole proprietorship, state the name of the proprietor or managing partner:

   _____

3. If your firm is doing business under one or more DBA's, please list all DBA's and the County(ies) of registration:

Name	County of Registration	Year Became DBA
_____	_____	_____
_____	_____	_____

4. Is your firm wholly or majority owned by, or a subsidiary of, another firm: _____ if yes,

   Name of parent firm: _____

   State of incorporation or registration of parent firm: _____

5. Please list any other names your firm has done business as within the last five (5) years.

Name	Year of Name Change
_____	_____
_____	_____

6. Indicate if your firm is involved in any pending acquisition/merger, including the associated company name. If not applicable, so indicate below.

   _____

   _____

Bidder acknowledges that if any false, misleading, incomplete, or deceptively unresponsive statements in connection with this Bid are made, the Bidder may be rejected. The evaluation and determination in this area shall be at the Director's sole judgment and his/her judgment shall be final:

Bidder's Name

Address:

_____

_____

e-mail address:_____ Telephone number:_____

Fax number: _____

On behalf of _____(Bidder's name), I _____ (Name of Bidder's authorized representative), certify that the information contained in this Bidder's Organization Questionnaire/Affidavit is true and correct to the best of my information and belief.

_____	_____
Signature	Internal Revenue Service Employer Identification Number
_____	_____
Title	California Business License Number
_____	_____
Date	County WebVen Number

SECTION 00 04 93

CERTIFICATION OF COMPLIANCE WITH THE COUNTY'S DEFAULTED PROPERTY TAX REDUCTION PROGRAM

Company Name:		
Company Address:		
City:	State:	Zip Code:
Telephone Number:	Email address:	
Solicitation/Contract For_____	Services:	

The Proposer/Bidder/Contractor certifies that:

☐ It is familiar with the terms of the County of Los Angeles Defaulted Property Tax Reduction Program, Los Angeles County Code Chapter 2.206; **AND**

To the best of its knowledge, after a reasonable inquiry, the Proposer/Bidder/ Contractor is not in default, as that term is defined in Los Angeles County Code Section 2.206.020.E, on any Los Angeles County property tax obligation; **AND**

The Proposer/Bidder/Contractor agrees to comply with the County's Defaulted Property Tax Reduction Program during the term of any awarded contract.

– OR –

☐ I am exempt from the County of Los Angeles Defaulted Property Tax Reduction Program, pursuant to Los Angeles County Code Section 2.206.060, for the following reasons:

_____

_____

I declare under penalty of perjury under the laws of the State of California that the information stated above is true and correct.

Print Name:	Title:
Signature:	Date:

SECTION 00 04 94

AVOIDANCE OF CONFLICT OF INTEREST

The Los Angeles County Code, Section 2.180.010, provides as follows:

CONTRACTS PROHIBITED

Notwithstanding any other section of this Code, the County shall not contract with, and shall reject any proposals submitted by, the persons or entities specified below, unless the Board of Supervisors finds that special circumstances exist which justify the approval of such contract:

1. Employees of the County or of public agencies for which the Board of Supervisors is the governing body;

2. Profit-making firms or businesses in which employees described in number 1 serve as officers, principals, partners, or major shareholders;

3. Persons who, within the immediately preceding 12 months, came within the provisions of number 1, and who:

    a. Were employed in positions of substantial responsibility in the area of service to be performed by the contract; or

    b. Participated in any way in developing the contract or its service specifications; and

4. Profit-making firms or businesses in which the former employees, described in number 3, serve as officers, principals, partners, or major shareholders.

Contracts submitted to the Board of Supervisors for approval or ratification shall be accompanied by an assurance by the department submitting, district or agency that the provisions of this section have not been violated.

_____

Proposer Name (please print)

_____

Proposer's Official Title (please print)

_____

Proposer's Signature

SECTION 00 04 95

FAMILIARITY WITH THE COUNTY LOBBYIST ORDINANCE CERTIFICATION

The Proposer certifies that it is familiar with the terms of the County of Los Angeles Lobbyist Ordinance, Los Angeles Code Chapter 2.160. The Proposer also certifies that all persons acting on behalf of the Proposer organization have and will comply with it during the proposal process.

Signature:_____

Date:_____

SECTION 00 04 96

PROPOSER'S EEO CERTIFICATION

_____
Company Name

_____
Address

_____
Internal Revenue Service Employer Identification Number

GENERAL

In accordance with provisions of the County Code of the County of Los Angeles, the Proposer certifies and agrees that all persons employed by such firm, its affiliates, subsidiaries, or holding companies are and will be treated equally by the firm without regard to or because of race, religion, ancestry, national origin, or sex and in compliance with all anti-discrimination laws of the United States of America and the State of California.

CERTIFICATION	YES	NO
1. Proposer has written policy statement prohibiting discrimination in all phases of employment.	( )	( )
2. Proposer periodically conducts a self-analysis or utilization analysis of its work force.	( )	( )
3. Proposer has a system for determining if its employment practices are discriminatory against protected groups.	( )	( )
4. When problem areas are identified in employment practices, Proposer has a system for taking reasonable corrective action to include establishment of goal and/or timetables.	( )	( )

_____ _____
Signature Date

_____
Name and Official Title (please print)

00 04 97
COMPLIANCE WITH FAIR CHANCE EMPLOYMENT HIRING PRACTICES CERTIFICATION

Company Name:		
Company Address:		
City:	State:	Zip Code:
Telephone Number:	Email address:	
Solicitation/Contract for _____ Services		

PROPOSER/CONTRACTOR CERTIFICATION

The Los Angeles County Board of Supervisors approved a Fair Chance Employment Policy in an effort to remove job barriers for individuals with criminal records. The policy requires businesses that contract with the County to comply with fair chance employment hiring practices set forth in California Government Code Section 12952, Employment Discrimination: Conviction History (California Government Code Section 12952), effective January 1, 2018.

Proposer/Contractor acknowledges and certifies compliance with fair chance employment hiring practices set forth in California Government Code Section 12952 and agrees that Proposer/Contractor and staff performing work under the Contract will be in compliance. Proposer/Contractor further acknowledges that noncompliance with fair chance employment practices set forth in California Government Code Section 12952 may result in rejection of any proposal, or termination of any resultant Contract, at the sole judgment of the County.

I declare under penalty of perjury under the laws of the State of California that the information herein is true and correct and that I am authorized to represent this company.

Print Name:	Title:
Signature:	Date:

00 04 98

ZERO TOLERANCE HUMAN TRAFFICKING POLICY CERTIFICATION

Company Name:		
Company Address:		
City:	State:	Zip Code:
Telephone Number:	Email address:	
Solicitation/Contract for _____ Services		

PROPOSER CERTIFICATION

Los Angeles County has taken significant steps to protect victims of human trafficking by establishing a zero tolerance human trafficking policy that prohibits contractors found to have engaged in human trafficking from receiving contract awards or performing services under a County contract.

Proposer acknowledges and certifies compliance with (Compliance with County's Zero Tolerance Human Trafficking Policy) of the proposed Contract and agrees that proposer or a member of his staff performing work under the proposed Contract will be in compliance. Proposer further acknowledges that noncompliance with the County's Zero Tolerance Human Trafficking Policy may result in rejection of any proposal, or cancellation of any resultant Contract, at the sole judgment of the County.

I declare under penalty of perjury under the laws of the State of California that the information herein is true and correct and that I am authorized to represent this company.

Print Name:	Title:
Signature:	Date:

00 04 99
DISALLOWED COST ATTESTATION

Company Name:		
Company Address:		
City:	State:	Zip Code:
Telephone Number:	Email address:	
Solicitation/Contract for _____ Services		

PROPOSER ATTESTATION

If Proposer's compliance with a County contract has been reviewed by the Department of the Auditor-Controller within the last 10 years, Proposer must not have unresolved questioned costs identified by the Auditor-Controller, in an amount over $100,000.00, that are confirmed to be disallowed costs by the contracting County department, and remain unpaid for six months or more from the date of disallowance, unless such disallowed costs are the subject of current good faith negotiations to resolve the disallowed costs, in the opinion of the County.

Proposer acknowledges and certifies compliance with the above paragraph.

I declare under penalty of perjury under the laws of the State of California that the information herein is true and correct and that I am authorized to represent this company.

Print Name:	Title:
Signature:	Date:

SECTION 00 05 00

AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of_____ 2025, by and between the COUNTY OF LOS ANGELES, State of California (hereinafter called the County), and

CONTRACTOR
A California Corporation
ADDRESS
CITY, STATE, ZIP
TELEPHONE

(hereinafter called the Contractor),

WITNESSETH:

1. Contractor's Services

That the Contractor, in consideration of the promises of the County hereinafter set forth, hereby agrees to furnish all tools, equipment, labor, and material necessary to perform and complete in a good and workmanlike manner,

Camp Glenn Rockey Security System Upgrades
1900 Sycamore Road
San Dimas, CA 91773
SPECS NO. 7879; C.P. 8A062

within the time and in accordance with the recommendation of the Director of the Los Angeles County Public Works, dated month-day, 2024, SPECS No. 7879, the Notice Inviting Bids, Notice to Bidders A, etc. (if any), and the lump sum bid of the Contractor, including Additive Alternates 1, all of which are incorporated herein as though fully set forth, and are hereby agreed by the parties to constitute the Contract documents.

2. Consideration

That the County agrees, in consideration of the performance of this Contract, to pay to the Contractor, and the Contractor agrees to accept in full satisfaction for the work done hereunder, a sum of amount in words Dollars ($ amount: base bid amount

SAMPLE

minus schedule fee minus extended overhead and minus unit, if applicable) which sum shall be paid to the Contractor at the time and in the manner set forth in the specifications.

3. Extended Overhead Daily Rate

The Contractor's Extended Overhead Daily Rate is $XXX, as set forth in the Contractor's Form of Bid, Section 00 03 00, which Extended Overhead Daily Rate shall be payable to the Contractor for each day of Compensable Delay to fully compensate the Contractor for any damages resulting from or associated with Compensable Delay, including, but not limited to, home office and field office overhead, as specified in Specification Section 00 01 00, Instructions to Bidders, 1.14c and in accordance with Specification Section 00 07 00, General Conditions, Article 17, Time Extensions and Compensation for Delay.

4. Notice to Employees Regarding the Federal Earned Income Credit

Contractor shall notify its employees, and shall require each subcontractor to notify its employees, that they may be eligible for the Federal Earned Income Credit under the Federal income tax laws. Such notice shall be provided in accordance with the requirement set forth in Internal Revenue Service Notice 1015.

5. County Rights

The County may employ, either during or after performance of this Contract, any right of recovery the County may have against the Contractor by any means it deems appropriate including, but not limited to, set-off, action at law or in equity, withholding, recoupment, or counterclaim. The rights and remedies of the County under this Contract are in addition to any right or remedy provided by California law.

6. Fair Labor Standards Act

Contractor shall comply with all applicable provisions of the Federal Fair Labor Standards Act, and shall indemnify, defend, and hold harmless County, its agents, officers, and employees from any and all liability including, but not limited to, wages, overtime pay, liquidated damages, penalties, court costs, and attorneys' fees arising under any wage and hour law including, but not limited to, the Federal Fair Labor Standards Act for services performed by Contractor's employees for which County may be found jointly or solely liable.

7. Prevailing Wage Requirements

a. Prevailing Wages

SAMPLE

The services provided in this Contract constitute "public works" as defined in California Labor Code 1720, and are therefore subject to payment of prevailing wages, compliance monitoring and enforcement by the Department of Industrial Relations (DIR).

The Director of the DIR has established the general prevailing rate of per diem wages for each craft, classification, type of worker, or mechanic needed to execute public works and improvements. The current general prevailing wage rate determinations are available at www.dir.ca.gov/dlsr/pwd/index.htm. The Contractor is required to pay its agents and employees the applicable, current prevailing wage rate and is responsible for selecting the classification of workers required to perform this service.

The Contractor agrees to comply with the provisions of Section 1775 of the California Labor Code relating to the payment of prevailing wages, the utilization of apprentices in accordance to LC 1777.5, and the assessment of penalties determined by the California Labor Commissioner. Pursuant to Section 1773.2 of the California Labor Code, copies of the prevailing rate of per diem wages are on file at the Los Angeles County Public Works, Construction Division, and will be made available for inspection by request to the Contract Analyst. Future effective wage rates will be on file with the Department of Industrial Relations. The new wage rates shall become effective on the day following the expiration date of the current determinations and apply to the Contract in the same manner as if they had been included or referenced in the Contract.

b. Work Records

The Contractor shall comply with the requirements of Section 1812 of the Labor Code. The Contractor shall maintain an accurate written record of all employees working on the project each calendar day. The record shall include each employee's name, Social Security number, job classification, and the actual number of hours worked.

c. Posting of Notices

The Contractor shall comply with the provisions of Section 1773.2 of the Labor Code. The Contractor shall post a copy of the prevailing wage rates at the worksite and comply with applicable law including posting of jobsite notices required by 8 California Code Reg. §16451(d):

SAMPLE

"This public works project is subject to monitoring and investigative activities by the Compliance Monitoring Unit (CMU) of the Division of Labor Standards Enforcement, Department of Industrial Relations, State of California. This Notice is intended to provide information to all workers employed in the execution of the Contract for public work and to all contractors and other persons having access to the jobsite to enable the CMU to ensure compliance with and enforcement of prevailing wage laws on public works projects.

The prevailing wage laws require that all workers be paid at least the minimum hourly wage as determined by the Director of Industrial Relations for the specific classification (or type of work) performed by workers on the project. These rates are listed on a separate jobsite posting of minimum prevailing rates required to be maintained by the public entity, which awarded the public works Contract. Complaints concerning nonpayment of the required minimum wage rates to workers on this project may be filed with the CMU at any office of the Division of Labor Standards Enforcement (DLSE).

Local Office Telephone Number:

Division of Labor Standards Enforcement Office
320 West Fourth Street, Suite 450
Los Angeles, CA 90013
(213) 620-6330

Complaints should be filed in writing immediately upon discovery of any violations of the prevailing wage laws due to the short period of time following the completion of the project that the CMU may take legal action against those responsible.

Complaints should contain details about the violations alleged (for example, wrong rate paid, not all hours paid, overtime rate not paid for hours worked in excess of 8 hours per day or 40 hours per week, etc.) as well as the name of the employer, the public entity which awarded the public works Contract, and the location and name of the project.

For general information concerning the prevailing wage laws and how to file a complaint concerning any violation of these prevailing wage laws, you may contact any DLSE office. Complaint forms are also available at the Department of Industrial Relations website found at http://www.dir.ca.gov/Public-Works/PublicWorks.html*."*

d. Certified Payroll Records

SAMPLE

The Contractor shall comply with the requirements of Section 1776 of the Labor Code. Contractor and Subcontractors, if any, must furnish certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement) in a format prescribed by the Labor Commissioner.

e. When requested by the County, electronic certified payroll records must be submitted to the County, through an online system designated by the County.

8. Mental Health Services for Critical Incidents

In the event of a serious accident on the Project site, the Los Angeles County Department of Mental Health (DMH) will, if requested, respond. The response may be within a few hours or as long as a few days after the incident, depending on when the request was made. The services DMH will provide include crisis intervention, normalization of the stress response that survivors may be experiencing, stress management techniques and resources if the stress reactions increase in frequency or intensity. Requests for services may be made by calling the DMH Emergency Outreach Bureau Deputy Director, (213) 738-4924, during normal business hours or the ACCESS Center, (800) 854-7771, evenings, holidays, and weekends.

9. Employment Eligibility Verification

Contractor warrants that it fully complies with all Federal statutes and regulations regarding employment of aliens and others, and that all its employees performing services hereunder meet the citizenship or alien status requirements contained in Federal statutes and regulations. Contractor shall obtain, from all covered employees performing services hereunder, all verifications and other documentation of employment eligibility status required by Federal statutes and regulations as they currently exist and as they may be hereafter amended. Contractor shall retain such documentation for all covered employees for the period prescribed by law. Contractor shall indemnify, defend, and hold harmless County, its officers, and employees from employer sanctions and any other liability which may be assessed against Contractor or County in connection with any alleged violation of Federal statutes or regulations pertaining to the eligibility for employment of persons performing services under this Agreement.

10. Contractor Responsibility and Debarment

a. A responsible Contractor is a Contractor who has demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity, and experience to satisfactorily perform the Contract. It is the County's policy to conduct

business only with responsible contractors.

b. The Contractor is hereby notified that, in accordance with Chapter 2.202 of the County Code, if the County acquires information concerning the performance of the Contractor on this or other Contracts which indicates that the Contractor is not responsible, the County may, in addition to other remedies provided in the Contract, debar the Contractor from bidding or proposing on, or being awarded, and/or performing work on County Contracts for a specified period of time, which generally will not exceed five years but may exceed five years or be permanent if warranted by the circumstances, and terminate any or all existing Contracts the Contractor may have with the County.

c. The County may debar a Contractor if the Board of Supervisors finds, in its discretion, that the Contractor has done any of the following: (1) violated a term of a Contract with the County or a nonprofit corporation created by the County; (2) committed an act or omission which negatively reflects on the Contractor's quality, fitness or capacity to perform a Contract with the County, any other public entity, or a nonprofit corporation created by the County, or engaged in a pattern or practice which negatively reflects on same; (3) committed an act or offense which indicates a lack of business integrity or business honesty, or (4) made or submitted a false claim against the County or any other public entity.

d. If there is evidence that the Contractor may be subject to debarment, the Department will notify the Contractor in writing of the evidence which is the basis for the proposed debarment and will advise the Contractor of the scheduled date for a debarment hearing before the Contractor Hearing Board.

e. The Contractor Hearing Board will conduct a hearing where evidence on the proposed debarment is presented. The Contractor and/or the Contractor's representative shall be given an opportunity to submit evidence at that hearing. After the hearing, the Contractor Hearing Board shall prepare a tentative proposed decision, which shall contain a recommendation regarding whether the Contractor should be debarred, and, if so, the appropriate length of time of the debarment. The Contractor and the Department shall be provided an opportunity to object to the tentative proposed decision prior to its presentation to the Board of Supervisors.

f. After consideration of any objections, or if no objections are submitted, a record of the hearing, the proposed decision and any other

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recommendation of the Contractor Hearing Board shall be presented to the Board of Supervisors. The Board of Supervisors shall have the right to modify, deny or adopt the proposed decision and recommendation of the Hearing Board.

g. If the Contractor has been debarred for a period longer than five years, that Contractor may, after the debarment has been in effect for at least five years, submit a written request for review of the debarment determination to reduce the period of debarment or terminate the debarment. The County may, in its discretion, reduce the period of debarment or terminate the debarment if it finds that the Contractor has adequately demonstrated one or more of the following: (1) elimination of the grounds for which the debarment was imposed; (2) a bona fide change in ownership or management; (3) material evidence discovered after debarment was imposed; or (4) any other reason that is in the best interests of the County.

h. The Contractor Hearing Board will consider a request for review of a debarment determination only where (1) the Contractor has been debarred for a period longer than five years; (2) the debarment has been in effect for at least five years; and (3) the request is in writing, states one or more of the grounds for reduction of the debarment period or termination of the debarment and includes supporting documentation. Upon receiving an appropriate request, the Contractor Hearing Board will provide notice of the hearing on the request. At the hearing, the Contractor Hearing Board shall conduct a hearing where evidence on the proposed reduction of debarment period or termination of debarment is presented. This hearing shall be conducted and the request for review decided by the Contractor Hearing Board pursuant to the same procedures as for a debarment hearing.
The Contractor Hearing Board's proposed decision shall contain a recommendation on the request to reduce the period of debarment or terminate the debarment. <u>The Contractor Hearing Board shall present its proposed decision and recommendation to the Board of Supervisors. The Board of Supervisors shall have the right to modify, deny, or adopt the proposed decision and recommendation of the Contractor Hearing Board.</u>

i. These terms shall also apply to subcontractors of County Contractors.

11. <u>Compliance with Jury Service Program</u>

This Contract is subject to provisions of the County's ordinance entitled Contractor Employee Jury Service (Jury Service Program) as codified in Sections 2.203.010 through 2.203.090 of the Los Angeles County Code.

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a. Unless Contractor has demonstrated to the County's satisfaction either that Contractor is not a Contractor as defined under the Jury Service Program (Section 2.203.020 of the County Code) or that Contractor qualifies for an exception to the Jury Service Program (Section 2.203.070 of the County Code), Contractor shall have and adhere to a written policy that provides that its employees shall receive from the Contractor, on an annual basis, no less than five days of regular pay for actual jury service. The policy may provide that Employees deposit any fees received for such jury service with the Contractor or that the Contractor deduct from the employee's regular pay the fees received for jury service.

b. For purposes of this Section, Contractor means a person, partnership, corporation or other entity which has a Contract with the County or a subcontract with a County contractor and has received or will receive an aggregate sum of $50,000 or more in any 12-month period under one or more County Contracts or Subcontracts. Employee means any California resident who is a full-time employee of Contractor. Full-time means 40 hours or more worked per week, or a lesser number of hours if: (1) the lesser number is a recognized industry standard as determined by the County, or (2) Contractor has a long-standing practice that defines the lesser number of hours as full-time. Full-time employees providing short-term, temporary services of 90 days or less within a 12-month period are not considered full-time for purposes of the Jury Service Program. If Contractor uses any subcontractor to perform services for the County under the Contract, the subcontractor shall also be subject to the provisions of this Section. The provisions of this Section shall be inserted into any such subcontract Agreement and a copy of the Jury Service Program shall be attached to the Agreement.

c. If Contractor is not required to comply with the Jury Service Program when the Contract commences, Contractor shall have a continuing obligation to review the applicability of its exception status from the Jury Service Program, and Contractor shall immediately notify County if Contractor at any time either comes within the Jury Service Program's definition of Contractor or if Contractor no longer qualifies for an exception to the Program. In either event, Contractor shall immediately implement a written policy consistent with the Jury Service Program. The County may also require, at any time during the Contract and at its sole discretion, that Contractor demonstrate to the County's satisfaction that Contractor either continues to remain outside the Jury Service Program's definition of Contractor and/or that Contractor continues to qualify for an exception to the Program.

d. Contractor's violation of this Section of the Contract may constitute a material

breach of the Contract. In the event of such material breach, County may, in its sole discretion, terminate the Contractor and/or bar Contractor from the award of future County Contracts for a period of time consistent with the seriousness of the breach.

12. No Payment for Services Provided Following Expiration/Termination of Agreement

Contractor shall have no claim against County for payment for any money or reimbursement, of any kind whatsoever, for any service provided by Contractor after the expiration or other termination of this Agreement. Should Contractor receive any such payment it shall immediately notify County and shall immediately repay all such funds to County. Payment by County for services rendered after expiration/termination of this Agreement shall not constitute a waiver of County's right to recover such payment from Contractor. This provision shall survive the expiration or other termination of this Agreement.

13. Notice to Employees Regarding the Safely Surrendered Baby Law

a. The Contractor shall notify and provide to its employees and shall require each subcontractor to notify and provide to its employees, a fact sheet regarding the Safely Surrendered Baby Law, its implementation in the County of Los Angeles, and where and how to safely surrender a baby. The fact sheet is available on the Internet at www.babysafela.org for printing purposes.

b. The Contractor acknowledges that the County places a high priority on the implementation of the Safely Surrendered Baby Law. The Contractor understands that it is the County's policy to encourage all County Contractors to voluntarily post the County's Safely Surrendered Baby Law in a prominent position at the Contractor's place of business. The Contractor will also encourage its Subcontractors, if any, to post this poster in a prominent position in the Subcontractor's place of business. The County's Department of Children and Family Services will supply the Contractor with the poster to be used.

14. Assignment by Contractor/Mergers or Acquisitions

a. The Contractor shall notify the County of any pending acquisitions/mergers of its company unless otherwise legally prohibited from doing so. If the Contractor is restricted from legally notifying the County of pending acquisitions/mergers, then it should notify the County of the actual acquisitions/mergers as soon as the law allows and provide to the County the legal framework that restricted it from notifying the County prior to the actual acquisitions/mergers.

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b. The Contractor shall not assign, exchange, transfer, or delegate its rights or duties under this Contract, whether in whole or in part, without the prior written consent of County, in its discretion, and any attempted assignment, delegation, or otherwise transfer of its rights or duties, without such consent shall be null and void. For purposes of this sub-paragraph, County consent shall require a written amendment to the Contract, which is formally approved and executed by the parties. Any payments by the County to any approved delegate or assignee on any claim under this Contract shall be deductible, at County's sole discretion, against the claims, which the Contractor may have against the County.

c. Any assumption, assignment, delegation, or takeover of any of the Contractor's duties, responsibilities, obligations, or performance of same by any person or entity other than the Contractor, whether through assignment, subcontract, delegation, merger, buyout, or any other mechanism, with or without consideration for any reason whatsoever without County's express prior written approval, shall be a material breach of the Contract which may result in the termination of this Contract. In the event of such termination, County shall be entitled to pursue the same remedies against Contractor as it could pursue in the event of default by Contractor.

15. Contractor's Warranty of Compliance with County's Defaulted Property Tax Reduction Program

Contractor acknowledges that County has established a goal of ensuring that all individuals and businesses that benefit financially from County through contract are current in paying their property tax obligations (secured and unsecured roll) in order to mitigate the economic burden otherwise imposed upon County and its taxpayers.

Unless contractor qualifies for an exemption or exclusion, contractor warrants and certifies that to the best of its knowledge it is now in compliance, and during the term of this contract will maintain compliance, with Los Angeles County Code Chapter. 2.206.

16. Termination for Breach of Warranty to Maintain Compliance with County's Defaulted Property Tax Reduction Program

Failure of contractor to maintain compliance with the requirements set forth in Article X "Contractor's Warranty of Compliance with County's Defaulted Property Tax Reduction Program" shall constitute default under this contract. Without limiting the rights and remedies available to County under any other provision of this contract, failure of contractor to cure such default within 10 days of notice shall be grounds upon which County may terminate this contract and/or pursue debarment of

contractor, pursuant to County Code Chapter 2.206.

17. Time Off for Voting

The Contractor shall notify its employees and shall require each subcontractor to notify and provide to its employees, information regarding the time off for voting law (Elections Code Section 14000). Not less than 10 days before every statewide election, every Contractor and Subcontractors shall keep posted conspicuously at the place of work, if practicable, or elsewhere where it can be seen as employees come or go to their place of work, a notice setting forth the provisions of Section 14000.

18. Contractor CARD Track/Monitoring Database

The County maintains the Contractor Alert Reporting Database (CARD), which is used to track/monitor poorly performing contractors. When a County department identifies a significant performance/non-compliance issue(s) with a contractor, the department will provide notice to the contractor and will give the contractor an opportunity to correct the issue(s). If the contractor does not take any appropriate steps to correct the issue(s), the County department will enter the contractor, along with any other relevant information pertaining to the contractor's performance issue(s), into CARD.

The information entered into CARD can be accessed by all County departments, and will be used, along with any other relevant information not included in CARD, in determining bidder responsibility. If a department reviews this information and determines that a finding of non-responsibility should be pursued, the department will adhere to the guidelines specified in the Los Angeles County Code Chapter 2.202, and the County's implementation Procedures for Determinations of Contractor Non-Responsibility and Contractor Debarment.

The County maintains databases that track/monitor contractor performance history. Information entered into such databases may be used for a variety of purposes, including determining whether a bidder is responsible for the purposes of a future County contract.

19. Contractor Independence/**Prohibition from Participation in Future Solicitation(s)**

The County Board of Supervisors has adopted a countywide policy that prohibits any person, or any firm [collectively "firm"] or any subsidiary of a firm from submitting a bid or proposal in any County solicitation process

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where the person or firm, assisted in the development of the solicitation document(s).

A Proposer, or a Contractor or its subsidiary or Subcontractor ("Proposer/Contractor"), is prohibited from submitting a bid or proposal in a County solicitation if the Proposer/Contractor has provided advice or consultation for the solicitation. A Proposer/Contractor is also prohibited from submitting a bid or proposal in a County solicitation if the Proposer/Contractor has developed or prepared any of the solicitation materials on behalf of the County. A violation of this provision shall result in the disqualification of the Contractor/Proposer from participation in the County solicitation or the termination or cancellation of any resultant County Contract. This provision shall survive the expiration, or other termination of this Agreement.

20. Background and Security Investigations

20.1 Each of Contractor's staff performing services under this Contract, who is in a designated sensitive position, as determined by County in County's sole discretion, shall undergo and pass a background investigation to the satisfaction of County as a condition of beginning and continuing to perform services under this Contract. Such background investigation must be obtained through fingerprints submitted to the California Department of Justice to include State, local, and federal-level review, which may include, but shall not be limited to, criminal conviction information. The fees associated with the background investigation shall be at the expense of the Contractor, regardless of whether the member of Contractor's staff passes or fails the background investigation.

20.2 If a member of Contractor's staff does not pass the background investigation, County may request that the member of Contractor's staff be removed immediately from performing services under the Contract. Contractor shall comply with County's request at any time during the term of the Contract. County will not provide to Contractor or to Contractor's staff any information obtained through the County's background investigation.

20.3 County, in its sole discretion, may immediately deny or terminate facility access to any member of Contractor's staff that does not pass such investigation to the satisfaction of the County or whose background or conduct is incompatible with County facility access.

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20.4 Disqualification of any member of Contractor's staff pursuant to this Paragraph shall not relieve Contractor of its obligation to complete all work in accordance with the terms and conditions of this Contract.

21. Local Small Business Enterprise/Social Enterprise/Disabled Veterans Business Enterprise Utilization

Local Small Business Enterprise means a business that is certified by the County of Los Angeles as a Local Small Business Enterprise (Local SBE), consistent with Chapter 2.204 of the Los Angeles County Code.

21.1 When requested by the County, the contractor shall provide to the County via methods specified by the County, such as submission of electronic live (or dynamic) data on invoices for the prime and all Subcontractors using County-designated third party software system or to a County approved website, or other means of submitting expenditure information on Subcontractors, including but not limited to the following information: the name, business address, California Contractor License number and telephone number/email address of each subcontractor who will perform work or labor for the contractor on the Project in an amount in excess of one-half of 1 percent of the Contractor's total bid. In addition, the Contractor shall be required to provide each of the specified Subcontractors' Local SBE status (i.e., whether any of the listed Subcontractors are Local SBE's), Social Enterprise status, and Disabled Veterans Business Enterprise status and the proposed monetary amount of the work the subcontractor will perform on the Project. In addition, at the time of submittal of the final invoice, the Contractor shall indicate, via methods specified by the County, the actual dollar amounts paid to each listed Subcontractor who performed work on the project.

21.2 Contractor's failure to comply with the provisions of this Article is a material breach of the Agreement. The parties agree that it will be impracticable or extremely difficult to fix the extent of actual damages resulting from the failure to the Contractor to comply with this Article. The parties agree that under the current circumstances a reasonable estimate of such damages is specified in the Schedule for Liquidated Damages for Local Small Business Enterprise Utilization hereunder, and that the Contractor shall be liable to the County for said amounts.

If in the judgment of the Director, or his/her designee, the Contractor is deemed to be in non-compliance with the terms and obligations assumed hereby, the Director or his/her designee, at his/her option, in addition to, or in lieu of, other remedies provided herein in this Agreement, may

deduct and withhold liquidated damages from County's final payment to the Contractor as follows:

SCHEDULE FOR LIQUIDATED DAMAGES FOR LOCAL SMALL BUSINESS ENTERPRISE/SOCIAL ENTERPRISE/DISABLED VETERANS BUSINESS ENTERPRISE UTILIZATION

Final Invoice Price	Liquidated Damages
Up to $100,000	$50.00 plus 0.1% of contract amount
$100,001 to $500,000	$150.00 plus 0.07% of all over 100,000
Over $500,000	$430.00 plus 0.05% of all over $500,000

22. Compliance with County's Zero Tolerance Human Trafficking

Contractor acknowledges that the County has established a Zero Tolerance Human Trafficking Policy prohibiting Contractors from engaging in human trafficking.

If a Contractor or member of Contractor's staff is convicted of a human trafficking offense, the County shall require that the Contractor or member of Contractor's staff be removed immediately from performing services under the Contract. County will not be under any obligation to disclose confidential information regarding the offenses other than those required by law.

Disqualification of any member of Contractor's staff pursuant to this paragraph shall not relieve Contractor of its obligation to complete all work in accordance with the terms and conditions of this Contract.

23. Claims

Notwithstanding Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, Section 9204 of the Public Contract Code shall apply to any claim by the Contractor in connection with the Project.

a. Upon receipt of a claim pursuant to Section 9204 of the Public Contract Code, the County will conduct a reasonable review of the claim and, within a period not to exceed 45 Days, provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, the Contractor and the County may, by mutual agreement, extend the aforementioned time period.

b. The Contractor shall furnish reasonable documentation to support the claim.

c. If Board approval is needed to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the claim, and the Board does not meet within the 45 Days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the County will have up to 3 Days following the next duly publicly noticed meeting of the Board after the 45-Day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.

d. Any payment due on an undisputed portion of the claim will be processed and made within 60 Days after the County issues its written statement. If the County fails to issue a written statement, paragraph (j) shall apply.

e. If the Contractor disputes the County's written response, or if the County fails to respond to a claim issued pursuant to Section 9204 within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the County will schedule a meet and confer conference within 30 Days for settlement of the dispute.

f. Within 10 business days (Monday-Thursday) following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the County will provide the Contractor a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim will be processed and made within 60 Days after the County issues its written statement. Any disputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the County and the Contractor sharing the associated costs equally. The County and the Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside those established in Section 9204.

g. Mediation shall include any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or

by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in Section 9204.

h. Unless otherwise agreed to by the County and the Contractor in writing, the mediation conducted pursuant to Section 9204 shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

i. Section 9204 does not preclude the County from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under Section 9204 does not resolve the parties' dispute.

j. Failure by the County to respond to a claim from the Contractor within the time periods described in this subdivision or to otherwise meet the time requirements of Section 9204 shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the County's failure to have responded to a claim, or its failure to otherwise meet the time requirements of Section 9204, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

k. Amounts not paid in a timely manner as required by Section 9204 will bear interest at 7 percent per annum.

l. If a Subcontractor or a lower tier Subcontractor lacks legal standing to assert a claim against the County because privity of the Contract does not exist, the Contractor may present to the County a claim on behalf of a Subcontractor or lower tier Subcontractor. A Subcontractor may request in writing, either on its own behalf or on behalf of a lower tier Subcontractor, that the Contractor present a claim for work which was performed by the Subcontractor or by a lower tier Subcontractor on behalf of the Subcontractor. The Subcontractor requesting that the claim be presented to the County shall furnish reasonable documentation to support the claim. Within 45 Days of receipt of this written request, the Contractor shall notify the Subcontractor in writing as to whether the Contractor presented the claim to the County and, if the original Contractor did not present the claim, provide the Subcontractor with a statement of the reasons for not having done so.

m. A waiver of the rights granted by Section 9204 is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the Contractor and the County may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) the County may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the

provisions of Section 9204, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in Section 9204.

24. Compliance with Fair Chance Employment Practices

Contractor, and its subcontractors, must comply with fair chance employment hiring practices set forth in California Government Code Section 12952. Contractor's violation of this paragraph of the Contract may constitute a material breach of the Contract. In the event of such material breach, County may, in its sole discretion, terminate the Contract.

25. Default Method of Payment: Direct Deposit or Electronic Funds Transfer

25.1 The County, at its sole discretion, has determined that the most efficient and secure default form of payment for goods and/or services provided under an agreement/ contract with the County shall be Electronic Funds Transfer (EFT) or direct deposit, unless an alternative method of payment is deemed appropriate by the Auditor-Controller (A-C).

25.2 The Contractor shall submit a direct deposit authorization request via the website https://directdeposit.lacounty.gov with banking and vendor information, and any other information that the A-C determines is reasonably necessary to process the payment and comply with all accounting, record keeping, and tax reporting requirements.

25.3 Any provision of law, grant, or funding agreement requiring a specific form or method of payment other than EFT or direct deposit shall supersede this requirement with respect to those payments.

25.4 At any time during the duration of the agreement/contract, a Contractor may submit a written request for an exemption to this requirement. Such request must be based on specific legal, business or operational needs and explain why the payment method designated by the A-C is not feasible and an alternative is necessary. The A-C, in consultation with the contracting department(s), shall decide whether to approve exemption requests.

26. Disallowed Cost

If Proposer's compliance with a County contract has been reviewed by the A-C within the last 10 years, Proposer must not have unresolved questioned costs identified by the A-C, in an amount over $100,000.00, that are confirmed to be

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disallowed costs by the contracting County department, and remain unpaid for six months or more from the date of disallowance, unless such disallowed costs are the subject of current good faith negotiations to resolve the disallowed costs, in the opinion of the County.

27. Compliance with the County Policy of Equity

The consultant acknowledges that the County takes its commitment to preserving the dignity and professionalism of the workplace very seriously, as set forth in the County Policy of Equity (CPOE) (https://ceop.lacounty.gov/). The contractor further acknowledges that the County strives to provide a workplace free from discrimination, harassment, retaliation and inappropriate conduct based on a protected characteristic, and which may violate the CPOE. The contractor, its employees and subcontractors acknowledge and certify receipt and understanding of the CPOE. Failure of the Contractor, its employees or its Subcontractors to uphold the County's expectations of a workplace free from harassment and discrimination, including inappropriate conduct based on a protected characteristic, may subject the contractor to termination of contractual agreements as well as civil liability.

28. Integrated Pest Management Program Compliance

Contractor acknowledges that County has established an Integrated Pest Management Program (the Program) which aims to reduce or eliminate pollutants moved into surface water through storm water management systems and facilities. Contractor certifies compliance on Integrated Pest Management Program Compliance Certification in Required Forms, that contractor has reviewed, understands, and will adhere to the County's IPM Program requirements as set forth in Integrated Pest Management Program Compliance and at: www.lacountyipm.org

Contractor must ensure and certify that its employees who apply pesticides on County owned or maintained property are appropriately trained. The training, which must be conducted on an annual basis, but no later than June 30th of each calendar year, must meet the County's minimum requirements under the Program.

Employee training may be self-certified by Contractors, provided the County has the ability to audit the training, and must include, at a minimum, the following:

- The potential for pesticide-related surface water toxicity;
- Proper use, handling, and disposal of pesticides;
- Least toxic methods of pest prevention and control, including IPM; and

- Reduction of pesticide use.

All users of commercial pesticides are required by State law to provide a monthly pesticide report to the Los Angeles County Department of Agricultural Commissioner/ Weights and Measures (ACWM). In addition to the mandatory monthly reporting requirement, Contractor shall provide to the Department, with a copy to the ACWM, an annual summary of the pesticides used outdoors on County-owned or maintained property by Fiscal Year (July 1 to June 30). For each pesticide, the summary shall include all of the following:

- Product trade name
- Active ingredient(s)
- EPA Registration Number
- Total amount used

The units reported shall be appropriate to the product (gallons, ounces, pounds, etc.).

29. Termination for Improper Consideration

County may, by written notice to Contractor, immediately terminate the right of Contractor to proceed under this Agreement if it is found that consideration, in any form, was offered or given by Contractor, either directly or through an intermediary, to any County officer, employee, or agent with the intent of securing the Agreement or securing favorable treatment with respect to the award, amendment, or extension of the Agreement or the making of any determinations with respect to Contractor's performance pursuant to the agreement. In the event of such termination, County shall be entitled to pursue the same remedies against Contractor as it could pursue in the event of default by Contractor.

Contractor shall immediately report any attempt by a County officer or employee to solicit such improper consideration. The report shall be made either to County manager charged with the supervision of the employee or to County A-C's Employee Fraud Hotline at (213) 974-0914 or (800) 544-6861.

Among other items, such improper consideration may take the form of cash, discounts, service, the provision of travel or entertainment, or tangible gifts.

30. Gratuities

Contractor is advised that it is improper for any County officer, employee, or agent to solicit consideration, in any form, from Contractor with the implication, suggestion, or

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statement that Contractor's provision of the consideration, or failure to provide consideration, may cause favorable or unfavorable treatment, respectively, for the Contractor relating to the amendment or extension of the Contract or the making of any determinations with respect to Contractor's performance under this Contract. A Contractor shall not offer or give, either directly or through an intermediary, such improper consideration, in any form, to a County officer, employee, or agent for the purpose of securing favorable treatment as described herein.

A Contractor shall immediately report any attempt by a County officer, employee, or agent to solicit such improper consideration. The report shall be made either to the County manager charged with the supervision of the employee or to the County Auditor-Controller's Employee Fraud Hotline at (800) 544-6861.

Among other items, such improper consideration may take the form of cash; discounts; services; and the provision of travel, entertainment, or tangible gifts.

Note that Contractor's failure to adhere to this requirement could subject this Contract to Termination for Improper Consideration paragraph in this Agreement.

31. Facsimile/Electronic Representations

The County and the Contractor hereby agree to regard facsimile/electronic representations of original signatures of authorized officers of each party, when appearing in appropriate places on the Agreement, Change Orders and amendments prepared, and received via communications facilities, as legally sufficient evidence that such original signatures have been affixed to amendments to this Contract, such that the parties need not follow up facsimile/electronic transmissions of such documents with subsequent (non-facsimile/electronic) transmission of "original" versions of such documents. Electronic signatures include facsimile or e-mail electronic signatures. Each executed counterpart shall be deemed an original. All counterparts, taken together, constitute the executed Agreement. The parties hereby acknowledge and agree that electronic records and electronic signatures, as well as facsimile signatures, used in connection with the execution of this Agreement and electronic signatures, facsimile signatures or signatures transmitted by electronic mail in so-called pdf format shall be legal and binding and shall have the same full force and effect as if a paper original of this Agreement had been delivered had been signed using a handwritten signature. Contractor and County (i) agree that an electronic signature, whether digital or encrypted, of a party to this Agreement is intended to authenticate this writing and to have the same force and effect as a manual signature, (ii) intend to be bound by the signatures (whether original, faxed or electronic) on any document sent or delivered by facsimile or, electronic mail, or other electronic means, (iii) are aware that the other party will rely on such signatures, and (iv) hereby waive any defenses to the

enforcement of the terms of this Agreement based on the foregoing forms of signature. If this Agreement has been executed by electronic signature, all parties executing this document are expressly consenting under the United States Federal Electronic Signatures in Global and National Commerce Act of 2000 ("E-SIGN") and California Uniform Electronic Transactions Act ("UETA")(Cal. Civ. Code § 1633.1, et seq.), that a signature by fax, e-mail or other electronic means shall constitute an Electronic Signature to an Electronic Record under both E-SIGN and UETA with respect to this specific transaction.

32. Advertising and Other External Communications About the Project

Consultant/Contractor shall obtain the County's prior written approval before disclosing or communicating any information concerning the award of the contract, the progress of the work, or the completion of the work, to any non-party, including but not limited to outside media and news organizations. This requirement includes, but is not limited to: (1) a Consultant/Contractor's, application for an award or any other recognition of the project; and (2) any advertising or promotion of the project and/or the Consultant/Contractor's role on the project. The County retains the sole discretion as to the release of such information, including the right to deny the request for disclosure, the right to direct the timing of the disclosure, and/or the right to direct Consultant/Contractor to make revisions to the information prior to disclosure.

33. COVID-19 Requirement for County Contractor Personnel

When applicable and required by the County, the Contractor shall comply with all other applicable local, departmental, State, and federal laws, regulations, and requirements for COVID-19.

34. **Campaign Contribution Prohibition Following Final Decision in Contract Proceeding**

Pursuant to Government Code Section 84308, Contractor and its Subcontractors, are prohibited from making a contribution of more than $250 to a County officer for twelve (12) months after the date of the final decision in the proceeding involving this Contract. Failure to comply with the provisions of Government Code Section 84308 and of this paragraph, may be a material breach of this Contract as determined in the sole discretion of the County.

35. Federally Funded Work

This provision will apply when federally funded or potentially federally funded work is needed by County. In accordance with Federal Executive Order 12549 and 12689 (Debarment and Suspension), individuals or entities that have been debarred by the Federal government may not receive work under this Contract as a Contractor or Subcontractor. Contractors and/or Subcontractors listed on the governmental exclusions in the System for Award Management (SAM) are not eligible to receive federally funded work under this contract. See Office of Management and Budget guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension". The SAM exclusions contains the names of parties debarred, suspended, or otherwise excluded by Federal agencies as well as parties declared ineligible under statutory or regulatory authority.

For federally funded work, the Project Manager will, before assigning work or Notice to Proceed to the Contractor, verify that the Contractor is not listed on the governmental exclusions in the SAM as a party excluded or ineligible by Federal agencies to participate in federally funded projects. For your reference, a List of Debarred Contractors by U.S. Department of Labor's (DOL) Office of Federal Contract Compliance Programs (OFCCP) may be obtained by going to the following website: https://sam.gov/content/home.

If the Contractor is listed on the governmental exclusions in the SAM as a party excluded or ineligible by Federal agencies to participate in federally funded projects, then said Contractor will not be offered the work. The Project Manager will notify the Contractor of their negative standing in the SAM. The Project Manager will also notify the Contractor of their ineligibility to receive any federally funded work under this contract, until the Contractor is able to satisfactorily correct the issue. The Contractor shall notify the Project Manager when the Contractor has corrected their negative standing in the SAM, and the Contractor is no longer listed on the governmental exclusions in the SAM.

If the Contractor is not listed on the governmental exclusions in the SAM as a party excluded or ineligible by Federal agencies to participate in federally funded projects, Public Works may offer said Contractor the federally funded work. In addition, if applicable, the Contractor is required to verify that its subcontractors/subconsultants are not listed on the governmental exclusions in the SAM, before assigning federally funded work to its subcontractors/subconsultants.

SAMPLE

IN WITNESS WHEREOF, the County has, by order of its Board of Supervisors, caused these presents to be subscribed by the Director of the Los Angeles County Public Works, and the Contractor has hereunto subscribed its corporate name and affixed its corporate seal by its duly authorized officers the day, month, and year herein first above written.

COUNTY OF LOS ANGELES

By_____
Deputy Director
Los Angeles County Public Works

NAME OF CONTRACTOR

By_____
President

_____
Type/Print Name

By_____
Secretary

_____
Type/Print Name

_____ _____
CLASSIFICATION LICENSE NO.
Contractor

APPROVED AS TO FORM:

DAWYN R. HARRISON
County Counsel

By_____
Senior Deputy County Counsel

_____
Type/Print Name

SAMPLE

BOND FOR FAITHFUL PERFORMANCE

KNOW ALL PERSONS BY THESE PRESENTS:

That we, Contractor, a California Corporation, as principal, and

_____

(name and address)

as surety, are held and firmly bound unto the County of Los Angeles, State of California, in the sum of AMOUNT IN WORDS DOLLARS ($ amount), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, jointly and severally, firmly by these presents.

The condition of the foregoing obligation is such that whereas said principal has been awarded and is about to enter into the annexed Contract with the County of Los Angeles, State of California, for

Camp Glenn Rockey Security System Upgrades
1900 Sycamore Road
San Dimas, CA 91773
SPECS NO. 7879; C.P. 8A062

and is required by said County to give this bond in connection with the execution of said Contract.

NOW, THEREFORE, if the said principal shall well and truly do and perform all of the covenants and obligations of said Contract on its part to be done and performed at the times and in the manner specified therein, then this obligation shall be null and void, otherwise it shall be and remain in full force and effect. No premature payment by said County to said principal shall exonerate any surety unless the Board of Supervisors of said County shall have actual notice that such payment is premature at the time it is ordered by said Board, and then only to the extent that such payment shall result in loss to such surety, but in no event more than the amount of such premature payment. The surety hereby waives notice of any change, including changes of time, to said Contract or related subcontractors, purchase orders and other obligations.

SAMPLE

WITNESS our hands this _____ day of _____, 2XXX.

NAME OF Contractor

_____
President

_____
Type/Print Name

_____
Secretary

_____
Type/Print Name

APPROVED AS TO FORM:

DAWYN R. HARRISON
County Counsel

_____
Surety

By_____
Senior Deputy County Counsel

_____
Attorney-in-Fact

_____
Type/Print Name

_____
Type/Print Name

SAMPLE

PAYMENT BOND FOR LABOR AND MATERIALS

KNOW ALL PERSONS BY THESE PRESENTS:

That we, Contractor, a California corporation, as principal, and

_____

_____

(name and address)

as surety, are held firmly bound unto the County of Los Angeles, State of California, hereinafter referred to as the County, in the sum of AMOUNT IN WORDS DOLLARS ($XXXXXXX) lawful money of the United States, for the payment of which sum, well and truly made, we bind ourselves, jointly and severally, firmly by these presents.

The condition of the above obligation is such that, whereas said principal has been awarded and is about to enter into a written Contract with the County for:

Camp Glenn Rockey Security System Upgrades
1900 Sycamore Road
San Dimas, CA 91773
SPECS NO. 7879; C.P. 8A062

which is hereto attached, made a part hereof, and to which reference is hereby made for all, and is required by said County to give this bond in connection with the execution of said Contract.

NOW, THEREFORE, if said principal, as contractor in said Contract, or principal's Subcontractor, fails to pay any of the persons referred to in Section 9100 of the Civil Code of the State of California for labor performed, skills, or other necessary services bestowed, site improvement made, equipment leased, or appliances, equipment, implements, machinery, materials, power, provender, provisions, teams, or trucks furnished or used in, upon, or about the performance of this work contracted to be done, or for amounts due under the Unemployment Insurance Code with respect to work or labor performed by such claimant, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Contractor and Subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with Respect to such work and labor, said surety shall pay for the same in an amount not exceeding the sum specified above, and if suit is brought upon this bond, a reasonable attorney’s fee to be fixed by the court. This bond is executed pursuant to Chapter 7 of Division 3, Part 4, Title 15 of the Civil Code of the State of California, and shall inure to the benefit of any of the persons referred to in said Civil Code Section 9100, as it now exists or

SAMPLE

may hereafter be amended, so as to give a right of action to such persons or their assigns in any suit brought upon this bond. No premature payment by said County to said principal shall exonerate any surety unless the Board of Supervisors of said County shall have actual notice that such payment is premature at the time and it is ordered by said Board, and then only to the extent that such payment shall result in loss to such surety, but in no event more than the amount of such premature payment.

It is agreed that any alterations in the work to be done or increase or decrease of the materials to be furnished, which may be made pursuant to the terms of said Contract shall not in any way release either the principal or surety hereunder, nor shall any extensions of time granted under the provisions of said Contract release either the principal or surety, and notice of such alterations or extensions of this Contract is hereby waived by the surety.

WITNESS our hands this _____ day of _____, 2XXX

NAME OF Contractor

_____
President

_____
Type/Print Name

_____
Secretary

_____
Type/Print Name

APPROVED AS TO FORM:

DAWYN R. HARRISON
County Counsel

_____
Surety

By_____
Senior Deputy County Counsel

_____
Attorney-in-Fact

_____
Type/Print Name

_____
Type/Print Name

SAMPLE

CERTIFICATION

SUBJECT: PROJECT
ADDRESS
CITY, STATE
SPECS. NO.

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this Contract.

NAME OF Contractor

_____

Contractor's Signature

_____

Print Name

_____

Date

SAMPLE

STATEMENT OF UNDERSTANDING

SUBJECT: PROJECT
ADDRESS
CITY, STATE
SPECS.

As the Contractor of the project, I have reviewed the Best Management Practices Handbooks, California Storm Water Quality Association, Menlo Park, CA and have proposed the implementation of the Best Management Practices (BMPs) applicable to effectively minimize the negative impacts of this Project's construction activities on the surrounding water quality. The selected BMPs will be installed, monitored, and maintained to ensure their effectiveness. The BMPs that I have not chosen for implementation are redundant or deemed not applicable to the proposed construction activities. If at any time, site conditions and/or the County official warrant re-evaluation and revisions of the chosen BMPs, the appropriate changes will be made without unnecessary delay. I am aware that failure to properly implement and maintain the BMPs necessary to prevent the discharge of pollutants from this project could result in significant penalties and/or delays.

NAME OF Contractor

_____

Signature

_____

Print Name

_____

Date

SAMPLE

SECTION 00 06 10
BOND FOR FAITHFUL PERFORMANCE

KNOW ALL PERSONS BY THESE PRESENTS:

That we, CONTRACTOR, a California Corporation, as principal, and _____, as surety, are held and firmly bound unto the COUNTY OF LOS ANGELES, State of California, in the sum of XXX DOLLARS ($), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, jointly and severally, firmly by these presents.

The condition of the foregoing obligation is such that whereas said principal has been awarded and is about to enter into the annexed contract with the County of Los Angeles, State of California, for

PROJECT
PLACE
SPECS. NO.

SAMPLE

and is required by said County to give this bond in connection with the execution of said contract;

NOW, THEREFORE, if the said principal shall well and truly do and perform all of the covenants and obligations of said contract on its part to be done and performed at the times and in the manner specified therein, then this obligation shall be null and void, otherwise it shall be and remain in full force and effect. No premature payment by said County to said principal shall exonerate any surety unless the Board of Supervisors of said County shall have actual notice that such payment is premature at the time it is ordered by said Board, and then only to the extent that such payment shall result in loss to such surety, but in no event more than the amount of such premature payment. The surety hereby waives notice of any change, including changes of time, to said contract or related subcontracts, purchase orders and other obligations. The surety hereby waives notice of any change, including changes of time, to said contract or related subcontractors, purchase orders and other obligations.

WITNESS our hands this _____ day of _____, 20

CONTRACTOR

_____
President

APPROVED AS TO FORM:

_____
Secretary

DAWYN R. HARRISON
County Counsel

_____
Surety

By_____

_____
Attorney-in-Fact

Senior Deputy County Counsel

SECTION 00 06 20
PAYMENT BOND FOR LABOR AND MATERIALS

KNOW ALL PERSONS BY THESE PRESENTS:

That we, CONTRACTOR, a California corporation, as principal, and _____ as surety, are held firmly bound unto the COUNTY OF LOS ANGELES, State of California, hereinafter referred to as the County, in the sum of DOLLARS ($) lawful money of the United States, for the payment of which sum, well and truly made, we bind ourselves, jointly and severally, firmly by these presents.

The condition of the above obligation is such that, whereas said principal has been awarded and is about to enter into a written contract with the County for:

NAME OF PROJECT
PLACE
SPECS. NO.

which is hereto attached, made a part hereof, and to which reference is hereby made for all particulars, and is required by said County to give this bond in connection with the execution of said contract.

NOW, THEREFORE, if said principal, as contractor in said contract, or principal's subcontractor, fails to pay any of the persons referred to in Section 9100 of the Civil Code of the State of California for labor performed, skills or other necessary services bestowed, site improvement made, equipment leased, or appliances, equipment, implements, machinery, materials, power, provender, provisions, teams, or trucks furnished or used in, upon, or about the performance of this work contracted to be done, or for amounts due under the Unemployment Insurance Code with respect to work or labor performed by such claimant, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the contractor and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, said surety shall pay for the same in an amount not exceeding the sum specified above, and if suit is brought upon this bond, a reasonable attorney's fee to be fixed by the court. This bond is executed pursuant to Chapter 7 of Division 3, Part 4, Title 15 of the Civil Code of the State of California, and shall inure to the benefit of any of the persons referred to in said Civil Code Section 9100, as it now exists or may hereafter be amended, so as to give a right of action to such persons or their assigns in any suit brought upon this bond. No premature payment by said County to said principal shall exonerate any surety unless the Board of Supervisors of said County shall have actual notice that such payment is premature at the time and it is ordered by said Board, and then only to the extent that such payment shall result in loss to such surety, but in no event more than the amount of such premature payment.

It is agreed, that any alterations in the work to be done, or increase or decrease of the materials to be furnished, which may be made pursuant to the terms of said contract shall not in any way release either the principal or surety hereunder, nor shall any extensions of time granted under the provisions of said contract release either the principal or surety, and notice of such alterations or extensions of this contract is hereby waived by the surety.

WITNESS our hands this _____ day of _____, 20

CONTRACTOR

_____
President

APPROVED AS TO FORM:

_____
Secretary

DAWYN R. HARRISON
County Counsel

_____
Surety

By_____
Senior Deputy County Counsel

_____
Attorney-in-Fact

SECTION 00 07 00

GENERAL CONDITIONS

A. Bid Form, Equals, Use of Drawings & Manual

1. Bid Forms
2. Equals
3. Additional Sets of Drawings and Project Manual

B. Drawings & Specifications

4. Drawings and Specifications
5. Contract Documents and Order of Precedence
6. Interpretation of Drawings and Specifications
7. Project Manual
8. Standard Specifications
9. Substitutions Required Because of Federal Government Restrictions or Lack of Product Availability
10. As-Built Drawings
11. Reference Materials

C. Schedule, Changes in Work

12. Construction Schedule
13. County's Right to Delay Commencement of the Work
14. Updated Schedules
15. Changes in the Work
16. Provisions for Extras
17. Time Extensions and Compensation for Delay

D. Inspection/Permits, Tests, Quality, Warranties

18. Observation
19. Permits, Licenses, and Inspections
20. Tests

E. Substantial Completion, Occupancy by County

21. Substantial Completion
22. Occupancy by County

F. Employment Requirements

23. Workers
24. Hours of Work
25. Saturday, Sunday, Holidays, and Overtime Work
26. Prevailing Wage Scale
27. Employment of Indentured Apprentices
28. Affirmative Action Plan for Equal Employment Opportunity

G. Contractor Responsibilities, Restrictions

29. Payroll Records
30. Quality of Work and Material
31. Responsibility of Contractor and of Contractor's Representative on the Work
32. Repairing Damaged Work
33. List of Subcontractors and Subletting Work
34. Advertising
35. Certificate as to Compliance with Certain Regulations
36. Coordination with Others and Other Contracts
37. Contractor's Construction Equipment
38. Contractor Personnel
39. Audits and Records
40. Warranty and Corrections to Work
41. Hazardous Material
42. Contractor Safety Requirements
43. Probation Department Restrictions
44. The Use of Mobile Phones is Not Allowed at the Facility
45. Bidders/Contractors May Utilize Cameras for Photography
46. Photographing the Youth Detained at the Facility is Prohibited

H. Indemnification and Insurance

47. Indemnification
48. General Insurance Requirements
49. Insurance Coverage Requirements--Types and Limits
50. Not used.
51. Not used.

I. Legal/Other

52. Assignment
53. Patents
54. Suspension and/or Termination of Work and/or Contract
55. Contractor's Warranty of Adherence to County's Child Support Compliance Program
56. Contractor's Acknowledgment of County's Commitment to Child Support Enforcement
57. Limitation of Liability
58. Forum Selection
59. Waiver
60. Prior Agreements
61. Progress Payments
62. Acceptance of Final Payment as Release
63. Substitution of Securities for Retention
64. Resolution of Construction Claims
65. Conflict of Interest
66. Anti-Trust Claims
67. County's Quality Assurance Plan
68. Laws, Codes and Regulations to Be Observed

SECTION 00 07 00

GENERAL CONDITIONS

1. BID FORMS:

One copy of the Bid Forms accompany this Project Manual for Bidder's use.

Should these specifications be issued without the Bid Forms, or should the copy be lost or damaged, the Bidder must notify the Department of Public Works, in order that he/she may receive the forms or he/she may copy the forms bound into the Project Manual. All bids must be submitted on these forms or a facsimile thereof.

The Bidder shall not attach his bid to the returned Project Manual, nor use the Bid Forms, which are bound therein.

2. EQUALS:

A. Except as may be provided in the Proprietary Specification Section of these General Conditions, whenever any material, product, thing or service is specified or indicated in the Bid Documents by brand, trade, patent or proprietary name and/or by the name of the manufacturer, the item so specified or indicated shall be deemed to be followed by the words "or equal."

B. While preparing the bid, the Bidder may, at its own risk, submit an item not specified in the Bid Documents as an "or equal" for consideration by the County. Failure to do so within the time frame described in Subparagraph D below shall bar the Bidder from proposing or substituting an "or equal" item for an item specified in the Bid Documents.

C. If the Bidder includes an "or equal" item with the bid, the Bidder must submit sufficient data to the County to substantiate the specific characteristics and qualities which make the "or equal" item the equivalent in all respects of the item specified in the Bid Documents as described in Subparagraph D below. The Bidder shall furnish such substantiating data or arrange for any necessary tests to verify the equivalent qualities of the "or equal" item at the Bidder's sole expense.

D. The first, second and third apparent low bidder will have two (2) calendar days after the bid opening to submit their list of Equals (Section 00 04 40) and ten (10) calendar days after the bid opening to submit all substantiating data and test results. No list of Equals will be accepted after the close of

business two (2) calendar days after bids are opened. Likewise, no substantiating data and test results will be accepted after the close of business ten (10) calendar days after bids are opened.

E. The County, in its sole discretion, shall determine whether the substantiating data demonstrates that an "or equal" item is equal in all respects to the item specified in the Bid Documents. If the County determines that the "or equal" item has not been substantiated to be equal in all respects, the item specified in the Bid Documents shall be furnished and/or installed by Contractor without modification of the bid amount or Contract Documents.

F. The Contract Time for completion of the Work specified in the Contract Documents shall not be affected by any circumstances whatsoever arising from the provisions of this article.

G. The Contract Documents, Drawings, and Specifications have been prepared to complement and accommodate certain specified equipment, products, or systems and any modifications, adjustment, or redesign required to assimilate any County approved substitution or "or equal" equipment, products, or systems shall be at the Contractor's expense. Contractor shall provide a complete and workable application and shall satisfy design criteria and aesthetic values to the sole satisfaction of the County.

3. ADDITIONAL SETS OF DRAWINGS AND PROJECT MANUAL:

Upon award of contract, the Contractor will be furnished with eight (8) full-size sets of Drawings. Up to twenty additional sets may be furnished upon request. Project Manuals will be issued with each set of Drawings for construction use.

4. DRAWINGS AND SPECIFICATIONS:

Specifications are intended to establish the standards for quality, performance, and technical requirements for all labor, workmanship, material, methods, and equipment necessary to complete the Work shown or reasonably implied on the Drawings and Specifications. The Drawings are intended to establish the scope, arrangement, graphic detail, and to illustrate the contract requirements. The Drawings and Specifications are intended to compliment and supplement one another, and any part of the Work that may be mentioned or indicated in the one and not represented in the other shall be done the same as if it had been mentioned or represented in both. Work, materials, or equipment of a minor nature which may not be specifically mentioned in the specifications or indicated on the Drawings, but which may be reasonably assumed as necessary for the completeness of the Work,

shall be performed and or supplied by the Contractor the same as if it were shown on the Drawings or described in the Specifications. In case of discrepancy either in the figures, on the drawings, or in the specifications, the matter shall be promptly submitted to the Director, or the Director's representative, who shall promptly make a determination in writing.

5. CONTRACT DOCUMENTS AND ORDER OF PRECEDENCE:

A. In the event that any provision(s) in any component part of the Contract Documents conflicts with any provision(s) of any other component part, the following order of precedence among the Contract Documents' component parts shall govern:

1. Written Amendments and Change Orders to the Contract in reverse chronological order
2. Addenda and Notices to Bidders in reverse chronological order
3. County-Contractor Agreement
4. Project Manual and Drawings
5. Performance Bond
6. Labor and Material Payment Bond

B. In the event there is a conflict between or among any provisions within one of the component parts of the Contract Documents, the higher standard or the more stringent requirement shall govern.

6. INTERPRETATION OF DRAWINGS AND SPECIFICATIONS:

A. The Director, or his/her authorized representative, will interpret the meaning of any part of the Drawings and Specifications about which any misunderstanding may arise. Should there appear to be any inconsistency or discrepancy in or between the Drawings and Specifications, the Contractor shall refer the matter to the Director, and then proceed without delay to complete the Work under question after the matter has been resolved by the Director. Should the Contractor proceed with the Work without referring the matter to, or obtaining resolution from the Director, Contractor does so on Contractor's own responsibility and without recourse to the County or County's employees, agents, etc.

B. If the Contractor disagrees with the interpretation of the Director, or his/her authorized representative, they shall promptly, and within ten (10) days after receipt of the interpretation, file a written request for a hearing before the Disputes Review Board as provided herein. Such written request shall

outline in detail areas and scope of the Contractor's disagreement with the interpretation. The Contractor shall continue with the Work in accordance with the Director's interpretation, maintaining accurate and complete records of all cost and time impacts related to the Work involved in the disputed interpretation. These records shall be filed with the Director in a timely manner as the Work progresses.

C. The Disputes Review Board selected by the Director is composed of three County personnel having a grade of Section Head or higher. The Board will convene to hear all matters related to the dispute within forty-five (45) calendar days after receipt of an acceptable request to convene. An acceptable "request for hearing" is defined as a request that outlines in detail the following:

1. Areas and scope of disagreement with the interpretation.

2. All areas of inconsistency/discrepancy in the drawings and/or specifications related to the dispute. Cite the specific drawings, details, specification sections, and paragraphs.

The Director shall determine whether a hearing will be conducted and may reject the request for hearing on the basis of information presented in the request.

D. The hearing will be informal and formal rules of evidence will not apply. The Board will submit its recommendation within a reasonable period of time following conclusion of the hearing. The Director will promptly render an interpretation notice to the Contractor.

7. PROJECT MANUAL:

A. The Project Manual is divided for convenience into divisions and sections as set forth in the Table of Contents preceding these General Conditions. Format is based upon the CSI Master Format for Construction Specifications. Schedules of Work included in these sections are given for convenience and shall not be considered as a comprehensive list of items necessary to complete the Work of any section.

B. Where devices or items, or parts thereof are referred to in the singular, it is intended that such reference shall apply to as many such devices, items, or parts as are required to properly complete the Work.

8. STANDARD SPECIFICATIONS:

A. Where these Specifications or the Building Code stipulate that a material shall conform to the American Society for Testing Materials (ASTM) specifications or other recognized standards, the Contractor shall, when so required, deliver to the Department an affidavit or certificate in triplicate, signed by the manufacturer or supplier that the material furnished conforms to specifications or standards mentioned. When tests are required, the results of such tests shall be delivered to the Department.

B. References to the "Building Code" are to the edition of the applicable Building Code listed on the drawings, including any amendments thereto.

9. SUBSTITUTIONS REQUIRED BECAUSE OF FEDERAL GOVERNMENT RESTRICTIONS OR LACK OF PRODUCT AVAILABILITY:

A. In the event that certain materials or equipment specified are entirely unobtainable or not obtainable in sufficient quantities or within a reasonable time, due to Federal Government restrictions or other causes growing out of the national defense or war programs, the awarding entity may permit the use of equal and equivalent materials of other type of manufacture in their place. Before such substitutions can be made, the Contractor shall submit a written statement to the awarding entity setting forth in full the reasons why the materials specified are unobtainable and describing in full the materials which he proposed to supply in their place. Substitutions shall not be made until the approval of the awarding entity, in writing, has first been obtained.

B. Should a specified item not be obtainable due to product unavailability, the awarding entity may permit the use of equal and equivalent materials of other type of manufacture in their place. Contractor shall follow the procedure identified in Paragraph A above in order to obtain approval.

10. AS-BUILT DRAWINGS:

A. The Contractor shall keep one (1) complete and up-to-date set of prints at all times on the job, reserved for use as a record set of changes from the bid set. Throughout the duration of the construction work, this set of prints shall be the responsibility of the Contractor to maintain as a record of all field changes including underground runs, which are installed in locations other than those indicated on the Contract Drawings and those that have been indicated as to be field run as located. The lines shall be located on the Drawing dimensionally from a fixed point, such as a street-curb line, or centerline, or a permanent structure. A copy of the updated as-built prints and as-built specifications shall be made available to the County Project Manager with the monthly progress payment requests.

B. Contractor progress payment will be contingent upon the as-built drawings and specifications being maintained in current status, and the County Inspector will not approve progress payments unless these as-built drawings and specifications are current.

C. As a condition to certifying the final payment under this Contract, within 30 calendar days after substantial completion, the Contractor will submit to the Project Manager the original set of as-built prints as well as the set of as-built specifications. If needed, a complete set of blue line prints of the Drawings will be furnished to the Contractor for which the as-built drawings are required. All variations from the Contract Drawings and any additional information required by the Specifications shall be entered on the as-built drawings and specifications as they occur, neatly and legibly, in ink of a contrasting color or otherwise marked as approved by the County. Each set of as-built drawings and specification shall be signed and dated before being accepted by the County representative at the completion of the Work.

11. REFERENCE MATERIALS:

The Contractor shall furnish and maintain on-site reference material including at least one copy of all applicable codes referenced in the Contract Documents as necessary for the performance of the Work specified.

12. CONSTRUCTION SCHEDULE:

A. All time limits stated in the Contract Documents are of the essence of the Contract. The Contractor shall prosecute the Work at such time and in such manner that Substantial Completion of the Work shall occur in accordance

with the Contract and the Contract Time, including authorized adjustments thereto.

B. The Contractor shall provide a Contract Schedule for the Work in accordance with the requirements of Section 01 32 00, Construction Schedule.

C. The term "day" when used in the Contract Documents shall mean calendar day unless otherwise specifically designated.

13. COUNTY'S RIGHT TO DELAY COMMENCEMENT OF THE WORK:

The Department, on behalf of the County, shall have the right to direct that the Contractor shall withhold actual commencement of the Work of construction until sufficient material, in the opinion of the Department, has been delivered to the site of the Work to insure completion of the Work without interruption, and the Contractor shall comply with such instructions when issued. The Contractor shall be granted an extension of the completion time of the contract equal to the number of working days delay caused to Contractor pursuant to Contractor's compliance with such instructions.

14. UPDATED SCHEDULES:

Updated schedules shall be attached with the Contractor's request for payment and shall be a condition required prior to payment. Each schedule shall include a narrative report defining problem areas, anticipated delays, and their impact on the schedule, and the corrective action that shall be taken by the Contractor and its affect.

15. CHANGES IN THE WORK:

A. Written Changes

1. The County may, at any time, without notice to the Surety, make changes in the Work within the general scope of the Contract, including changes:

a. in the Specifications and the Drawings;

b. in the method or manner of performance of the Work;

c. in the facilities, equipment, materials, services, or site to be furnished by the County;

d. directing acceleration in the performance of the Work; or

e. directing the Contractor to suspend, delay, or interrupt all or any part of the Work for such period of time as the County may determine to be appropriate for the convenience of the County.

2. Such changes shall be made in accordance with either of the following methods:

a. By a written Supplemental Agreement ordered by the County (or awarding authority if other than the County) in the manner specified by Public Contract Code Sections 20136, 20137, 20138, or 20145, or other successor statues.

b. By written Change Order, signed by the Director, in the manner and amounts specified by Public Contract Code Section 20142 or its successor statutes.

3. If any change or proposed change under this paragraph causes or would cause an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the Work, whether changed or not changed by any such order, the Contractor may request an equitable adjustment under the terms of this paragraph and under "Construction Schedule," Section 01 32 00. At County's option, the County may negotiate an equitable adjustment for the price and time impact for the proposed changed Work either prior to, or after, directing the Contractor to proceed.

4. In the event the County elects to evaluate a bid prior to directing the Contractor to proceed, the County will issue a notice describing the proposed Change Order in the form of a Request for "Quotations" (RFQ). If the Contractor does not respond within fourteen (14) days after receipt of the notice, or such other time as agreed upon, with an equitable adjustment requested in accordance with Paragraph B.5.(b) under "Equitable Adjustments," the County may issue a Change Order with no change in the Contract Amount or Contract Time. The Contractor shall not proceed with any aspect of the proposed changed Work, or delay, suspend, or interrupt any unchanged Work until the County issues the Change Order.

5. If, in the opinion of the Director, it is in the County's best interest and it is deemed necessary to proceed with a required change in the Contract Documents, and time precludes thorough analysis of the Contractor's proposal, or the parties fail to reach an agreement, the Director may order the Contractor to proceed (Proceed Order) on the basis of a tentative price based on the best estimate available at the time, with the firm price to be determined later. If a Proceed Order is issued, the Contractor shall submit his proposal for the changes in the Work within thirty (30) days after the Proceed Order or completion of the changed Work, whichever is later. All charges arising out of a Proceed Order are to be documented and verified in a manner acceptable to the Director.

6. In the event that the County requires certain Work to be accomplished and the Contractor fails in the discharge of any or all of his responsibilities described hereinbefore, the County may issue a Unilateral Change Order which is a change order issued by or at the direction of the County without the full and timely agreement of the Contractor.

    a. A Unilateral Change Order may be issued before, during or after the changed Work is physically accomplished under the following conditions:

        1. The Contractor fails to submit price and/or time extension proposal for the changed Work within thirty (30) days of receipt of the request for "Quotations" or within a reasonable time thereafter as specified by the County.

        2. The Contractor fails or refuses to execute a Change Order by affixing his signature thereto within thirty (30) days of receipt or within a reasonable time thereafter as specified by the County.

        3. The County notifies the Contractor in writing that the Change Order is considered to be unilateral and is to be an effective change to the Contract. A notation will be made on the face of the Change Order that it is unilateral and the effective date thereof. Normal distribution of copies will then be made.

7. Any other written order including direction, instruction, interpretation, or determination from the County that causes a change in the Contractor's obligations may be treated as a proposed Change Order as provided in Part B of this Article, "Constructive Changes."

8. Except as provided in this Article, no order, statement, or conduct of the County shall be treated as a Change Order under this clause or entitle the Contractor to an equitable adjustment.

9. No equitable adjustment request by the Contractor shall be allowed if asserted after Final Payment of the Contract.

B. Constructive Changes

1. Notice: The primary purpose of this paragraph is to obtain prompt reporting of County conduct or changed conditions either caused by an act of God (Public Contract Code Section 7105) or digging trenches or other excavations that extend deeper than four feet below the surface (Public Contract Code Section 7104) that the Contractor considers to constitute a change to this Contract. Except for changes identified as such in writing and signed by the County or the Director, the Contractor shall notify the County in writing within fourteen (14) days from the date of County conduct (including actions, inactions, and written communications) that the Contractor regards as a change to the Contract. On the basis of the most accurate information available to the Contractor, the notice shall state:

   a. The date, nature, and circumstances of the conduct regarded as a change;

   b. The name, function, and activity of each Contractor official, agent, or employee involved in or knowledgeable about such conduct;

   c. The identification of any documents and the substance of any communication involved in such conduct;

   d. In the instance of alleged acceleration of scheduled performance or delivery, the basis upon which it arose;

e. The particular elements of Contract performance for which the Contractor may seek an equitable adjustment under this clause, including:

1. What specific Contract Drawings or specific sections of the Specifications have been, or may be, affected by the alleged change;

2. What labor or materials or both have been, or may be, added, deleted, or wasted by the alleged change;

3. To the extent practical, what delay and disruption in the manner and sequence of performance and effect on continued performance have been, or may be, caused by the alleged change in accordance with Section 01 32 00, "Construction Schedule;" and

4. What adjustments to Contract Amount and other provisions affected by the alleged change are estimated;

f. The Contractor's estimate of the time by which the County must respond to the Contractor's notice to minimize cost, delay, or disruption of performance, in accordance with Section 01 32 00, "Construction Schedule."

2. Continued Performance: Following submission of the notice required by Paragraph B.1 of this Article above, the Contractor shall diligently continue performance of this Contract as though not changed by the conduct reported under Paragraph B.1 until notified of the County's response under Paragraph B.3 of this paragraph, below.

3. Response: The County will, within fourteen (14) days after receipt of notice, respond to the notice in writing. In responding, the County will either:

a. Confirm that the conduct of which the Contractor gave notice constitutes a change and, when necessary, direct the mode of further performance in accordance with Part A of this Article, "Written Changes;"

b. Countermand any communication regarded as a change;

c. Deny that the conduct of which the Contractor gave notice constitutes a change, and when necessary, direct the mode of further performance; or

d. In the event the Contractor's notice information is inadequate to make a decision under A, B, or C above, advise the Contractor what additional information is required, and establish the date by which it should be furnished and the date thereafter by which the County will respond.

4. Appeals: In the event the Contractor does not agree with the County's response under B.3 above, the Contractor may submit a request to the Disputes Review Board.

5. Equitable Adjustment:

a. If the County confirms that the County's conduct effected a change as alleged by the Contractor, the Contract will be modified in writing accordingly in conformance with Part A of this Article, "Written Changes". Except for a proposed change to the Drawings or Specifications, no request for equitable adjustment under this paragraph shall be allowed for any costs incurred more than fourteen (14) days before the Contractor gives written notice under Part B of this Article.

b. In the case of a necessary change to the Drawings or Specifications for which the County is responsible, the equitable adjustment shall include the cost and time extension for delay reasonably incurred by the Contractor in attempting to comply with the Drawings or Specifications before the necessary change is identified. When the cost of property made obsolete or in excess as a result of a change confirmed by the County under this paragraph is included in the equitable adjustment, the County will have the right to prescribe the manner of disposition of the property or its proceeds. The equitable adjustment shall not include increased costs or time extensions for delay resulting from the Contractor's failure to provide notice or to continue performance as provided respectively in Paragraphs (1) and (2) above of this part.

C. Compensation for Changes in the Work

1. Changes in the Work issued and signed by the Contractor pursuant to the requirements of this Contract represent and constitute full and final settlement for all costs and time (hereinafter referred to as compensation) associated with the Work (or event) described therein. Compensation is defined to include all direct and indirect labor costs, all material and equipment expenses, and all impact costs related to and/or occasioned by the Work described therein, as well as all taxes, insurance, and profit. It is agreed that the basis of compensation to the Contractor for Work either added or deleted by Changes in the Work shall be determined by one or more of the following methods below. All amounts for overhead, profit, insurance, and all other direct and indirect costs of the changes in the Work (except for bonds as provided in Paragraph C.2 shall be computed in accordance with percentages set forth in Paragraph C.1.c and C.8.c of this Article.

a. Method A

By unit prices for items of Work scheduled to be done under the unit price provisions of the Contract. The cost or credit for such added or omitted Work shall be determined by multiplying the number of units added to or omitted from the Work by the applicable unit price.

b. Method B

By agreed lump sum. All lump sum quotations prepared by the Contractor shall be supported by legible and itemized cost by trades. The itemized breakdown accompanying the quotation shall quantify all added and deleted labor, material, and construction equipment directly involved. The Contractor must also obtain and furnish with quotation, itemized breakdown(s) as described above, signed by each subcontractor or vendor participating in the change regardless of tier. All labor cost, including associated fringe benefits and insurance costs, shall be verified by certified payrolls and/or standard rates in accordance with the Prevailing Wage Scale.

c. Method C

If neither Method A nor Method B are agreed upon before the changes to the Work are commenced, then the Contractor shall be paid as follows:

The actual cost, documented to the satisfaction of the County, of labor, materials, and equipment furnished by the Contractor and/or the actual cost of subcontractor Work incurred by the Contractor as provided in Paragraph C.8, plus the following percentages which are considered fair and reasonable compensation for overhead, profit, insurance, and all other direct and indirect costs of the Changes in the Work (except for bonds as provided in Paragraph C.2:

18% of the cost of labor as provided in Paragraph C.3 where furnished by the Contractor;

15% of the cost of materials as provided in Paragraph C.4 where furnished by the Contractor;

10% of the actual cost of equipment as provided in Paragraph C.5; and

5% of the actual cost of the first tier subcontract Work as provided in Paragraph C.8.

Overhead charges shall include those charges as specified in Paragraph C.3.c below.

d. Unilateral Change Order

1. The terms of a Unilateral Change Order, including the change in Contract price and/or completion date shall, in the County's judgment, be fair and reasonable.

2. When a Unilateral Change Order has been issued, it will have the full force and effect of a Contract modification. It will be included in schedules, payment applications, reports, and all official records of the Contract. The issuance of a Unilateral Change Order will not prejudice any of the Contractor's rights to make claims or appeal disputed matters under other provisions of the Contract.

3. If the Contractor objects to a Unilateral Change Order, Contractor shall state, in writing, specific objections to, or specific points of disagreement with, the Work described in the Unilateral Change Order within thirty (30) days of receipt of such Change Order.

2. To the total additional cost of the Work as computed by any of the three above methods, the Contractor may add, upon furnishing to the County satisfactory evidence of the cost thereof, the actual cost of additional bond premiums incurred by the Contractor as a result of the additional cost to the Work up to a sum not to exceed 1.5 percent (1.5%) of the additional cost to the Work.

3. Labor: The cost of labor used in performing the Work, whether the employer is the Contractor, Subcontractor, or other forces, will be the sum of the following:

   a. The gross actual wages paid including income tax withholdings but not including any employer payments to or on behalf of the workmen for health and welfare, pension, vacation, insurance, and similar purposes.

   b. To the actual gross wages, as defined above, a percentage will be applied based upon current applicable labor rates concerning payments made to or on behalf of workmen other than actual wages. This percentage shall constitute full compensation for all payments other than actual gross wages as specified below. The Contractor shall compute a separate percentage for each craft, or a composite percentage for all crafts if so approved by the County. All computed percentages shall be submitted to the County for approval within thirty (30) days after receipt of Notice to Proceed with the changes to the Work or as directed by the County prior to any changed Work being performed.

   c. The charges for labor shall include all classifications through foremen when engaged in the actual and direct performance of the Work. They shall not include charges for such overhead personnel as superintendents, assistant superintendents, office personnel, timekeepers, and maintenance mechanics.

4. Materials: The cost of materials required for the accomplishment of the Work shall be the delivered cost to the purchaser, whether Contractor, subcontractor, or other forces, from the supplier thereof, except as the following are applicable:

   a. If cash trade discount by the actual supplier is offered or available to the purchaser, it shall be credited to the County if such discount was taken.

   b. If materials are procured by the purchaser by any method which is not a direct purchase from and a direct billing by the actual supplier, to such purchaser, the cost of such materials, including handling, shall be deemed to be the price to the actual supplier as determined by the County.

   c. If the materials are obtained from a supply or source owned wholly or in part by the purchaser, payment therefore will not exceed the lesser of the price paid by the purchaser for similar materials furnished from said source on Contract items or the current wholesale price for such materials delivered to the worksite, whichever price is lower.

   d. The cost of such materials shall not exceed the lowest current wholesale price at which such materials are available in the quantities concerned, delivered to the job site, less discounts as provided in Subparagraph 4.a.

   e. If the Contractor does not furnish satisfactory evidence of the cost of such materials from the actual supplier thereof, the cost shall then be determined in accordance with Subparagraph 4.d.

5. Equipment: Equipment rented/leased by the Contractor or subcontractor and utilized on this project for the purposes of this Article shall be paid for on the basis of arms-length rental agreements entered into and invoices paid by the Contractor or subcontractor for that equipment. These invoices shall be submitted as evidence of the expense incurred.

   a. The Contractor or subcontractor shall be paid for the use of owned equipment at prices for the use of machinery and equipment determined by using 80 percent (80%) of equipment

use costs published by the Associated Equipment Distributors, which edition is in effect at the time of the change. Contractor or subcontractor-owned equipment required to be on stand-by or to be present on the site, even though idle, shall be paid for at 50 percent (50%) of the owned equipment rate established above.

b. The Contractor or subcontractor shall furnish all data which might assist the County in the establishment of such rates.

1. Operators of equipment will be paid for as provided under Subparagraph C.3 above.

2. All equipment shall be in good working condition and suitable for the purpose for which the equipment is to be used. Contractor is responsible for any necessary repairs and ongoing maintenance of said equipment.

3. Unless otherwise specified, manufacturer's ratings and manufacturer modifications shall be used to classify equipment for the determination of applicable equipment rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.

4. Individual pieces of equipment or tools having a new value of five hundred dollars ($500.00) or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore.

6. Equipment Located at the Site: The time to be paid for equipment located at the site shall be the time the equipment is required for the changed Work being performed. Moving time, loading, unloading, and hauling will not be paid for if the equipment is already located at the Site.

7. Equipment Not Located at the Site: For the use of equipment moved to the Site and used exclusively for changed Work, the Contractor will be paid the rates hereinbefore specified, as follows:

a. The period shall begin at the time the equipment is unloaded at the site; shall include each day that the equipment is at the

site, excluding Saturdays, Sundays, and other legal holidays unless the changes to the Work are performed on such days; and shall terminate at the end of the day on which the County directs the Contractor to discontinue the use of such equipment. The maximum time to be paid per day will not exceed eight (8) hours without prior written approval from the Director.

b. Payment for transporting, loading, and unloading equipment will be made only when such equipment has been moved to the site for the sole and express purpose of accomplishing the changed Work.

8. Subcontracts: The cost for Subcontract work will be the actual cost to the Contractor or subcontractor for Work performed by a Subcontractor as follows:

a. The cost incurred by the first tier subcontractor for labor, materials, and equipment as limited by Paragraphs C.3, C.4, and C.5; plus

b. The following percentages which are considered fair and reasonable compensation for overhead, profit, insurance and all other direct and indirect costs of the changes in the Work (except for bonds as provided in Paragraph C.2:

18% of the cost of labor as provided in Paragraph C.3;

15% of the cost of materials as provided in Paragraph C.4;

10% of the cost of equipment as provided in Paragraph C.5.

c. To the total additional cost to the Work as computed in accordance with Paragraphs 8.a and 8.b above, the subcontractor, upon furnishing satisfactory evidence of the cost thereof, the actual cost of additional bond premiums incurred by the Subcontractor as a result of the additional cost to the Work up to a sum not to exceed 1.5 percent (1.5%) of the additional cost to the Work.

16. PROVISIONS FOR EXTRAS:

No new Work of any kind performed hereunder shall be considered as extra Work outside the scope of the Contract unless a separate estimate is given for said Work before it is commenced, the same is approved by the Department as reasonable and equitable, and it has been ordered under one of the three methods set forth in article, "CHANGES IN THE WORK," Paragraphs A, B, or C. Except for extra Work ordered by the Department according to unit prices or by changes or additions in the Work embraced in a Change Order issued by it, any extra Work performed will not be paid for by the County. The Contractor will prepare and submit change order requests as directed by the County Project Manager.

17. TIME EXTENSIONS AND COMPENSATION FOR DELAY:

A. Adjustments in the Contract Time shall be governed by the principles of this Article and shall be made in accordance with the conditions stated in Specification Section 01 32 00, Construction Schedule.

B. Actions or inactions of the County, or events for which the County has assumed contractual responsibility, which would independently delay the date of Substantial Completion beyond the current Contract Completion Date shall be designated as Compensable delays.

C. Events which are outside the control of, and without the fault or negligence of either the County or the Contractor, which would independently delay the date of Substantial Completion beyond the current Contract Completion Date shall be designated as Excusable delays. Unless the County considers that extreme circumstances warrant consideration, extensions of time because of inclement weather will not be granted.

D. Actions or inactions of the Contractor, or events for which the Contractor has assumed contractual responsibility, which would independently delay the date of Substantial Completion beyond the current Contract Completion Date shall be designated as non-excusable delays.

E. Concurrent delay is any combination of the above three types of delay occurring on a calendar date, except in cases where the combination consists of two or more instances of the same type of delay occurring on a calendar date.

F. Any event, action, inaction, or other cause which may give rise to a delay shall constitute a basis for adjustment in:

1. Contract Time, only if it can be demonstrated that the date of Substantial Completion will be delayed beyond the current Contract Completion Date and that the delay is classified as a Compensable or Excusable delay; and/or

2. Contract Amount, only if it can be demonstrated that the Contractor's time-related costs to complete the Work will be increased and the delay is classified as a Compensable delay.

18. OBSERVATION:

A. All Work shall meet with the approval of the Department and shall be completed in conformity with the Drawings and Project Manual approved by, and on file with, the Los Angeles County Board of Supervisors, such Drawings and the Project Manual will be made part of the Contract to be entered into for the Work referred to herein. The County at its discretion may require the contractor to obtain approval/clearance from the Inspector of Record for certain items to ensure the quality of the work.

B. The Department or its representative will have access to the Work at all times. The Contractor will furnish all facilities for inspection at the construction site, and at shops or yards, and shall not cover up any Work until the same has been approved by the Department. If Work should be covered up before being inspected, the Contractor will be required to remove such portions of the Work as may be necessary to disclose the part in question.

C. The County of Los Angeles or its authorized representatives will be given access to the Work at all times. Such access will not be subject to restrictions which are not directly related to the provision and maintenance of health and safety.

D. The Contractor will be issued a "Notice of Noncompliance" for any portion of the contract Work that does not satisfy the requirements of the Drawings and Specifications. No Work subject to a "Notice of Noncompliance" will be paid for by the County until such Work is brought into full compliance with the Drawings and Specifications to the satisfaction of the County. The Contractor must obtain the County's approval for all corrected deficiencies and/or non-compliant work prior to proceeding with work that may be affected by the deficient and/or non-compliant work. The Contractor shall not build on or conceal work that is deficient and/or non-compliant. Furthermore, work

that is built or dependent upon item(s) that are deficient and/or not-compliant will not be approved on the progress payment request.

E. An Inspection Notice will be issued if the contract Work has not been executed in full compliance with the Drawings and Specifications. The Contractor is responsible for bringing all Work subject to an Inspection Notice into full compliance with the Drawings and Specifications at no additional cost to the County.

F. Technical Reports may be generated for the purpose of evaluating the quality, correctness, functionality, etc., of the Contractor's Work or performance under this contract in accordance with the requirements of the Drawings and Specifications.

19. PERMITS, LICENSES, AND INSPECTIONS:

A. The Contractor will obtain and pay for all permits required for the Work except the following "no-fee" permits: building, electrical, mechanical, plumbing, and sewer Work. Further, the Contractor will obtain and pay for all permits incidental to the Work or made necessary by Contractor's operation. This includes Contractor/Manufacturer designated structures such as prefabricated buildings, light poles, special shoring, and the like. The Contractor shall also pay for the plan check of prefabricated buildings and premanufactured equipment.

B. To comply with Section 3800 of the Labor Code of the State of California, the Contractor and all Subcontractors requiring a permit (building, plumbing, grading, electrical, etc.) shall file a Workers' Compensation Certificate with the Department of Public Works, Business Relations and Contracts Division, Contracts Administration Section.

C. Exclusive of off-site inspection specified to be the County's responsibility, the Contractor will arrange and pay for all off-site inspection of the Work including certification thereof required by the specifications, drawings, or by governing authorities.

D. The County will provide on-site inspection of the Work and will arrange for off-site inspection when noted on the drawings and/or when specified in the various technical sections of the Specifications as the responsibility of the County. All other required inspection will be the responsibility of the Contractor.

E. The County will not pay any costs for licenses required in the performance of the Work. The Contractor shall assume this responsibility in total.

20. TESTS:

A. County's Responsibilities

1. The County reserves the right to test or require the Contractor to obtain "called tests" of any materials or performance over and above "required tests" as defined in the following Paragraph B.1, and provided such "called tests" show the Work meets the specified requirements, the County will pay for the cost of the tests. If the Contractor was required to obtain the test from a third party, the County will reimburse the Contractor on the basis of Contractor's certified statement of the results and costs, with appropriate supporting documentation.

B. Contractor's Responsibilities

1. The Contractor will arrange and pay for all tests of materials or performance as required by the Specifications or by ordinance or governing authority. These are defined as "required tests".

2. The Contractor shall pay for all "called tests" as defined in preceding subparagraph A.1, when the test results show the materials or performance fails to meet the specified requirements. Immediately thereafter, the Contractor, at Contractor's own expense, shall remove the improper Work and replace same with materials or performance meeting the specified requirements. The Contractor shall also bear the expense of any tests required of the replaced Work, and of any subsequent removal, replacement, and testing as may be necessary to obtain materials or performance meeting the specified requirements.

21. SUBSTANTIAL COMPLETION:

A. The date of Substantial Completion of the Work, or designated portion thereof as set forth in the Contract Documents, is the date certified by the County when construction is sufficiently complete, in accordance with the Contract Documents, so the County may occupy or use the Work, or designated portion thereof, for the use for which it is intended.

B. When the Contractor considers that the Work, or designated portion thereof as set forth in the Contract Documents, is substantially complete as defined above, the Contractor shall prepare for submission to the County a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the County determines that the Work or designated portion thereof is substantially complete, it will issue a Certificate of Substantial Completion which shall establish the date of Substantial Completion. The Certificate shall state the responsibilities of the County and the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall list remaining items to be corrected or completed. The Work not fully completed or corrected shall be completed to the satisfaction of the County within thirty (30) calendar days after Substantial Completion, or within a period of time mutually agreed upon between the Contractor and the County. In the event the Contractor fails to complete or correct the remaining items within the allotted time, the County may complete or correct the items and deduct the cost thereof from the Contract amount.

C. Warranties required by the Contract Documents, as discussed in Article 40 of the General Conditions, shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

D. Upon Substantial Completion of the Work or designated portions thereof, and upon application of the Contractor, the County, in County's sole discretion, may release and/or reduce the amounts retained subject to the limitations of Public Contract Code Section 9203.

E. In accordance with the General Conditions, the County reserves the right to occupy substantially completed portions of the Work and any such portion shall be subject to the above provisions for Substantial Completion.

22. OCCUPANCY BY THE COUNTY:

A. The Contractor, Contractor's employees, and representatives will be admitted by the County to the premises for the purpose of executing the Work to be performed under this contract, but they shall have no tenancy.

B. It is further understood that the County shall have the right to take temporary possession of, or use any portion of, any substantially completed part of the Work. Before taking possession of any Work, the County shall furnish the Contractor a list of items of Work remaining to be performed or corrected on

those portions of the Work that the County intends to take possession of or use. However, a failure of the County to list any item of Work shall not relieve the Contractor of responsibility for complying with the terms of the Contract. The County's possession or use shall not be deemed an acceptance of any Work under the Contract.

C. While the County has such possession or use, the Contractor shall be relieved of the responsibility for the loss of, or damage to, the Work in place resulting from the County's possession or use. If prior possession or use by the County delays the progress of the Work or causes additional expense to the Contractor, an adjustment may be made in the Contract Amount or the Contract Time, under the applicable scheduling and cost provisions of this Contract.

23. WORKERS:

None but workers skilled in the various trades required on this contract shall be employed upon the Work. Any mechanic or laborer employed upon the Work who, in the opinion of the Department, is non-cooperative or who shall prove careless or incompetent, shall be immediately removed from the Work by the Contractor, when notified to do so, and shall not be re-employed upon the Work.

24. HOURS OF WORK:

Work in excess of eight (8) hours per day will be permitted by employees of contractors under this Contract only so long as Section 1815 of the Labor Code of California is complied with by such contractors.

25. SATURDAY, SUNDAY, HOLIDAY, AND OVERTIME WORK:

A. No construction Work shall be done on Saturdays, Sundays, or holidays recognized by the County government and no Work shall be performed outside of normal Working hours without the consent of the Department, unless required under these specifications. In any event, all Work shall be subject to approval of the Department. Prior to the start of such Work, the Contractor shall arrange with the Department for the continuous or periodical inspection of the Work and tests of materials, when necessary. If requests are made by contractors for permission to Work overtime, nights, Saturdays, Sundays, or holidays, and such requests are granted, the Contractor shall bear all extra expense to the County or the awarding entity for inspection and other incidental expenses caused by such overtime work. If Contractor is requested, in the interest of the awarding entity, to work overtime by the

Department; or if overtime Work is specifically required by these Specifications, all extra expense of inspection will be paid by the County. Should the Contractor find it necessary in order to complete the Work according to schedule to perform certain of Contractor's operations on Saturdays, Sundays, holidays or overtime, these operations shall be performed as part of the Work included in the contract price and shall not constitute a basis for additional payments. Refer to above paragraph for the obligations for the Contractor to assume the cost of inspections.

B. The County reserves the right to order in writing Work outside of normal working hours to avoid inconvenience of occupants of existing facilities or to perform special operations that, in the judgment of the Department best serve the intent of the Contract Documents and the orderly prosecution of the Work. If the County elects to order Work outside of normal working hours, the Contractor shall make all arrangements to supply an adequate Work force for the task to be accomplished and will be compensated for the premium portion of the wages paid, plus labor burdens applicable to the premium portion only of the wages paid. Contractor shall submit copies of Contractor's payrolls indicating the premium wages actually paid, and the County will issue a Change Order to reimburse the Contractor for Contractor's actual costs only.

26. PREVAILING WAGE SCALE:

A. The Contractor shall comply with all provisions of the Labor Code of the State of California.

B. Under the provisions of said Labor Code, the State Department of Industrial Relations will ascertain the prevailing hourly rate in dollars and details pertinent thereto for each craft, classification or type of workers, or mechanic needed to execute any contract which may be awarded by the awarding entity.

C. Particulars of the current Prevailing Wage Scale, which are applicable to the Work contemplated under these Specifications, are filed with the awarding entity and the Department and must be posted at the project site.

27. EMPLOYMENT OF INDENTURED APPRENTICES:

A. Contractor shall comply with Section 1777.5 and 1777.7, Labor Code, State of California.

B. All Contractors shall employ registered apprentices at a ratio of not less than one hour of apprentice's work for every five hours of labor performed by a journeyman. Contractors shall be responsible for the compliance of all Subcontractors.

C. Contractor and Subcontractors shall keep an accurate record showing the name of the craft and wage rate of each apprentice and journeyman employed by each entity. Subcontractor shall provide, weekly, such records to the Contractor. Records shall be made available to the Division of Apprenticeship Standards and the County of Los Angeles or the awarding entity, for the purpose of determining compliance. Failure to comply may result in withholding payments and other penalties as provided by the Labor Code.

28. AFFIRMATIVE ACTION PLAN FOR EQUAL EMPLOYMENT OPPORTUNITY:

A. The following provisions pertaining to equal employment opportunity are incorporated into this Contract. All references herein to "Contractor" shall be deemed to refer to the "general" Contractor.

B. During the performance of any construction Contract in excess of $10,000, the Contractor agrees as follows:

1. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor certifies and agrees that all persons employed by such firm, Contractor's affiliates, subsidiaries, or holding companies are, and will be, treated equally by the firm without regard to or because of race, color, religion, sex, or national origin and in compliance with all anti-discrimination laws of the United States of America and the State of California.

2. In all advertisements for labor or other personnel, or requests for employment of any nature, the Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

3. The Contractor shall deal with Contractor's Subcontractors without regard to or because of race, color, religion, sex or national origin.

4. The Contractor shall comply with current Federal employment and reporting requirements for County-funded construction contracts.

Specifically, the Contractor shall make a good faith effort to comply with federal employment goals for minority and female employment and shall report minority and female employment data in a timely manner on the federal form provided by the contract awarding authority.

5. The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract of understanding, a notice, to be provided by the contract awarding authority, advising the said labor union or workers' representative of the Contractor's commitments under this section.

6. The Contractor shall allow the County access to Contractor's employment records during regular business hours to verify compliance with these provisions when so requested by the County.

7. The Contractor agrees that if the County finds that any of the above provisions has been violated, the same shall constitute a material breach of contract upon which the County may determine to cancel, terminate, or suspend the Contract. While the County reserves the right to determine independently that the anti-discrimination provisions of the Contract have been violated, in addition, a determination by the Federal Equal Employment Opportunity Commission or the California Fair Employment and Housing Commission that the Contractor has violated federal or state anti-discrimination laws may constitute a finding by the County of Los Angeles that the Contractor has violated the anti-discrimination provisions of the Contract.

8. At County's option, and in lieu of canceling, terminating, or suspending the Contract, the County may impose damages for any violation of the anti-discrimination provisions of this paragraph, in the amount of two hundred dollars ($200) for each violation found and determined. The County and Contractor specifically agree that the aforesaid amount shall be imposed as liquidated damages, and not as a forfeiture or penalty. It is further specifically agreed that the aforesaid amount is presumed to be the amount of damages sustained by reason of any such violation, because, from the circumstances and the nature of the violation, it is impracticable and extremely difficult to fix actual damages.

9. The Contractor shall include the provisions of the foregoing Paragraphs B.1. through B.8. in every subcontract, so that such

provisions will be binding upon each Subcontractor performing Work required by this contract.

29. PAYROLL RECORDS:

A. The Contractor shall comply with the requirements of Section 1771.4 and Section 1776 of the Labor Code, State of California. The Contractor and its subcontractors shall furnish the records specified in Section 1776 directly to the Labor Commissioner in an electronic format, in the manner prescribed by the Labor Commissioner, on the Department of Industrial Relations website. The Contractor and its subcontractors shall maintain payroll records as enumerated in Labor Code Section 1776 (a). When requested by the County, the Contractor and its subcontractors shall submit to the County a copy of all weekly certified payrolls, indicating that the wage rates are not less than those determined by the State of California Department of Industrial Relations and the classifications set forth for each laborer or mechanic conform with the Work they performed. Contractor shall submit a weekly payroll report" (Form 347, A-1-131, or similar) shall accompanied by a written declaration, made under penalty of perjury. The Contractor shall be responsible for the submission of copies of payrolls for all subcontractors within ten (10) days after their payroll period. Failure of the Contractor to comply with the Labor Code requirements to pay prevailing wages and to maintain certified payroll records may result in withholding from progress payments amounts for underpaid wages and penalties as authorized by the Labor Code.

B. When requested by the County, the Contractor, all subcontractors, and some subconsultants will be required to submit certain certified payrolls and labor compliance documentation electronically at the discretion of, and in the manner specified by the County.

Electronic submittal will be a web-based system, accessed on the World Wide Web by a web browser. The Contractor, its subcontractors, and certain subconsultants will be given a log on identification and password to access the web-based labor compliance reporting system.

Use of the web-based system will entail additional data entry of weekly payroll information including; employee identification, labor classification, total hours worked and hours worked on this project, wage and benefit rates paid, etc. In addition, the Contractor may use payroll and accounting software that is capable of interfacing with the web-based system. The payroll and accounting software must be capable of generating a 'comma delimited file'

or 'comma separated value (CSV) file' that will interface with the web-based system.

This requirement applies to all subcontractors, subconsultants, and vendors required to submit certified payrolls and provide labor compliance documentation. The information may be used to provide statistical informational data to public or jurisdictional agencies.

30. QUALITY OF WORK AND MATERIAL:

A. All materials, parts, and equipment furnished by the Contractor shall be new, first quality, and free from defects and imperfections. Workmanship shall be in accordance with the best standard practices.

B. Any item or Work installed by the Contractor, but not in conformance with the drawings and specifications, shall be removed by and at the Contractor's expense upon written request from the County.

C. If such items or Work are not removed or satisfaction obtained by the County within thirty (30) calendar days of such request, then the County may have such items or Work removed and Work completed to conform to drawings and specifications at the Contractor's expense.

31. RESPONSIBILITY OF CONTRACTOR AND OF CONTRACTOR'S REPRESENTATIVE ON THE WORK:

The Contractor shall give personal attention and supervision to the Work until same is entirely completed. In the absence of the Contractor from the Work, he shall have a representative in charge who shall be competent to superintend and direct the progress of the Work and who shall be authorized to receive instructions and to act for the Contractor on all matters related to the Work. The name of this representative shall be sent by letter to the Department immediately after the awarding of the contract.

32. REPAIRING DAMAGED WORK:

A. All portions of the Work that may be damaged by accident or in the course of or on account of building operations, or by reason of any other cause whatsoever during the progress of the Work, shall be carefully and neatly repaired or reconstructed and the whole left in first-class condition and turned over to the County ready for use.

B. Should any part of the Work of this contract be cut into or damaged by other Contractors, the Contractor and party causing such damage shall make adjustments between themselves relative to reconstruction or repairs and payment for same.

33. LIST OF SUBCONTRACTORS AND SUBLETTING WORK:

A. No part of the construction Work shall be done as piece Work, nor shall it be let to a Subcontractor after the execution of the original contract except as provided by law. In case part of the Work should be sublet, these General Conditions shall govern each trade insofar as they may apply to the Work of that trade.

B. Where more than one Contractor or where Subcontractors are engaged upon the Work, they shall coordinate their efforts (in accordance with Article 36 of these General Conditions regarding other contractors, or under the control and guidance of the General Contractor), and shall be responsible, one to the other, for any damage or injury to the work.

C. Bidders and Contractor shall be governed by the provisions of Sections 4100 to 4113, inclusive, of the Public Contract Code of the State of California. Bidders shall set forth in their Bids, on forms provided for same, the name and location of the mill, shop, or office of each Subcontractor who shall perform the Work or labor or render service to the Contractor in or about the construction of the Work, and the portion of the Work which shall be done by each Subcontractor.

D. No subcontract shall be assigned or transferred except as provided in the above sections of the Public Contract Code of the State of California.

E. In case any Work is let to a Subcontractor, the Contractor shall be at all times responsible for the Work so done to same extent as if the Contractor were doing or had done the Work.

F. If a Subcontractor is named who shall perform the Work or labor or render service to the Contractor with respect to a material specified or indicated by patent or proprietary name and/or by the name of the manufacturer, and such Subcontractor cannot reasonably act with like respect to the material offered as an equal then, the Bidder shall, in his Bid Form, include with the pertinent data to be listed on the "Equals" page(s), the name and address of the Subcontractor who shall act with respect to the equal material.

G. In accordance with Public Contract Code Sections 4100, et seq., the Bidder must list all subcontractors who shall perform in excess of one-half of one

percent of the Work. (See Subcontractors' Section of the Instructions to Bidders.)

34. ADVERTISING:

No advertising matter shall be attached or painted on surfaces of buildings, fences, or canopies, except that names of Contractors and Subcontractors, with their addresses and the designation of their particular branch, may be shown on signs of a removable type. Size and location of such signs shall be subject to approval of the Department. The Contractor shall provide a project identification signboard as specified.

35. CERTIFICATE AS TO COMPLIANCE WITH CERTAIN REGULATIONS:

A. The Contractor shall file with the Department, prior to the acceptance of the Work, a certificate in form, substantially as follows:

B. I (We) hereby certify that all Work has been performed and materials supplied in accordance with the drawings, specifications, and contract documents for the above Work, and that:

1. Not less than the prevailing rates of wages as ascertained by the Department has been paid to laborers, workers, and mechanics employed on this Work.

2. There have been no unauthorized substitution of Subcontractors; nor have any unauthorized subcontracts been entered into.

3. No subcontract was assigned or transferred or performed by anyone other than the original Subcontractor; except as provided in Sections 4100-4113, inclusive, of the Public Contract Code.

(Signed)_____
Contractor

36. COORDINATION WITH OTHERS AND OTHER CONTRACTS:

A. The County reserves the right to award other contracts for any Work on any portion of the project not included in this Contract.

B. Where coordination with other Contractors is required, the Contractor shall make the appropriate provisions in Contractor's CPM schedule for the access to the site by those Contractors, the schedules of Work developed by them,

and any coordination required between any of those Contractors and between any of them and this Contractor.

C. The Contractor shall perform the Work of the Contract so that it will properly coordinate and fit the Work performed by other Contractors. He shall give the other Contractors every reasonable opportunity to perform their Work, store materials, and place equipment thereof, and fit their Work to the Work of other Contractors. They shall furnish to the other Contractors all information necessary in order that they may properly connect and fit their Work to Contractor's in ample time, so that they may have reasonable opportunity to prepare their Work therefore. They shall make the Work of this Contract ready to receive the Work of the other Contractors at the time fixed thereof, and shall fit this Work to that of the other Contractors at the time fixed therefore.

D. The Contractor shall cooperate with others in the prosecution of all Work and shall not interfere with material, equipment, or workers of the County or other Contractors engaged by the County at the site of the Work.

E. All Contractors engaged in Work at the site shall have, insofar as practical, equal use of the premises and facilities. In case of disagreement regarding such use, the matter shall be referred to the Department, whose decision relative to said use shall govern.

F. If any part of the Contractor's Work depends on proper execution or results upon the Work of any other separate Contractor, the Contractor shall inspect and promptly report to the Director any apparent discrepancies or defects in such Work that render it unsuitable for such proper execution and results. Failure of the Contractor to inspect and report shall constitute an acceptance of the other contractor's Work as fit and proper to receive the Contractor's Work, except as to defects which may develop in the other separate contractor's Work after the execution of the Contractor's Work.

G. Should the Contractor cause damage to the Work or property of any separate Contractor on the project, the Contractor shall, upon due notice, settle with such other Contractor by agreement or arbitration if it will so settle. If such separate Contractor sues the County or initiates an arbitration proceeding on account of any damage alleged to have been so sustained, the County shall notify the Contractor who shall defend such proceedings at the Contractor's expense, and if any judgment or award against the County arises therefrom, the Contractor shall pay or satisfy it and shall reimburse the County for all attorney's fees and court or arbitration costs which the County has incurred.

37. CONTRACTOR'S CONSTRUCTION EQUIPMENT:

The Contractor shall furnish and maintain all equipment such as stairs, ramps, runways, scaffolds, hoists, etc., required for the proper execution of the Work. All such equipment and construction shall meet all requirements of all ordinances and laws applicable thereto.

38. CONTRACTOR PERSONNEL:

A. The Contractor agrees to employ only orderly and competent workers, skillful in the performance of the type of Work required under this Contract, to do the Work and agrees that whenever the County informs the Contractor in writing that any workers on the Site are incompetent or disorderly, such Worker shall be discharged from the Work and shall not again be employed on the Work without the County's written consent.

B. The Contractor shall give adequate attention to the faithful prosecution and completion of this Contract and shall keep on the Site at all times during project's progress, competent personnel superintendent and any necessary assistants to supervise and direct the Work. Grounds for removal of Contractor personnel specifically include (but is not limited to) the failure or refusal of such personnel to adhere to the Contractor's planned Construction Schedule as developed by the Contractor under Section 01 32 00.

39. AUDITS AND RECORDS:

The Contractor shall maintain all data and records pertinent to the Work performed under this Contract, in accordance with generally accepted accounting principles, and shall preserve and make available all data and records until the expiration of four (4) years from the date of final payment under this Contract, or for such longer period, if any, as is required by applicable statute or by other articles of this Contract. The authorized representatives of the County shall have access to all such data and records for such time period to inspect, audit, and make copies thereof during normal business hours. Contractor covenants and agrees that it shall require that any subcontractor utilized in the performance of this Contract shall permit the authorized representatives of the Los Angeles County Department of Public Works to similarly inspect and audit all data and records of said Subcontractors relating to the performance of said Subcontractors under this Contract for the same time period.

40. WARRANTY AND CORRECTIONS TO WORK:

A. In addition to any other warranties in the Contract Documents, the Contractor warrants that Work performed under this Contract conforms to the Contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any Subcontractor or supplier at any tier.

B. Corrections to the Work may be required during construction or any applicable warranty period. At the County's option, the cost of such corrections may be withheld from progress payments.

C. This warranty shall continue for a period of one (1) year from the date of Substantial Completion of the Work. If the County takes occupancy of any part of the Work before Substantial Completion, a warranty covering that specific portion of the Work shall begin for a period of one year from the date the County takes beneficial occupancy. The County will notify the Contractor in writing of the scope of any partial occupancy and the specific items under warranty.

D. The Contractor shall remedy at the Contractor's expense any failure to conform to the requirements of the Contract Documents or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to County-owned or controlled real or personal property, when that damage is the result of:

1. The Contractor's failure to conform to or comply with Contract requirements; or

2. Any defect of Contractor-furnished equipment, material, workmanship, or design.

E. The Contractor shall restore any Work damaged in fulfilling the terms and conditions of this Article. The Contractor's warranty with respect to Work repaired or replaced shall be extended for one (1) year from the date of repair or replacement.

F. The Director shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

G. If the Contractor fails to remedy any failure, defect, or damage within ten (10) working days (or immediately in the case of an emergency where delay would cause serious risk of loss or damage) after receipt of notice, the County shall have the right to remove, replace, repair, or otherwise remedy the failure, defect, or damage, and all direct and indirect costs of such removal, replacement, repair, and correction, including compensation for additional professional services, shall be paid by the Contractor.

H. With respect to all warranties, express or implied, from Subcontractors, manufacturers, or suppliers for Work performed and materials furnished under this contract, the Contractor shall:

1. Obtain all warranties that would be given in normal commercial practice;

2. Require all warranties to be executed, in writing, for the benefit of the County, if directed by the Director; and

3. Enforce all warranties for the benefit of the County, if directed by the Director.

I. In the event the Contractor's warranty has expired, the County may bring suit at County's expense to enforce a Subcontractor's, manufacturer's or supplier's warranty.

J. Unless a defect is caused by the Contractor or Subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the County, nor for the repair of any damage that results from any defect in County-furnished material or design.

K. This warranty shall not limit the County's rights under other articles of this Contract or as provided by law with respect to latent defects, gross mistakes, or fraud.

L. The terms of this Article do not relieve the Contractor of any legal liability for defects discovered after one year from the date of occupancy. The obligations imposed by this article shall survive termination of the Contract.

41. HAZARDOUS MATERIAL

A. Hazardous Material is any product, substance, chemical, crude oil (or any products, by-products, or fractions thereof), whose nature, quantity, and/or intensity of existence, use, manufacture, disposal, transportation, spill, release or effect, either by itself or in combination with other material or materials in, on or about the project site: (a) is or becomes potentially injurious to the public health, safety or welfare, environment, or the project site; (b) is or becomes regulated or monitored by any governmental authority; or (c) may, according to statutory or common law theory, such as nuisance (public or private), waste, trespass, negligence, strict liability, or tort, be a basis for liability in tort, or be a basis for liability to third parties.

B. Contractor shall notify the County when the Contractor has reason to suspect the presence of any Hazardous Material on the project site, whether or not such material was generated by Contractor or the County.

C. In the event the presence of hazardous material is suspected or discovered on the project site, the County shall retain an independent testing laboratory to determine the nature of the material encountered and whether corrective measures or remedial action is required.

D. Except as may be otherwise provided herein, the Contractor shall not be obligated to commence or continue Work in the affected area until any known or suspected hazardous material discovered on the project site has been removed, or rendered or determined to be harmless by the County, as certified by an independent testing laboratory and approved by the appropriate government agency.

E. In the event the presence of hazardous materials on the project site is not caused by the Contractor, the County shall pay for all costs of testing and remediation, if any, and shall compensate Contractor any additional costs incurred or project delay in accordance with the applicable provisions of changes in the work herein. In addition, the County shall defend indemnify and hold harmless the Contractor and its agents, officers, directors and employees from and against any and all claims, damages, losses, costs, and expenses incurred in connection with or arising out of relating to the performance of the Work in the area affected by the hazardous material.

F. In the event the presence of hazardous materials on the project site is caused by the Contractor, the Contractor shall pay for all costs of testing and remediation, if any, and shall compensate the County for any additional costs incurred as a result of Contractor's generation of hazardous material on the project site. In addition, the Contractor shall defend, indemnify, and hold harmless the County and its Special Districts and agents, officers, and employees from and against any and all claims, damages, losses, costs, and expenses incurred in connection with, or arising out of, or relating to, the presence of hazardous material on the project site.

G. The terms of this hazardous material provision shall survive the completion of the Work and/or any termination of this Contract.

42. CONTRACTOR SAFETY REQUIREMENTS:

In the performance of this Contract, the Contractor shall comply with all applicable federal, state, and local laws governing safety, health, and sanitation.

A. **Jobsite Safety:** The Contractor shall be solely responsible for ensuring that all work performed under the Contract is performed in strict compliance with all applicable Federal, State and local occupational safety regulations. The Contractor shall provide at its expense all safeguards, safety devices, and protective equipment, and shall take any and all actions appropriate to providing a safe jobsite.

B. **Project Safety Official:** The Contractor shall designate in writing a Project Safety Official who shall be at the jobsite at all times, and who shall be thoroughly familiar with the Contractor's Injury and Illness Prevention Program (IIPP) and Code of Safe Practices (CSP). The Project Safety Official shall be available at all times to abate any potential safety hazards and shall have the authority and responsibility to shut down an operation, if necessary. Failure by the Contractor to provide the required Project Safety Official shall be grounds for the County to direct the cessation of all work activities and operations at no cost to the County until such time as the Contract is in compliance.

C. **Safety Indemnification:** To the extent allowed by law, the Contractor agrees to defend, indemnify and hold harmless the County and its officers, employees, and agents from and against any and all investigations, complaints, citations, liability, expense (including defense costs and legal fees), claims and/or causes of action for damages of any nature whatsoever, including but not limited to injury or death to employees of the Contractor, its

subcontractors or County attributable to any alleged act or omission of the Contractor or its subcontractor which is in violation of any CAL/OSHA regulation. The obligation to defend, indemnify and hold harmless includes all investigations and proceedings associated with purported violations of Section 336.10 of Title 8 of the California Code of Regulations pertaining to multi-employer work sites. The County may deduct from any payment otherwise due the Contractor any costs incurred or anticipated to be incurred by the County, including legal fees and staff costs, associated with any investigation or enforcement proceeding brought by CAL/OSHA arising out of the Project.

43. INDEMNIFICATION:

A. Until the Work is completed and accepted by the awarding entity, the Contractor shall indemnify, defend, and hold harmless the County, its Special Districts, elected and appointed officials, officers, employees, agents, and trustees (the indemnified parties) from and against any and all liability, loss, injury, or damage including (but not limited to) demands, claims, actions, fees, costs and expenses (including attorney and expert witness fees) arising from or connected with the Contractor's acts and/or errors and omissions arising from and/or relating to the Project. This indemnification does not apply to liability caused by the active negligence of the County.

B. The Contractor shall assume all risks and bear all cost for loss of, damage to, or missing or stolen equipment, tools, vehicles, and materials owned, hired, leased, or used by the Contractor for this Project.

44. GENERAL INSURANCE REQUIREMENTS:

Without limiting the Contractor's indemnification, the Contractor shall provide and maintain, during the term of this Agreement, the insurance specified in this Agreement. Such insurance shall be primary to, and not contributing with, any insurance or self-insurance programs maintained by the County and such coverage shall be provided and maintained at the Contractor's own expense.

A. Evidence of Insurance: Certificate(s) or other evidence of coverage satisfactory to the County shall be delivered to the project contract administrator (as identified in the Invitation for Bids) at Los Angeles County Department of Public Works, Business Relations and Contracts Division, Contracts Administration Section, P.O. Box 1460, Alhambra, CA 91802-1460, prior to commencing services under this Agreement. Such certificate(s) or other evidence shall:

1. Specifically identify this Agreement, including the project name and specification number.

2. Clearly evidence all insurance required in this Agreement.

3. Contain the express condition that the County is to be given written notice by the issuing insurance company by mail at least 30 days in advance of cancellation for all policies evidenced on the certificate of insurance.

4. Include a copy of the additional insured endorsement to the commercial general liability policy, adding the indemnified parties (the County of Los Angeles and its Special Districts) as insureds for all activities arising from this Agreement.

5. Show the Contractor's insurance as primary to the County's insurance and self-insurance programs. This may be evidenced by adding the following statement to the additional insured endorsement, "It is further agreed that the insurance afforded by this policy is primary to any insurance or self-insurance programs maintained by the additional insureds, and the additional insureds insurance and self-insurance programs are excess and non-contributing to the named insureds insurance."

6. Confirm deductibles or self-insured retentions shall not exceed $25,000, and the deductibles/retentions apply on a "per occurrence" or "per loss" basis. The County retains the right to require the Contractor to provide a bond guaranteeing payment of all such retained losses and costs attributable to the Contractor's retention, or, withhold payment to Contractor in the amount of all or any deductibles/retentions as the County deems appropriate.

B. Insurer Financial Ratings: Insurance is to be provided by an insurance company authorized to do business in California and acceptable to the County, with an A.M. Best rating of not less than A:IX, unless otherwise approved by the County.

C. Waiver of Subrogation: The Contractor agrees to release the indemnified parties and waive its rights of recovery against the indemnified parties under the insurance policies specified in this Agreement.

D. Cancellation of or Changes in Insurance: Contractor shall provide County with, or Contractor's insurance policies shall contain a provision that County shall receive, written notice of cancellation or any change in Required

Insurance, including insurer, limits of coverage, term of coverage or policy period. The written notice shall be provided to County at least ten (10) days in advance of cancellation for non-payment of premium and thirty (30) days in advance for any other cancellation or policy change. Failure to provide written notice of cancellation or any change in Required Insurance may constitute a material breach of the Contract, in the sole discretion of the County, upon which the County may suspend or terminate this Contract.

E. Failure to Maintain Insurance: Contractor's failure to maintain or to provide acceptable evidence that it maintains the Required Insurance shall constitute a material breach of the Contract, upon which County immediately may withhold payments due to Contractor, and/or suspend or terminate this Contract. County, at its sole discretion, may obtain damages from Contractor resulting from said breach. Alternatively, the County may purchase the Required Insurance, and without further notice to Contractor, deduct the premium cost from sums due to Contractor or pursue Contractor reimbursement.

F. Sub-Contractor Insurance Coverage Requirements: Contractor shall include all Sub-Contractors as insureds under Contractor's own policies, or shall provide County with each Sub-Contractor's separate evidence of insurance coverage. Contractor shall be responsible for verifying each Sub-Contractor complies with the Required Insurance provisions herein, and shall require that each Sub-Contractor name the County and Contractor as additional insureds on the Sub-Contractor's General Liability policy. Contractor shall obtain County's prior review and approval of any Sub-Contractor request for modification of the Required Insurance.

45. INSURANCE COVERAGE REQUIREMENTS--TYPES AND LIMITS:

The County’s insurance requirements specify that Contractors should obtain coverage from insurance companies acceptable to the County who have a current A.M. Best rating of not less than A:IX. A Best rating of A:IX indicates that the company evidences strong financial strength and ability to meet their ongoing financial obligations to policyholders.

A. Builders Risk Course of Construction Insurance: Such coverage shall:

1. Insure against damage from perils covered by the Causes-of-Loss Special Form (ISO form CP 10 30), and be endorsed to include earthquake, flood, ordinance or law coverage, coverage for temporary offsite storage, debris removal, pollutant cleanup and removal, testing, preservation of property, excavation costs, landscaping, shrubs and plants and full collapse coverage during construction (without restricting collapse coverage to specified perils).

2. If Contractor's work involves testing air conditioning systems, boilers, pressure vessels, major machinery or major electrical panels, policy shall include coverage for such testing.

3. Be written on a completed-value basis and cover the entire value of the construction Project, including County-furnished materials and equipment, against loss or damage until completion and acceptance by the County. See Supplementary Conditions, Section 00 08 00, Article 7, Insurance Coverage Requirements—Types and Limits, for additional information regarding replacement value of County-furnished materials and equipment.

B. General Liability Insurance: Such coverage shall be written on ISO policy form CG 00 01 or its equivalent. See Supplementary Conditions, Section 00 08 00, Article 7, Insurance Coverage Requirements—Types and Limits, for additional information regarding limits, occurrence, policy aggregate, and products/completed operations aggregate.

C. Automobile Liability Insurance: Such coverage shall be written on ISO form CA 00 01 or its equivalent. Such insurance shall include coverage for all "owned," "hired," and "non-owned" automobiles, or coverage for "any auto." See Supplementary Conditions, Section 00 08 00, Article 7, Insurance Coverage Requirements—Types and Limits, for additional information regarding liability limits.

D. Workers Compensation and Employers Liability Insurance: Such coverage shall provide workers compensation benefits, as required by the Labor Code of the State of California. Such policy shall be endorsed to waive subrogation against the County for injury to the Contractor's employees. If the Contractor's employees will be engaged in maritime employment, the coverage shall provide the benefits required by the U.S. Longshore and Harbor Workers Compensation Act, Jones Act, or any other Federal law to which the Contractor is subject.

1. In all cases, the above insurance shall include Employers Liability coverage with limits not less than:

a.	Each accident:	$1 million
b.	Disease – policy limit:	$1 million
c.	Disease – each employee:	$1 million

E. Performance Security Requirements:

Prior to execution of the Contract, the Contractor shall file surety bonds with the County in the amounts and for the purposes noted below, and on bond forms provided by the County. All bonds issued in compliance with the Contract shall be duly executed by a solvent surety company that is authorized by the State of California, is listed in the U.S. Department of Treasury's Listing of Approved Sureties (Annual Circular 570) and is satisfactory to the County, and it shall pay all premiums and costs thereof and incidental thereto (see http://www.fms.treas.gov/c570/).

1. Materials and Labor Bond (Payment Bond): Shall be in the sum of not less than 100% of the Contract price to assure the payment of claims of material men supplying materials to the Contractor, subcontractors, mechanics, and laborers employed by the Contractor on the Work. This bond shall be so conditioned as to inure to the benefit of persons furnishing materials for or performing labor upon the Work. This bond shall be maintained by the Contractor in full force and effect until the Work is completed and accepted by the County, and until all claims for materials, labor, and subcontracts are paid.

2. Bond for Faithful Performance: Shall be in the sum of not less than 100% of the Contract price to assure the faithful performance of the Contract. This bond shall be so conditioned as to assure the faithful performance by the Contractor of all Work under said Contract, within the time limits prescribed, including any maintenance and warranty provisions, in a manner that is satisfactory and acceptable to the County, that all materials and workmanship supplied by the Contractor will be free from original or developed defects, and that should original or developed defects or failures appear within a period of one year from the date of acceptance of the Work by the County, the Contractor shall, at Contractor's own expense, make good such defects and failures and make all replacements and adjustments required, within a reasonable time after being notified by the County to do so, and to the approval of the Department of Public Works. This bond shall be maintained by the Contractor in full force and effect during the performance of the Work of the Contract and for a period of one year after acceptance of the Work by the County.

Each bond shall be signed by both the Contractor (as Principal) and the surety.

Should any surety or sureties upon said bonds or any of them become insufficient or be deemed unsatisfactory by the County, the Contractor shall

replace said bond or bonds with good and sufficient sureties within ten days after receiving notice from the County that the surety or sureties are insufficient or unsatisfactory. Should any surety or sureties be deemed insufficient or unsatisfactory, no payment(s) shall be deemed due or will be made under this Contract until the new sureties shall qualify and be accepted by the County.

46. Not used.

47. Not used.

48. ASSIGNMENT:

A. The Contractor shall not assign this Contract without the consent of the County. The Contractor shall be bound by and comply with all applicable provisions of the Labor Code of the State of California and shall keep informed of and observe and comply with and cause all of Contractor's agents and employees to observe and comply with all federal, state, and local laws which in any way affect the conduct of the Work of this Contract.

B. Work performed on County-owned property, irrespective of political subdivision location, shall be governed by the County Building Laws, and Work performed outside the property lines of County-owned property shall be governed by the local laws of the County, city, or other municipal government having jurisdiction.

49. PATENTS:

In the event that any patented article, material, or process is to be installed or used in the performance of the Work as shown on the drawings or particular specifications therefore, the Contractor shall pay the royalty chargeable and shall save, keep, and bear the County harmless from all damage, costs, and expenses by reason of any infringement of the patent therefor, or by reason of the failure to pay the royalty chargeable for use thereof, and any loss to the County or the awarding entity in the event that the County is enjoined from using such patented article or material and the incidental damage caused by the loss of use and damage to County property or awarding entity in removing same, and cost of replacing the article or material the use of which is enjoined. Provided further the Bond for Faithful Performance shall be deemed to expressly apply to this provision of the specifications.

50. SUSPENSION AND/OR TERMINATION OF WORK AND/OR CONTRACT:

A. Suspension of Work

1. The Director may order the Contractor in writing to suspend, delay or interrupt all or any part of the Work for such period of time as he may determine to be appropriate for the convenience of the County.

2. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize incurring costs allocable to the Work covered by the order during the period of Work stoppage.

3. If the performance of all or any part of the Work is, for an unreasonable period of time, suspended, delayed, or interrupted by (a) an act of the County in the administration of this Contract, or (b) by the County's failure to act within the time specified in this Contract (or, if no time is specified, within a reasonable time), an adjustment shall be made for any increase in cost of performance of this Contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption, and the Contract modified in writing accordingly. However, no adjustment shall be made under this Article for any suspension, delay, or interruption to the extent (a) that performance would have been suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or (b) for which an adjustment is provided for or excluded under any other provision of this Contract.

4. No claim under this paragraph shall be allowed (a) for any costs incurred more than fourteen (14) calendar days before the Contractor shall have notified the County in writing of the act or failure to act involved, (but this requirement shall not apply as to a claim resulting from a suspension order), and (b) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension, delay, or interruption, but not later than the date of final payment. No part of any claim based on the provisions of this clause shall be allowed if not supported by adequate evidence showing that the cost would not have been incurred but for a delay within the provisions of this Article.

B. Termination for Convenience

1. The Director may, whenever the interests of the County so require, terminate this Contract, in whole or in part, for the convenience of the County. The County shall give written notice of the termination to the

Contractor specifying the part of the Contract terminated and the date termination becomes effective.

a. The Contractor shall incur no further obligations in connection with the terminated Work, and, on the date set in the notice of termination, the Contractor shall stop Work to the extent specified. The Contractor shall also terminate outstanding orders and subcontracts as they relate to the terminated Work. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders connected with the terminated Work. The County may direct the Contractor to assign the Contractor's right, title, and interest under the terminated orders or subcontracts to the County. The Contractor must still complete the Work not terminated by the notice of termination and may incur obligations as are necessary to do so.

b. The County may require the Contractor to transfer title and deliver to the County in the manner and to the extent directed by the County: (a) the fabricated or unfabricated parts, Work in process, completed Work, supplies, and other material produced or acquired for the Work terminated; and (b) the completed or partially completed plans, drawings, information, and other property that, if the Contract had been completed, would be required to be furnished to the County. The Contractor shall, upon direction of the County, protect and preserve property in the possession of the Contractor in which the County has an interest. If the County does not exercise this right, the Contractor shall use its best efforts to sell such supplies and manufacturing materials for the benefit of the County.

c. If the parties are unable to agree on the amount of a termination settlement, the County shall pay the Contractor the following amounts:

    1. For Contract Work performed before the effective date of termination, the total (without duplication of any items) of:

        (a) The percentage of the Contract price which equals the percentage (%) of Work completed in accordance with the schedule of values, less

prior progress payments, and any applicable Liquidated Damages. The amounts of outstanding Stop Notices shall be withheld until the Stop Notices are resolved as provided by law.

(b) The cost of settling and paying terminated subcontracts and orders that are properly chargeable to the terminated portion of the Work;

2. The reasonable costs of effectuating the settlement of the Work terminated, including:

(a) Accounting, clerical, and other expenses reasonably necessary for the preparation of termination settlement bids and supporting data;

(b) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(c) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

C. Termination for Default

1. If the Contractor refuses or fails (a) to commence the Work within the time required by this Contract, (b) to prosecute the Work or any separable part with the diligence that will ensure completion within the time specified in this Contract, including any authorized extension, (c) to provide sufficient and properly skilled workers or proper materials or equipment to complete the Work in an acceptable manner and without delay, (d) to promptly pay its subcontractors, laborers, and materialmen, (e) to perform any of Contractor's other obligations under this Contract, or (f) to complete the Work within the time specified in this Contract ("events of default"), the County may, by written notice to the Contractor, terminate the right to proceed with the Work (or the separable part of the Work). In this event, the County may take over the Work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the site necessary for completing the Work. The Contractor and Contractor's sureties shall be liable for any damage to the County

resulting from events of the default, whether or not the Contractor's right to proceed with the Work is terminated. This liability includes any increased costs incurred by the County in completing the Work.

2. The Contractor's right to proceed shall not be terminated because of delays, nor will the Contractor be charged with damages under this article, if:

   a. The delay in completing the Work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor (examples of such causes include: (i) acts of God, (ii) acts of the public enemy, (iii) acts of the County in either its public or contractual capacity, (iv) acts of another Contractor in the performance of a contract with the County, (v) fires, (vi) floods, (vii) epidemics, (viii) quarantine restrictions, (ix) strikes, (x) freight embargoes, (xi) unusually severe weather, or (xii) delays of Subcontractors or Suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the Subcontractors or Suppliers); and,

   b. The Contractor, within fourteen (14) calendar days from the beginning of any delay (unless extended by the County), notifies the County in writing of the causes of the delay in accordance with Specification Section 001310, Construction Schedule. The County shall ascertain the facts and the extent of the delay. If, in the judgment of the County, the findings warrant such action, the time for completing the Work shall be extended by Change Order. The findings of the County will be final and conclusive on the parties.

3. If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the County.

4. The rights and remedies of the County in this article are in addition to any other rights and remedies provided by law or under this Contract. Time is of the essence for all delivery, performance, submittal, and completion dates in this Contract.

D. Termination for Improper Consideration

1. County may, by written notice to Contractor, immediately terminate the right of Contractor to proceed under this Contract if it is found that consideration, in any form, was offered or given by Contractor, either directly or through an intermediary, to any County officer, employee, or agent with the intent of securing the Contract or securing favorable treatment with respect to the award, amendment, or extension of the Contract or the making of any determinations with respect to the Contractor's performance pursuant to the Contract. In the event of such termination, County shall be entitled to pursue the same remedies against Contractor as it could pursue in the event of default by the Contractor.

2. Contractor shall immediately report any attempt by a County officer or employee to solicit such improper consideration. The report shall be made either to the County manager charged with the supervision of the employee or to the County Auditor-Controller's Employee Fraud Hotline at (213) 974-0914 or (800) 544-6861.

3. Among other items, such improper consideration may take the form of cash, discounts, services, the provision of travel or entertainment, or tangible gifts.

E. Notice of suspension or termination for any reason shall be given in writing and shall be complete one day after deposit in the United States mail in a sealed envelope with postage prepaid and directed to the Contractor at Contractor's address as filed with the County, or upon personal delivery to any person whose actual knowledge of such suspension or termination would be sufficient notice to the Contractor. Actual knowledge of such suspension or termination by an individual Contractor or by a copartner, if the Contractor be a partnership or by the president, vice-president, secretary or general manager, if the Contractor be a corporation, or by the managing agent regularly in charge of the Work on behalf of said Contractor, shall in any case be sufficient notice.

51. CONTRACTOR'S WARRANTY OF ADHERENCE TO COUNTY'S CHILD SUPPORT COMPLIANCE PROGRAM:

A. Contractor acknowledges that County has established a goal of ensuring that all individuals who benefit financially from County through Contract are in compliance with their court-ordered child, family, and spousal support obligations in order to mitigate the economic burden otherwise imposed upon County and its taxpayers.

B. As required by County's Child Support Compliance Program (County Code Chapter 2.200) and without limiting Contractor's duty under this Contract to comply with all applicable provisions of law, Contractor warrants that it is now in compliance and shall, during the term of this Contract, maintain compliance with employment and wage reporting requirements as required by the Federal Social Security Act (42 USC Section 653a) and California Unemployment Insurance Code Section 1088.5, and shall implement all lawfully serviced Wage and Earnings Withholding Orders or District Attorney Notices of Wage and Earnings Assignment for Child or Spousal Support, pursuant to Code of Civil Procedure Section 706.031 and Family Code Section 5246(b).

C. Failure of Contractor to maintain compliance with these requirements shall constitute a default by Contractor under this Contract. Without limiting the rights and remedies available to County under any other provision of this Contract, failure to cure such default within ninety (90) days of notice by the Los Angeles County District Attorney shall be grounds upon which the County Board of Supervisors may terminate this Contract.

52. CONTRACTOR'S ACKNOWLEDGMENT OF COUNTY'S COMMITMENT TO CHILD SUPPORT ENFORCEMENT:

Contractor acknowledges that County places a high priority on the enforcement of child support laws and the apprehension of child support evaders. Contractor understands that it is County's policy to encourage all County Contractors to voluntarily post County's L.A.'s Most Wanted: Delinquent Parents poster in a prominent position at Contractor's place of business. County's District Attorney will supply Contractor with the poster to be used.

53. LIMITATION OF LIABILITY:

A. This project may be awarded by or the Contract may be assigned to a joint powers authority or a nonprofit corporation established by the awarding entity. Bonds, certificates of participation, or other evidences of indebtedness will be issued by a joint powers authority or nonprofit corporation or the awarding entity or the County, for the purpose of constructing the Work contemplated by these Drawings and Specifications. The proceeds of said sale shall be the sole source of funds for payment of all Work to be done and all claims of any kind that may be made under the provisions of this Contract. Neither the awarding entity, nor (if different) the issuing entity, nor any individual parties thereto, nor the County, nor the County's agents and Special Districts, shall have any liability whatsoever to

the Contractor or others arising out of, or in any way connected with, Work to be performed hereunder, save and except as such liability may be paid and discharged out of said proceeds, and except as specifically provided for in these specifications. Contractor shall look solely to said proceeds for payment of Work to be done or any claims whatsoever that may be asserted hereunder. Contractor expressly releases and discharges the awarding entity, the issuing entity, and the County and each of them from any and all liability, cost, or expenses save and except such liability, cost, and expense as may be paid for out of said proceeds.

B. The issuing entity will adopt a policy to sell and issue bonds, certificates of participation, or other evidences of indebtedness at such times and in sufficient amounts to ensure that funds are provided for the prompt payment, as installments become due, for Work performed hereunder.

54. FORUM SELECTION:

Contractor hereby agrees to submit to the jurisdiction of the courts of the State of California. The exclusive venue of any action brought by Contractor, on Contractor's behalf or on the behalf of any Subcontractor, which arises from this agreement or is concerning or connected with services performed pursuant to this agreement, shall be deemed to be in the courts of the State of California located in Los Angeles County, California.

55. WAIVER:

The waiver by the County of any term, covenant, or condition herein contained shall not be deemed to be a waiver of such term, covenant, or condition on any subsequent breach of the same or any other term, covenant, or condition herein contained.

56. PRIOR AGREEMENTS:

This Contract contains all of the agreements of the parties hereto with respect to any matter covered or mentioned in this agreement and no prior agreements or understanding pertaining to any such matter shall be effective for any purpose. No provision of this Contract may be amended or added to except by an agreement in writing signed by the parties hereto or their respective successor-in-interest.

57. PROGRESS PAYMENTS:

In accordance with Public Contract Code Section 20104.50, the County shall make progress payments within thirty (30) days after receipt of an undisputed and properly

submitted payment request from a Contractor on a construction contract. Interest shall be paid to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure if the County fails to make payment within the thirty (30) days. If the payment request is determined not to be a proper payment request suitable for payment, it shall be returned to the Contractor as soon as practicable, but not later than seven (7) days after receipt accompanied by a document setting forth in writing the reasons why the payment request is not proper. The Contractor will prepare and submit progress payments as directed by the County Project Manager.

58. ACCEPTANCE OF FINAL PAYMENT AS RELEASE:

The acceptance by the Contractor of the final payment shall be and shall operate as a release to the County and the awarding entity of all claims and all liability to the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the County, awarding entity, and others relating to or arising out of this Work. No payment, however final or otherwise, shall operate to release the Contractor or his sureties from any obligation under this contract or the Performance and Payment Bond.

59. SUBSTITUTION OF SECURITIES FOR RETENTION:

In accordance with Public Contracts Code Section 22300 et seq., the Contractor may substitute securities for retention monies to be withheld to ensure performance under this Contract. At the request and expense of the Contractor, securities equivalent to the amount withheld may be deposited with the County, or with an approved State or Federally chartered bank as the escrow agent. The County will then pay such retention moneys to the Contractor. It is the Contractor's obligation to secure the services of a state or federally chartered bank to act as escrow agent. Securities eligible for investment include those listed in Government Code Section 16430 or bank or savings and loan certificates of deposit. The Contractor shall be the beneficial owner of any securities substituted for retention monies withheld and shall receive any interest earned by the securities. The standard form of the County's Escrow Agreement is on file at the Business Relations and Contracts Division of the Department of Public Works. The terms of that Agreement are incorporated by reference.

60. RESOLUTION OF CONSTRUCTION CLAIMS:

The provision of Public Contract Code 20104 et seq. relating to the resolution of construction claims of three hundred seventy-five thousand dollars ($375,000) or

less which arise between a Contractor and a local agency are hereby incorporated in this Contract.

61. CONFLICT OF INTEREST:

No County employee whose position in County enables him to influence the award of this agreement or any competing agreement, and no spouse or economic dependent of such employee, shall be employed in any capacity by Contractor herein, or have any other direct or indirect financial interest in this Agreement.

62. ANTI-TRUST CLAIMS:

In entering into a public works Contract or a Subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or Subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the 44 Cartwright Act (Chapter 2, commencing with Section 16700, of Part 2, Division 7, of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works Contract or Subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

63. COUNTY'S QUALITY ASSURANCE PLAN:

The County or its agent will evaluate Contractor's performance under this agreement on not less than an annual basis. Such evaluation will include assessing Contractor’s compliance with all contract terms and performance standards. Contractor deficiencies which County determines are severe or continuing, and that may place performance of the agreement in jeopardy if not corrected, will be reported to the Board of Supervisors. The report will include improvement/corrective action measures taken by the County and Contractor. If improvement does not occur consistent with the corrective action measures, County may terminate this agreement or impose other penalties as specified in this agreement.

64. LAWS, CODES AND REGULATIONS TO BE OBSERVED:

A. The Contractor shall become familiar and comply with all Federal, State, County and City laws, ordinances or regulations controlling the action or operation of those engaged in the work, or affecting materials used, and operate in accordance therewith.

B. In accordance with this requirement, it has not been considered necessary to enumerate all wiring, plumbing and other requirements covered by the codes. The Contractor, in making a bid, agrees that the requirements of such ordinances will be as carefully adhered to as if they were specifically set forth in the specifications.

C. The Contractor shall hold harmless the County and all of its officers, agents and servants against any claims or liability arising from, or based upon the violation of such laws, by-laws, ordinances, regulations, orders or decrees, whether by the Contractor or the Contractor's employees, except where the instance of violation is done in accordance with the specifications.

D. Work performed on County-owned property, irrespective of political subdivision location, shall be governed by the County Building Laws; and work performed outside the property lines of County-owned property shall be governed by the local laws of the County, City, or other municipal government having jurisdiction.

* * *

(00700.REV 5/2008)

SECTION 00 08 00

SUPPLEMENTARY CONDITIONS

1. DEFINITIONS:

Whenever the following words appear in the Contract Documents, they will be construed to have the following meanings:

a. "County" means the County of Los Angeles.

b. "Awarding Entity/County" means either the County; the County, as agent for such joint powers authority or nonprofit corporation as may be involved in the issuance of bonds, certificates of participation or other evidences of indebtedness to finance the work contemplated herein; or said joint powers authority or nonprofit corporation.

c. "Board of Supervisors" means the Board of Supervisors, County of Los Angeles, California.

d. "Department" means the Department of Public Works.

e. "Owner" means the County of Los Angeles, represented by the Department of Public Works.

f. "Director" means the Director of the Department of Public Works or his authorized representative.

g. "Architect" means JTC Architects, or their authorized representative.

h. "Project Manual" means the manual prepared for the project, consisting of the Bid and Contract Requirements, Conditions of the Contract, and Technical Specifications.

I. "Contract" means the agreement which has been executed by the Contractor and the County.

j. "Contract Documents" means those documents identified in Paragraph 5 of the General Conditions.

k. "Contractor" means the Prime Contractor awarded the Contract by the Board of Supervisors.

l. "Award of Contract" means the date the Board of Supervisors awards the construction Contract to the Contractor.

m. "Notice to Proceed" means the date the Director authorizes the Contractor to proceed with the Contract work.

n. "Acceptance of the Project" means Los Angeles County Board of Supervisors or Director's acceptance of the work.

o. "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The work may constitute the whole or a part of the project.

p. "The Project" is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include Work by the County or others.

q. "Substantial Completion" means the Date of Substantial Completion of the Work, or designated portion thereof as set forth in the Contract Documents, certified by the County when construction is sufficiently complete, in accordance with the Contract Documents, so the County may occupy or use the Work, or designated portion thereof, for the use for which it is intended.

r. "Disputes Review Panel" reviews all matters related to disputes over the interpretation of the Drawings and Specifications.

s. "Notice to Bidders" means any written modification to the Contract Documents issued prior to the bid date.

t. "Day" means calendar day unless otherwise specified.

u. "Drawings" means the graphical and pictorial portions of the 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.

v. "Specifications" means that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the work, and performance of related services.

w. "Inspection Notice": A sequentially numbered written notice issued to the Contractor for the purpose of, but not limited to, the following:

1) Define items/installations that deviate from the Contract Documents and which payment may be withheld.

2) Alert as to problem areas prior to issuing Noncompliance.

3) Void previously issued Inspection or Noncompliance Notice when corrections have been made.

4) Give notice of approval.

5) Provide general project information.

6) Define delinquent submittals.

7) Advise Contractor of not complying with safety requirements.

x. "Noncompliance Notice": A sequentially numbered written notice issued to the Contractor that defines materials, installations, and/or situations that do not comply with codes or the Contract Documents and which payment cannot be made. The statement "remove and replace" will be included when required.

2. PAYMENTS:

Payments on account of the Work comprising the original Contract shall be made upon demand of the Contractor as follows:

a. A working day of the month shall be selected by the County and the Contractor, which day shall remain constant throughout the life of the project, and vary only as needed to fall on a working day. A payment request equal to ninety-five percent (95%) of the labor performed and material actually installed in the work during the previous thirty (30) days or since the last payment request shall be submitted by the Contractor and presented to the County for payment.

b. A payment request for the 5% withheld from the monthly progress payments shall be submitted by the Contractor to the County upon completion and acceptance by the County of all the work called for under the original Contract.

c. In the event of payment on account of additional work for a Change Order, supplemental agreement, or unit price authorization, the retention shall be as stipulated by the original Contract.

d. When progress payments are to be made, no payment on account of the work and at any time while there is work in progress, will be considered an acknowledgment that any or certain portions of the work have been done in accordance with the Drawings and Specifications. Should there be any balance due the Contractor at the time of the acceptance of the work such balance shall be paid upon said acceptance.

e. All demands for payment shall be itemized and rendered in six (6) copies by the Contractor and shall be certified by the Director when found by him to be correct. Payment will be made to the Contractor within thirty (30) days after the approval by the Director.

f. Cost of bonds or liability insurance shall not be included as an item in the demands for monthly progress payments. In the compilation of demands for progress payments, neither stipulated nor bid unit prices for deductions shall be used as the basis for computing prices for the work completed.

g. When the Contractor has requested payments that would bring his total payment to fifty percent (50%) of the Contract, all subcontractors and material suppliers on record with the Contract Administrator will be notified by U. S. Mail regarding the status of such payment.

Subcontractors and material suppliers of record will be advised to refer to their rights under the Civil Code relating to the "Stop Notices" and other means or methods of securing payment for their work or materials.

3. PAYMENT FOR STORED MATERIAL:

The Department, at its discretion, may authorize "Progress Payments" at the invoiced price, minus retention specified under "Payments", for:

a. Material and equipment delivered to the site but not incorporated in the Work.

b. Material and equipment delivered and stored off the site in a bonded warehouse or other location within Los Angeles County, which warehouse or other location is satisfactory to and has been approved by the Department.

c. The provisions allowing prepayment for materials will be applied to large items of equipment and construction materials of special manufacture or order for the job, such as:

1. Electrical switchgear, generators, and transformers over 15 KVA.

2. Mechanical items including air handlers over 15 horsepower, boilers, chillers, and fabricated ductwork.

3. Reinforcing steel and structural steel when fabricated to job requirements.

4. Carpeting, floor tile or ceiling tiles.

5. Electrical fixtures (less lamps) and light standards.

6. Door and security hardware.

7. Window wall assemblies.

8. Precast concrete members such as wall panels, "tees" or girders.

Contractor must furnish with his Request for Payment acceptable evidence showing such material and/or equipment has been paid for in full, together with a verified statement that same is/are free from all liens and encumbrances and will be utilized in the Work covered by this Contract and a material list sufficient for physical inventory at the storage location. All shop drawings and material submittals must be approved prior to authorizing payments.

All storage, handling and rehandling costs, insurance and responsibility for protection and proper installation of such material and equipment, is the obligation of the Contractor. No payment, pursuant to this provision for material or equipment, shall in any way relieve the Contractor of its responsibility to obtain or provide, at its expense, any such material or equipment, or release the Contractor from any of its obligations under this Contract.

Department may enter upon the premises where the material and/or equipment is stored for inspection, checking, or any other purpose it deems necessary. The Contractor will be reimbursed for any Los Angeles County taxes levied against such material or equipment while so stored, upon presentation of a receipted tax bill for same.

4. EQUIPMENT LAYOUT DRAWINGS:

When any section of the specifications requires the submittal of an "Equipment Layout Drawing", the Contractor shall coordinate all work under various sections of the Specifications to assure that no interferences occur in the rooms or areas for which such drawings have been required and that necessary clearances are provided.

Installation of affected equipment shall not proceed until required drawings have been approved by the Department.

5. AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS:

The following forms and reports are required to be completed by the Contractor and/or Subcontractors according to the instructions furnished for each and at the time shown below for each:

a. Within ten (10) working days of subcontract award:

- Contractor's Notification of Subcontracts Awarded

b. Prior to commencement of work:

- Notice of EEO Commitment

c. During the construction period:

- Monthly Employment Utilization Report (form CC257)

6. SURVEY OPERATIONS:

The Contractor shall be responsible for all survey and layout operations and shall be responsible for the following:

a. Locate elevations of all improvements, establish control points and bench marks adequate for the use of all trades so that all parts of the work are within the specified and indicated tolerances.

b. As the work proceeds, verify all grades, lines, and dimensions indicated on the drawings, and report errors and inconsistencies to the Architect in writing. Do not proceed until errors and inconsistencies are corrected.

c. Maintain staking as required by construction progress and maintain construction progress and maintain control points and benchmarks until final completion of the project.

7. INSURANCE COVERAGE REQUIREMENTS—TYPES AND LIMITS:

A. Installation Floater: Such coverage is required for this Project and shall supercede Section 00 07 00, Builder's Risk Course of Construction Insurance, Article __45___, and shall:

1. Insure against damage from perils covered by the Causes-of-Loss Special Form (ISO form CP 10 30), and the perils of earthquake, flood, risk of transit loss, loss during storage (both onsite and offsite), and collapse during construction (without restricting collapse coverage to specified perils). If Project involves testing air conditioning systems, boilers, pressure vessels, major machinery or major electrical panels, policy shall include coverage for such testing.

2. Cover all property to be installed (including labor) for the full Contract value (without coinsurance) against loss or damage until completion and acceptance by the County.

3. Such coverage shall be equal to the total Contract cost.

B. General Liability Insurance:

Minimum coverage requirements shall provide limits of not less than $1,000,000 per occurrence, $2,000,000 policy aggregate, and $2,000,000 products/completed operations aggregate.

C. Automobile Liability Insurance:

Minimum coverage requirements shall provide a limit of liability not less than $1,000,000 per accident.

D. Workers Compensation and Employers Liability Insurance: Such coverage shall provide workers compensation benefits, as required by the Labor Code of the State of California. Such policy shall be endorsed to waive subrogation against the County for injury to the Contractor's employees. If the Contractor's employees will be engaged in maritime employment, the coverage shall provide the benefits required by the U.S. Longshore and Harbor Workers

Compensation Act, Jones Act, or any other Federal law to which the Contractor is subject.

1. In all cases, the above insurance shall include Employers Liability coverage with limits not less than:

i.	Each accident:	$1 million
ii.	Disease – policy limit:	$1 million
iii.	Disease – each employee:	$1 million

8. CERTIFICATE OF INSURANCE:

a. Refer to General Conditions, Articles 43, 44, and 45, regarding insurance.

b. Certificate of Insurance shall include the following statement:

"It is further understood and agreed that these insurance policies comply with the Contract requirements of this project."

c. The cancellation clause shall be modified to read as follows:

"Should any of the above-described policies be canceled before the expiration date thereof, the issuing company will mail 30 days written notice to the below-named certificate holder.

d. The Certificate of Insurance shall clearly state that the County of Los Angeles and its Special Districts are named as Additional Insured.

e. Include the name of the project and specification number on all insurance certificates.

9. CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT:

The Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act of 1970 (42 U.S.C. 1857 et seq.) and the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) as amended. Violations shall be reported to the County and the Regional Office of the Environmental Protection Agency.

10. LOBBYING OF COUNTY OFFICIALS:

Contractor and each County lobbyist or County lobbying firm as defined in Los Angeles County Code Section 2.160.010, retained by Contractor, shall fully comply with the County Lobbyist Ordinance, Los Angeles County Code Chapter 2.160. Failure on the part of Contractor or any County lobbyist or County lobbying firm retained by Contractor to fully comply with the County Lobbyist Ordinance shall constitute a material breach of this Contract upon which County may immediately terminate or suspend this Contract.

11. CORRESPONDENCE:

All correspondence shall be addressed to the County of Los Angeles, Department of Public Works, P.O. Box 1460, Alhambra, California 91802-1460, Attention: Project Management Division. This address shall be included in all contracts with subcontractors and suppliers.

12. EMPLOYMENT OF LAID-OFF COUNTY EMPLOYEES - SKILLED TRADES AND OTHERS:

a. Should Contractor, or any Subcontractor performing more than $250,000 of the Contract value, require additional or replacement personnel to perform services under this Contract, other than the performance of a skilled trade, Contractor shall give first consideration for such employment openings to qualified former County employees who are on a re-employment list.

b. Should Contractor, or any Subcontractor performing more than $250,000 of the Contract value, require additional or replacement personnel to perform a skilled trade not covered by an existing union hiring agreement under this Contract, Contractor is encouraged to consider for such employment openings qualified County employees who are targeted for layoff or qualified former County employees who are on a re-employment list. In no event shall the County be liable for any cost, delay, or impact claims arising out of efforts to hire such present and former County employees.

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SECTION 01 00 00

PROJECT GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope of the Contract (1.02)
B. Permanent Utility Services (1.03)
C. Work not Included (1.04)
D. Drawings (1.05)
E. Time of Completion (1.06)
F. Long Lead Time Materials and Equipment (1.07)
G. Liquidated Damages (1.08)
H. Examination of Site and Work (1.09)
I. Cooperation (1.10)
J. Restrictions to the Work (1.11)
K. Cutting and Patching (1.12)
L. Air Quality Management District Rules (1.13)
M. Shop Drawings (1.14)
N. Cleaning (1.15)
O. Existing Utility Lines (1.16)
P. Protective Measures (1.17)
Q. Project Administration (1.18)
R. Best Management Practices (BMP) Requirements (1.19)
S. Work In Progress Under Other Contracts (1.20)

1.02 SCOPE OF THE CONTRACT

A. Work to be done under the Contract consists of furnishing all materials, all equipment, and performing the Work required by these Specifications and the Drawings hereinafter, described and necessary, to complete the construction of the Camp Glenn Rockey Security Upgrades Project.

B. The work includes but is not limited to the following: per plans and specifications demolition of existing drinking fountain, hazardous material abatement where applicable. Procure and install a new security booth, one camera post, a new speed bump at the driveway entry, upgrade path of travel up to the facility entrance. Slurry seal the parking lot area and re-stripe the existing parking, install parking signs. Procure and install a new backup generator with a 24-hour fuel tank at the pump house. Replace existing manual transmission switch with a new automatic transfer switch including an annunciator panel and all required ancillary components to provide an operable system.

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1.03 PERMANENT UTILITY SERVICES

The Work shall include all operations necessary to place required utility services in operating condition, including service lines from points of connection shown on Drawings, permanent meters, connections, and inspections. The work (when so scheduled) includes installation of telephone conduit, backboards, and terminal cabinets as shown, and cooperation with the serving utility company for the installation of other telephone equipment and cables. The County will arrange and pay for telephone switchboards, instruments, and cables.

All other expenses in connection with utility service installations shall be borne by the Contractor; however, upon receipt of certified cost statements, the County will reimburse Contractor for all charges made by serving companies in connection with permanent utility service installations.

Drawing notes and/or specification provisions of trade sections concerning utilities shall take precedence over the foregoing provisions.

1.04 WORK NOT INCLUDED

All items indicated on the Drawings as "N.I.C." (not in contract).

1.05 DRAWINGS

The Work shall conform to the Drawings entitled Camp Glenn Rockey Security Upgrades Project with sheet numbers and titles as listed on Sheet No. 1 of the Drawings.

1.06 TIME OF COMPLETION

A. The work to be performed under the contract shall be completed within 150 calendar days, beginning with the date stipulated in the written notice to proceed issued by the Director.

B. Failure to complete the work by the identified completion date will be subject to the Liquidated Damages identified in Paragraph 1.08.

C. Final Payment Request shall be submitted within twenty (20) days after completion of the contract work, including all punch list items and project closeout documents.

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1.07 LONG LEAD TIME MATERIALS AND EQUIPMENT

A. The Contractor shall make every effort to demand of his Subcontractors and suppliers, relative to long lead time items, that they order such items well in advance of the scheduled time of installation. Time extensions for late ordering of such materials will not be allowed.

1.08 LIQUIDATED DAMAGES

A. All time limits stated in the Contract Documents are of the essence of the Contract and should the Contractor fail to complete the work required to be done on or before the time of completion as set forth in these specifications, including any authorized extension of time, it is mutually understood and agreed by and between the awarding entity and the Contractor that the use by the public of the Contract Work will be correspondingly delayed, and that by reason thereof, the awarding entity and the public will necessarily suffer great damages; that such damages from the nature of the case will be extremely difficult and impractical to fix; and that the awarding entity and the Contractor have endeavored to fix the amount of said damages in advance as follows:

1. The sum of $750 a day for each day's delay in the completion of the work beyond the time limit stipulated in Paragraph 1.06.

B. It is further mutually understood and agreed by and between the awarding entity and the Contractor that the sum of liquidated damages set forth above will be additive to a total of $750 a day for each and every day's delay in the event that the time limits, as hereinbefore specified, are concurrently exceeded. Any authorized extensions of time will be added to the time limits stipulated.

C. The Extended Overhead Daily Rate is not applicable when it is determined that liquidated damages apply due to a Contractor's delay.

1.09 EXAMINATION OF SITE AND WORK

A. Bidders must examine the location, physical conditions, and surroundings of the proposed Work and judge for themselves the extent to which these factors will influence the performance of the Contract Work.

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B. The plans for the Work show conditions as they are supposed or believed by the Department to exist, but it is not intended, or to be inferred, that the conditions as shown thereon constitute a representation, express or implied by the County or its officers, that such conditions are actually existent, nor shall the Contractor be relieved of the liability under his Contract, nor the County, or any of its officers, be liable for any loss sustained by the Contractor as a result of any variance between conditions as shown on the plans or referred to in the Specifications and the actual conditions revealed during the progress of the Work.

C. The County will conduct a prebid conference and job walk of the project site on **February 19, 2025 at 10:00AM.**

1.10 COOPERATION

In the entrance and exit of all workers and in bringing in, storing, or removing of materials and the erection and maintenance of equipment and in the manner and time of prosecuting the work, the Contractor shall cooperate with those in authority on the premises to prevent the entrance of those whose presence is forbidden or undesirable, and he shall observe all rules and regulations in force on the premises and avoid undue interference with the convenience, sanitation, and routine of County departments occupying the premises.

- Plan and coordinate material and labor access to site by providing sufficient notice to the County at a minimum of 48 hours.

- Tool check at entry and exit including any break. Maintain a daily inventory of tools and materials stored at site.

- Coordinate Contractor’s schedule to minimize impacts to County daily operations.

1.11 RESTRICTIONS TO THE WORK

A. The Department reserves the right to determine which of the Contractor's operations are noise, dust, or dirt producing, or which disrupt utility service, or which constitute blocking of passageways, exits, entrances, etc., or which in any way constitute an interference in the proper function of the building.

B. Contractor shall maintain clear access to all protection equipment at all times, including access to fire hydrants.

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C. Control of Tools: During the progress of the work, all hand tools, including power driven hand tools, cables, ropes, and other implements shall be transported and retained, except when in use in an approved locked toolbox. Care shall be taken that no tool or equipment is left unguarded or left where it might be taken by an unauthorized person.

D. All work by the Contractor is subject to inspection at any time and without notice by the County.

E. The working hours are Monday through Friday between 7:00 a.m. to 4:00 p.m. unless otherwise specified by the County.

F. In addition to procuring all required permits and other requirements the contractor must obtain access permission from the Nature Center prior to mobilization for installation of generator and related construction activities.

G. The Contractor may be required to coordinate the generator installation and construction activities outside of nesting bird/roosting season for Red-tailed hawk (typically from March through July).

1.12 CUTTING AND PATCHING

The Contractor shall perform all cutting, patching, and finishing operations occasioned by the Work under the Contract, whether or not such operations are indicated on the Drawings or specifically mentioned in the various sections of the Specifications. All such operations shall be performed in the best practices of the various trades involved and to the satisfaction of the Department. All patching and finishing materials shall match existing adjacent surfaces in every respect, including design, type and quality of materials, finish, and color. Cutting, patching, and finishing shall include all such operations in existing areas required by the Work under the Contract.

1.13 AIR QUALITY MANAGEMENT DISTRICT RULES

The Contractor shall become familiar with requirements of the South Coast Air Quality Management District Rules 50, 66, 66.l, 66.2, 403, and 1113. The Contractor is responsible for conforming to and using materials which meet the requirements of the above-specified rules. The Contractor shall procure all SCAQMD permits required for the installation and operation of the generator.

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1.14 SHOP DRAWINGS

Furnish shop drawings as required in the various sections of the Specifications or as requested by the Department. Unless otherwise specified, submit one (1) digital copy of shop drawings to the Department for review. One (1) digital copy will be returned to Contractor marked "no exceptions noted" or "exceptions noted." If changes are required, one (1) copy of corrected shop drawings shall be delivered to the Department. Shop drawings shall be of sufficient size and scale to clearly show all details; shop drawings of millwork and cabinet work shall show molding full size. No materials shall be furnished or Work done on items requiring shop drawings prior to acceptance. Acceptance of shop drawings shall not relieve the Contractor from responsibility for deviations from the Contract Documents, nor from responsibility for errors or omissions of any sort in the shop drawings. Neither does such acceptance relieve the Contractor from his responsibility for the correct installation, or for the proper operation in service, of items requiring shop drawings.

1.15 CLEANING

During progress of Work and upon completion of each part of the Work as defined by the sections into which these Specifications are divided or as separated by the various trades involved in the Work, each area shall be cleaned of debris emanating from the Work. The Contractor shall remove excess materials, waste, rubbish, and debris, and his construction and installation equipment from the premises. Any dirt and stains caused by the Work under the Contract shall be removed from the surfaces of the structures and from equipment and fixtures. Final acceptance of the Work done under these Specifications will not be given until the cleaning has been inspected and approved by the Department.

1.16 EXISTING UTILITY LINES

Except as indicated on the Drawings or in the Specifications, the Contractor will not be liable for the rerouting of existing active underground lines, which may be discovered during the progress of the Work.

1.17 PROTECTIVE MEASURES

The Contractor shall provide and maintain substantial and adequate protection as may be required to protect new and existing Work and all items of equipment and furnishings for the entire duration of Work.

The Contractor shall repair or make good any and all damage or loss he may cause to the building or other County property to the full satisfaction of the Department.

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1.18 PROJECT ADMINISTRATION

All materials supplied and all Work done by the Contractor shall be under the general administration of the Department and in accordance with the Drawings and Specifications.

1.19 BEST MANAGEMENT PRACTICES (BMP) REQUIREMENTS

A. The Contractor shall comply with Section 01 57 00 (for projects less than one acre), Section 01 57 00 (for projects greater than one acre), the Los Angeles County Department of Public Works Construction Site Best Management Practices (BMP's) Manual, latest edition. A copy of the BMP Manual can be obtained at the Los Angeles County Department of Public Works Cashier's Office, 900 South Fremont Avenue, Alhambra, CA 91803, (626) 458-6959.

B. Related Work: Cleaning; Section 01 74 23.

1.20 WORK IN PROGRESS UNDER OTHER CONTRACTS

It is anticipated that the work of the County may be concurrently in progress with the work of this contract. Refer to General Conditions articles, "Other Contracts" and Cooperation with Others."

* * * *

SECTION 01 12 16

PHASING OF THE WORK

PART 1-GENERAL

1.1 SUMMARY

A. The existing facilities will remain open and operational during the Work [renovations] [expansion]. The Work must be undertaken such that the existing facilities can maintain a safe, secure, healthy, comfortable and reasonably convenient environment for its normal operations. The Work shall be completed in Phases such that the User may occupy and use portions of the newly completed Work and vacate other portions of the facility for Builder's access prior to substantial completion of the entire project. Temporary facilities for the User's operations and other needs are required to provide a similar number and amount of amenities as currently exist. The Builder shall prepare and submit a construction phasing and sequencing plan for approval by the Professional, Project Manager, and User which minimizes the impacts of construction on normal operations in accordance with this Section and the Phasing Plans or an approved alternative plan. The Construction Phasing and Sequencing Plan shall be updated as required during the course of the Work. Updates and revisions must be submitted for approval by the Professional, the Project Manager and User.

1.2 REQUIREMENTS INCLUDED

A. Summary of Work

B. Life Safety Plans

C. Safety and Staging Plan

D. Phasing Plans

1.3 COMPLIANCE REQUIREMENTS

A. The various portions of the work shall be complete, functional and operational prior to performing work which disrupts the operations that are to be moved to the new area.

B. The scheduling requirements of the contract may include proposed alternatives to the phasing included herein, which shall be prominently indicated as deviations. Such deviations do not alter the phasing requirements except as specifically approved. Criteria for acceptance include no increase to disruptions to operations and no extension to the opening dates of the project elements.

C. Builder shall prepare and submit a construction phasing and sequencing plan for approval by the Professional, the Project Manager and User within 10 days of Award and prior to beginning the Work activities.

D. Performance criteria for review and acceptance is defined in Section 1.4 below.

E. The various portions of the work shall be functional and operational prior to performing work which disrupts the operations that are to be moved to the newly completed areas.

1.4 CONSTRUCTION PHASING PERFORMANCE CRITERIA

A. Safety

1. Builder must maintain a safe environment for Occupants and Visitors to work around. Clear and protected access and egress routes shall be maintained around construction areas and activities for people, equipment, and vehicles. Provide professionally prepared temporary signage to direct people and traffic along routes not used under normal conditions.

2. Provide temporary barriers, barricades, and walls as necessary to separate construction areas and activities from Occupants and Visitors.

B. Health

1. Contractor must maintain a healthy environment for Occupants and Visitors at all times.

2. Protect the occupied areas of the existing facilities from dust, fumes, and other airborne pollutants. Provide separation walls between construction / renovation areas and occupied areas to protect the occupants. If permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MEREV) of 8 shall be used at each return air grille. Replace the filters as needed and at the conclusion of the project.

3. Protect Occupants and Visitors from excessive or harmful noise exposure.

4. Maintain occupant access, egress and use of restroom facilities at all times during normal business hours.

5. Maintain all utility services during the utility relocation or new service work. Maintain utility services throughout the project. If a brief service interruption is required to accomplish the Work, the Professional, the Project Manager and User must be notified in advance. A coordination meeting must be held with the Professional, the Project Manager and User to review service interruption procedures prior to the service interruption.

C. Comfort

1. Provide reasonably finished spaces for use by Occupants and Visitors during the progress of the Work. Temporary construction separation walls shall be paint finished or equivalent on public sides.

2. The HVAC system improvements shall be implemented such that the occupied spaces of the building maintain comfort conditions for its occupants. The comfort conditions must be maintained during normal business hours of 6:30 AM through 10:30 PM. The temperature requirements are 72 to 77 degrees F.

3. Restrict noisy activities to hours outside of normal business hours defined as 6:30 AM to 10:30 PM unless approved sound mitigating separation is provided.

D. Convenience

1. Maintain Occupants and Visitors access to building amenities, such as vending, seating, and restroom facilities. Relocate moveable amenities as required to maintain access. Provide temporary electrical power to amenities with power requirements at temporarily relocated positions.

2. Protect the User's existing equipment during construction activities to prevent damage or contamination due to the progress of the Work.

3. Daily clean-up activities must be included in the Phasing and Sequencing Plan for Work in occupied areas performed outside normal business hours.

1.5 PROJECT PHASES

A. Phases – If and when required Contractor may submit for County's approval to phase the project due to unforeseen conditions.

1. Durations – Contractor to delineate as required within the approved construction, no extra construction days.

2. Access Limitations – Contractor must obtain access permission from the Nature Center prior to mobilization for installation of generator and related construction activities. Maintain all utility services during the utility relocation or new service work

3. Sequencing – ID and when required the Contractor may submit request for sequencing for County's approval.

PART 2 PRODUCTS (Not Applicable)

PART 3. EXECUTION (Not Applicable)

END OF SECTION

* * *

SECTION 01 14 00

ALTERATION PROJECT PROCEDURES

1.00 GENERAL

1.01 CONTRACTOR'S USE OF THE PREMISES

A. The Contractor will be restricted in the use of the site to that area designated by the County. If the allotted space is too restrictive, provide a written request to the County, identifying the amount of additional area required, the reason why the existing area is inadequate, and any incentives for the County to provide the additional space.

B. Obtain and pay for the use of additional storage or work areas if required for operations.

1.02 INTERRUPTION OF EXISTING SERVICES

A. The facility or facilities are in continuous operation.

B. If an interruption of any existing utilities and/or equipment operations to the existing building will be required provide the County a minimum of 7 days notice for minor interruption and 14 days advance notice for major interruption, obtain County's permission and if required by the County, interrupt service only during non-business hours unless otherwise noted in the Contract Documents. Interruptions affecting areas outside the Work under the Contract space constitutes a major interruption.

1.03 PROTECTION OF EXISTING IMPROVEMENTS

A. Take all precautions necessary to protect existing building, utilities and other site improvements from damage due to the work of this Project, and be responsible for their restoration of any damaged property to its original condition if damage is a result of the Contractor's construction activities.

B. Cooperate and coordinate construction activities with County to sequence the work so as not to unnecessarily interfere with operation of occupied facilities. Prior to demolition or construction work, consult with County to determine a construction schedule which will permit the existing facilities to function without interruption. Thereafter, Contractor shall provide County's Representative with a minimum of fourteen days advance notice, in writing, of anticipated portion of the Work which may, because of noise or otherwise, require advance operational planning.

C. In planning and performing the Work, make every effort to maintain all pollutants, including noise, dirt and dust levels at the absolute minimum possible.

D. Continuously maintain ingress and egress to and from existing building for purposes of fire and emergency entrance and escape, loading and delivery, and building maintenance, to the satisfaction of the County and authorities having jurisdiction.

E. Protect all utilities against interruption, damage or contamination during construction; if necessary, provide temporary utilities to maintain services continuously. Such utilities shall include, but shall not be limited to, electricity, water, gas, sewerage, telephone, data, heating, ventilation, and air conditioning (HVAC).

F. Provide temporary barriers to separate occupied areas from work areas. Seal all joints to create dust-proof enclosures.

G. Limit equipment and vehicles in ingress and egress and use of service areas to the minimum essential to operations. If there is unavoidable conflict with Contractor's equipment in such areas, upon request of County, remove such equipment immediately to facilitate emergency services, and within a reasonable time, for all other services.

1.04 DAMAGE AND RESTORATION

A. Damage to existing or new work caused by equipment or other operations, whether accidental or made necessary by reason of Contract requirements, shall be restored or replaced as specified or directed by the County, at Contractor's sole expense.

B. Restoration shall be equal to the original work, and finishes shall match the appearance of, as nearly as possible, like existing adjacent work. Restoration shall be subject to acceptance by the County and shall be made as necessary at Contractor's sole expense.

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 County, at Contractor's sole expense.

2.00 PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New materials: As specified in product Sections; match existing products and work for patching and extending work.

B. Type and quality of existing products: Determine by inspection and testing products where necessary, referring to existing work as a standard.

3.00 EXECUTION

3.01 EXAMINATION

A. Verify that demolition is complete and areas are ready for installation of new work.

B. If actual conditions differ from conditions shown on the Contract Documents, identify them during the Pre-bid walk and immediately report the differing conditions to the Director and wait for written instructions.

C. Beginning of work means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move or remove items as necessary for access to alterations and renovation work. Replace and restore at completion.

B. Remove unsuitable material not marked for salvage. Replace materials as specified for finish work.

C. Remove debris and abandoned items from area.

D. Prepare surfaces and remove surface finishes to provide for proper installation of new work and finishes.

E. Close openings in exterior surfaces to protect existing work and salvage items from weather and extremes of temperature and humidity.

3.03 INSTALLATION

A. Coordinate work of alterations and renovation to expedite completion.

B. Designated areas: Complete in all respects.

C. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original condition.

D. Install products as specified in each Section.

3.04 TRANSITIONS

A. Where new work abuts or aligns with existing, perform a smooth and even transition. Patch work to match existing adjacent work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along with a straight line at a natural line of division and make recommendations to Director.

3.05 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces which become damaged, lifted, discolored or showing other imperfections.

B. Repair substrate prior to patching finish.

3.06 FINISHES

A. Finish surfaces as specified in each Section.

B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

* * *

SECTION 01 23 00

ALTERNATIVES

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Alternative proposals as identified on the drawings and described herein shall state the net sum to be **added to** Lump Sum Bid in the event that the Alternative proposal is included. Dollar amounts for Alternative proposals shall be inserted in the "Form of Bid".

B. If the County determines to award a contract, it shall be awarded to a responsive and responsible Bidder with the lowest bid price. If there are alternatives, the lowest bid price shall be determined by adding the lump sum bid and the price of all alternatives. This does not preclude the County from selecting any combination of alternates after the lowest responsible bidder has been determined.

C. Include in the Alternative proposal all changes in cost resulting in the work of all trades affected thereby. Work shall be performed in accordance with the drawings and specifications affected unless otherwise specified.

D. Contractor shall determine to his own satisfaction the extent the work is affected by the Alternative proposals and shall make full and proper allowance therefore in the preparation of this proposal.

1.02 BID ALTERNATIVES:

1. Additive Alternate No. 1
Slurry coat and restriping areas not directly impacted by the path of travel upgrades (approximately 25,000 sqft).

* * *

SECTION 01 26 13

CONTRACTOR'S REQUEST FOR INFORMATION

PART 1 - GENERAL

1.01 SUMMARY

A. This section covers general requirements for Contractor's Requests for Information (RFI).

B. The Contractor will prepare and submit RFIs within thirty (30) days of issuance of Construction Notice to proceed and/or as directed by the County Project Manager.

C. Related Sections:

1. General and Supplementary Conditions for changes in the Work.

2. Section 01 31 19: Progress Meetings

3. Section 01 33 00: Submittals

1.02 SUBMITTALS

A. Submit a Request for Information to the County when:

1. An unforeseen condition or constructability question occurs.

2. Questions regarding information in the Contract Documents arise.

3. Information not found in the Contract Documents is required.

B. When possible, request such clarification either verbally or in writing at the next scheduled Project meeting. When the RFI is answered at the Project meeting, number the RFI and enter the response into the meeting minutes.

1. When the urgency of the need or the complexity of the item makes clarification at the next scheduled Project meeting impractical, prepare and submit a formal written RFI to the County.

C. RFIs shall be submitted at the latest three (3) weeks in advance so as not to interfere with or impede the progress of the Work. The Contractor shall make every effort to keep the number of RFIs to a minimum. If the number of RFIs becomes unwieldy, the County may require the Contractor to abandon the RFI process and submit requests as either submittals, substitutions, or requests for change.

D. When the response to an RFI effects the cost or time duration of the project, notify the County in writing in accordance with the General Conditions at the time of the submittal. Notification shall occur prior to commencing such work, so that the change order process can be initiated.

1. At the time of submittal of the RFI, notify the County to the time available before the response will cause a time or cost impact to the Project.

2. An answered RFI shall not be construed as approval to perform extra work.

E. Form of Submittal:

1. Submit legible written RFIs on a standard CSI or AIA preprinted form or other such form as approved in advance by the County. Each request shall include the following information:

a. Project name, as listed on the Contract Documents, and County Specs. Number;
b. Date;
c. RFI number;
d. Name, address, telephone and e-mail address of the Contractor;
e. Number and title of affected Specification Section(s);
f. Drawing numbers and detail numbers as appropriate;
g. Indicate if the RFI will result in a time or cost impact;
h. Clear, concise explanation of information or clarification requested;
i. Blank, lined spaces for Architect's response;
j. Signature block for County to acknowledge review of Architect's and Project Manager’s response;
k. Mark each page of each RFI attachment in the lower right corner with the RFI number and page number;
l. Number submitted RFIs consecutively; and
m. Sign and stamp all RFI forms. RFIs from subcontractor or material suppliers shall be submitted through the Contractor. Contractor shall review all such information request prior to submitting to the County.

F. RFIs not meeting the requirements of this Section will not be answered and any consequential impact on the project shall be the sole responsibility of the Contractor. Unanswered RFIs will be returned with a stamp or notification "Not Reviewed."

G. RFI Log: Contractor shall maintain and update the log weekly and furnish to the County at each progress meeting, and when requested. The log shall contain the following minimum information:

a. RFI number
b. Date submitted
c. Brief description of content or subject
d. Date answered

H. Allow a minimum of ten (10) working days for review and response. The response time will be increased if more information is required, when the RFI is submitted out of sequence, or if in the opinion of the County, more time is required to answer the RFI.

1.03 QUALITY ASSURANCE

1. Carefully review the Contract Documents before submitting a RFI to the County. Verify that the information requested is not indicated in the Contract Documents or cannot be determined from a careful review.

1. The County may not answer RFIs for information that is readily available in the Contract Documents.

2. RFIs requesting clarification of coordination issues, shall include the Contractor's suggested solution data sheets, images and photographs of the (site) condition, where applicable as an attachment to the RFI.

1. Such coordination issues include, but are not limited to, pipe and duct routing, clearances, specific locations of work shown diagrammatically, existing conditions, changes to current conditions from other construction projects and similar items.

2. Provide scale drawings or sketches indicating the proposed solution.

3. RFIs which do not include a suggested solution will not be answered.

3. Do not use RFIs for the following:

1. To request approval of submittals.

2. To request approval of substitutions.

3. To request changes to the Contract Documents and to confirm action taken by the Contractor for requested changes/substitutions to the Contract Documents.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

* * *

SECTION 01 29 73

SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Submit to the Department, one (1) digital copy of an accurate, detailed and realistic Schedule of Values allocated to the various portions of the work, ten (10) calendar days from issuance of Notice to Proceed under the Consultant Services Agreement.

B. The Contractor will prepare and submit the Schedule of Values as directed by the County Project Manager.

C. The Schedule of Values, unless objected to by the Department, shall become the basis for the Contractor's applications for payment.

1. Upon request by the Department, support values given with data that will substantiate their correctness.

D. Related requirements specified elsewhere.

1. Section 01 00 00, "Project General Requirements".
2. PDF nomenclature to include name and a brief description and date of submission. i.e. GR Security Upgrade Project-Schedule of Value 2024-XX-XX

1.02 FORM OF SUBMITTAL

A. Type schedule on 8-1/2" x 11" white bond paper. Identify schedule with:

1. Title of project and location.

2. Specification number.

3. Name and address of Contractor.

4. Date of submission.

B. Schedule shall list the installed value of the component parts of the work in sufficient detail to serve as a basis for computing values for progress payments during construction.

C. Use the Table of Contents and CSI breakdown of the project specifications as a basis for the format for listing component items.

1. Identify each line item with the number and title of the respective section of the specifications.

D. List sub-values of major products or operations for each line item. Additional sub-values may be requested by the Department.

E. Costs for the various portions of the work:

1. Each item shall include a directly proportional amount of the Contractor's overhead and profit.

2. For items on which progress payments will be requested, list the total installed value, including Contractor's overhead and profit.

F. A similar detailed schedule, itemizing costs and/or credits in a form satisfactory to the Department, shall accompany all quotations for changes in the work or for extra work. Refer to article entitled "Provisions for Extras" in the General Conditions of the project specifications.

G. Round off figures to nearest ten ($10) dollars wherever possible.

H. The sum of all values listed in the schedule shall equal the total contract sum.

1.03 REVIEW AND RESUBMITTAL

A. After review by the Department, revise and resubmit Schedule as required. Resubmit revised Schedule in same manner.

B. Progress payments will not be made until Schedule has been approved.

* * *

SAMPLE

APPLICATION AND CERTICATE FOR PAYMENT

TO: LACDPW - PROJECT MANAGEMENT DIVISION II
PUBLIC WORKS HEADQUARTERS BLDG.
900 SOUTH FREMONT AVENUE, 5TH FLOOR
ALHAMBRA, CA 91803

From: Contractor

Project:
Contract No:
CP No.:

Application No: #REF!
Invoice No: #REF!
Period To: #REF!

Project No: #REF!
Invoice Date: #REF!
Contract Date: #REF!

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment as, shown below, in connection with the contract.
Continuation sheet is attached.

1 ORIGINAL CONTRACT SUM		$ -
2 Net change by Change Orders		$ -
3 CONTRACT SUM TO DATE		$ -
4 TOTAL COMPLETED & STORED TO DATE (Column G on Continuation Sheet)		$ -
5 RETAINAGE		
a 0.00% of Completed Work (Column D+E on Continuation Sheet)	$ -	
b 0.00% of Stored Material (Column F on Continuation Sheet)	$ -	
Total Retainage (Line 5a+5b or Total in Column I on Continuation Sheet)		$ -
6 TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$ -
7 LESS PREVIOUS CERTIFICATES FROM PAYMENT (Line 6 from prior Certificate)		
8 CURRENT PAYMENT DUE		$ -
9 BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)		

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Previously approved Change Orders	$ -	$ -
Change Orders approved this period	$ -	$ -
TOTALS	$ -	$ -
Net Change Order Total	$ -	

To the best of my knowledge and belief, I certify that all items, units, quantities, and prices of work shown on this application for payment are corrects; that all the work has been performed and material supplied in full accordance with the terms and conditions of this Contract on this projects; that this application for payment is a true and correct statement of the contract account up to and including the last day of period covered by this application and that no part 'Current Payment Due' has been received.

CONTRACTOR:
BY: _____ Date: _____

CERTIFIED AND APPROVED AS PER TERMS OF CONTRACT

To the best of my knowledge and belief, I certify that this application for payment does not exceed (_%) of the value of the work completed since the previous application for payment, if any plus (_%) of the value acceptable or stored materials for incorporation into work, but not installed, if any.

I further certify that this application for payment covers full payment for work completed since the previous application for payment and that any payment for prefabricated stored materials does not exceed (_%) of the value of the materials.

AMOUNT CERTIFIED..... $ -

BY: _____ Date: _____
Inspector

BY: _____ Date: _____
Architect/Engineer

BY: _____ Date: _____
County Project Manager

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptable of payment are without prejudice to any rights of the Owner or Contractor under this Contract except as set forth in the Contract.

AIA® Document G703™ – 1992

Continuation Sheet

AIA Document G702™–1992, Application and Certificate for Payment, or G732™–2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED *(Not in D or E)*	TOTAL COMPLETED AND STORED TO DATE *(D+E+F)*	% *(G ÷ C)*	BALANCE TO FINISH *(C – G)*	RETAINAGE *(If variable rate)*
			FROM PREVIOUS APPLICATION *(D + E)*	THIS PERIOD					
	GRAND TOTAL								

Sample

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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SECTION 01 29 76

PROGRESS PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:

1. Division 1 Section "Allowances" for procedural requirements governing handling and processing of allowances.
2. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
3. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.[**Cost-loaded CPM Schedule may serve to satisfy requirements for the Schedule of Values.**]

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with Continuation Sheets.
b. Submittals Schedule.
c. Contractor's Construction Schedule.

2. Submit the Schedule of Values to the Project Manager at earliest possible date but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.

3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents and CSI breakdown as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.
b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Submit draft of Payment Application for County review and approval

3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

a. Related Specification Section or Division.
b. Description of the Work.
c. Name of subcontractor.
d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Change Orders (numbers) that affect value.
g. Dollar value.

1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

4. Provide a breakdown of the Contract Sum in detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.[**Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training in the amount of 5 percent of the Contract Sum.**]
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

   a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.

7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

   a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and the Project Manager and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Progress payments shall be submitted to the Project Manager by the last day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

D. Payment Application Forms: Use forms provided by Owner for Applications for Payment. Sample copies are included at end of this Section.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Project Manager will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit one (1) signed and notarized digital copy of the Application for Payment to Project Manager by a method ensuring receipt within 24 hours. The copy shall include waivers of lien and similar attachments if required.

1. Transmit the copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.

3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Products list.
5. Submittals Schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of building permits.
9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
10. Initial progress report.
11. Report of preconstruction conference.
12. Certificates of insurance and insurance policies.
13. Performance and payment bonds.
14. Data needed to acquire Owner's insurance.
15. Initial settlement survey and damage report if required.

J. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

K. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. "Contractor's Affidavit of Payment of Debts and Claims."
5. "Contractor's Affidavit of Release of Liens."
6. "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

SAMPLE APPLICATION AND CERTIFICATE FOR PAYMENT ATTACHED.

* * *

SECTION 01 31 00

COORDINATION AND MEETINGS

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Coordination
B. Preconstruction Meeting
C. Progress Meetings
D. Preinstallation Meetings

1.02 COORDINATION

A. Coordinate scheduling, submittals, and work of the various Sections of the Project Manual to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later and for accommodating items to be installed by the County.

B. Coordinate sequence of work to accommodate County occupancy as specified in Section 01 00 00.

1.03 PRECONSTRUCTION MEETING

A. Construction Manager/County Project Manager will schedule a meeting after Notice of Award.

B. Attendance Required: Architect, Project Coordinator, Prime Contractors, Major Subcontractors, Project Inspector and key County personnel.

C. Agenda:

1. Contract Agreement

a. Transmit Performance and Material Bonds to the County Contract Administrator
b. Review General/Supplementary Conditions
c. Deferred Approvals

2. Overview of documentation from the Contractor

    a. Construction Schedule
    b. Schedule of Values
    c. List of Subcontractors with Addresses and Phone Numbers
    d. List of Submittals and Estimated Date of Submittal

3. Project Administration

    a. Application for Payment, Project Schedule, Lien Release, As-built Documents, Contract Administration
    b. Change Orders and Proposal Requests
    c. Submittals and Substitutions, Deferred Approvals
    d. Site Meetings
    e. Testing Lab
    f. Verified Reports

4. Special County Conditions

    a. Temporary Facilities
    b. County Occupancy
    c. Work by County
    d. Access to Site – County Contract

5. Construction Process

    a. Contractor to give Overview of Construction
    b. Contractor to identify items to be selected by Architect/County and date selections must be made.
    c. Contractor to review special requirements for equipment, safety, and noise.

6. Project Close-Out

    a. Close-out Binder
    b. As-Built Documents
    c. Final Verified Reports

D. Architect or County Project Manager to record minutes and distribute copies within three days after meeting to participants, Architect and those affected by decisions made.

1.05 PROGRESS MEETINGS

A. Coordinate with the Project Manager and Schedule and administer meetings throughout progress of the work as needed.

B. Make arrangements for meetings, prepare and distribute agenda with copies for participants, at meetings.

C. Attendance Required: Project Coordinator, Prime Contractors, major Subcontractors and suppliers, Project Inspector, key County personnel and Architect as appropriate to agenda topics for each meeting.

D. Agenda

1. Review Minutes of Previous Meetings
2. Review of Work Progress
3. Field Observations, Problems, and Decisions
4. Identification of problems which impede planned progress.
5. Review of Submittals Schedule or Status of Submittals.
6. Review of Off-site Fabrication and Delivery Schedules
7. Maintenance of Progress Schedule
8. Corrective Measures to Regain Project Schedules
9. Planned Progress During Succeeding Work Period
10. Coordination of Projected Progress
11. Maintenance of Quality and Work Standards.
12. Effect of Proposed Changes on Progress Schedule and Coordination
13. Other Business Relating to Work

E. Architect or County Project Manager to record minutes and distribute copies within three days after meeting to participants, Architect, and those affected by decisions made.

1.06 PREINSTALLATION MEETING

A. When required in individual specification sections, convene a preinstallation meeting prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:

1. Review conditions of installation, preparation and installation procedures.

2. Review coordination with related work.

E. Contractor to record minutes and distribute copies within three days to participants, Architect and those affected by decisions made.

1.07 COORDINATION OF SUBMITTALS

A. Schedule and coordinate submittals specified in Section 01 33 00.

B. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Coordinate request for substitutions to assure compatibility of space, of operating elements, and effect on work of other sections.

1.08 COORDINATION OF SPACE

A. Coordinate use of project space and sequence of installation of mechanical and electrical work which is indicated diagrammatically on drawings. Follow routings shown for pipes, ducts, and conduits as closely as practical, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximum accessibility for other installations, for maintenance and for repairs.

B. In finished areas, except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

1.09 COORDINATION WITH WORK BY COUNTY

A. Coordinate any work by County.

1.10 COORDINATION OF CONTRACT CLOSE-OUT

A. Coordinate completion and cleanup of work of separate sections in preparation for Substantial Completion.

B. After County occupancy of premises, coordinate access to site by various sections for correction of defective work and work not in accordance with Contract Documents to minimize disruption of County's activities.

C. Assemble and coordinate close-out submittals specified in Section 01 77 00.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

* * * * *

SECTION 01 31 19

PROGRESS MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scheduling and administration of progress meetings.

1.02 RELATED REQUIREMENTS

A. Instructions to bidders.

B. Project general requirements.

C. Construction schedules.

D. Shop drawings, product data and samples.

E. Quality control.

F. Temporary Facilities.

1.03 PROGRESS MEETINGS

A. The County will schedule and administer progress meetings throughout the construction of the work.

B. The Contractor will make physical arrangements in the project field office and/or meetings shall be conducted digitally as needed. Prepare agenda for County Project Manager's approval and distribute notice for the meetings to participants in advance of meeting date.

C. The Project Manager will preside at meetings. Meeting minutes will be recorded and copies will be distributed to participants prior to next meeting.

D. Location of meetings: Project's field office or Project Manager's office.

E. Attendance: Project Manager, Inspector, Contractor, job superintendent, subcontractors, suppliers and others as appropriate to agenda; Architect/Engineer and others shall attend when appropriate.

F. Minimum Agenda:

1. Approval of minutes of previous meetings.

2. Review of work progress.

3. Field observations, problems and decisions.

4. Identification of problems which impede planned progress.

5. Review of submittals schedule and status of submittals.

6. Review of off-site fabrication and delivery schedules.

7. Maintenance of progress schedule.

8. Corrective measures to regain projected schedules.

9. Planned progress during succeeding work period.

10. Coordination of projected progress.

11. Maintenance of quality and work standards.

12. Effect of proposed changes on progress schedule and coordination.

13. Other business relating to Work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

* * *

SECTION 01 32 00

CONSTRUCTION SCHEDULES

Critical Path Method Schedule Integration System

1. GENERAL

DESCRIPTION – The work specified in this section consists of developing and maintaining a Critical Path Method (CPM) schedule integration system for the contract. Planning, scheduling, management, and execution of work in accordance with contract documents are the sole responsibility of the Contractor.

1.1 Related General Conditions/General Requirements Articles, and Specifications Sections

a.	General Conditions Articles	12.A, 12.B, 12.C
b.	General Conditions Articles	14
c.	General Conditions Articles	15.B.e.3
d.	General Requirements Articles	1.02
e.	General Requirements Articles	1.06

1.2 Generate a CPM schedule integration system using commercially available CPM scheduling software program containing direct file interchange capability with the software program used by the Los Angeles County Department of Public Works. Prepare as directed by the County Project Manager.

1.3 For scheduling submittals produce Precedence Diagram Method (PDM) and time scaled network diagram submittals on D-Size (22-inch by 34-inch) or E-Size (34-inch by 44-inch) medium suitable for reproduction. Print schedule submittal tabular reports on A-Size (8 ½-inch by 11-inch) paper. For scheduling submittals, the Contractor shall include backup USB drive. The backup USB drive shall be made directly from the CPM scheduling software and shall contain all files of the project that can be restored by the County for its evaluation and analysis.

1.4 Contract milestone dates, County furnished goods, availability dates, and real estate availability dates, are unique zero duration activities as a “start no earlier than” or “finish no later than” milestone. Each milestone activity will constrain its dependent work. Assume Notice to Proceed (NTP) is given at day zero for calculation of constraint dates for milestones.

1.5 Float is not for exclusive use or benefit of either the County or Contractor but is an expiring resource available to both parties on a nondiscriminatory basis. Float is used by either party, as needed to meet contract milestones and contract completion dates. Contract time extensions for contract performance will be granted only to extent that delays or disruptions to affected work paths exceed total float along those paths of current contract schedule (update schedule) in effect at time of delay or disruption. These delays or disruptions must also cause end date of work to exceed current contract date or milestone date and be beyond control and without fault or negligence of Contractor or any subcontractor at any tier. If delays or disruptions impact an already negative float path, Contractor will not receive a time extension unless and until activity with highest float is driven even further negative.

1.6 Use of float suppression techniques such as preferential sequencing or logic, special lead/lag logic restraints, and extended activity times or durations should be submitted with written justification to obtain the County's acceptance. Use of float time disclosed or implied by use of alternate float suppression techniques shall be shared to proportionate benefit of the County and Contractor. Use of any technique solely for purposes of suppressing float will be cause for rejection of schedule submittal.

1.7 Planning units – Scheduling software supports schedule Planning Units of hours, days, weeks or months. The standard time unit applied to the schedule integration system is defined as days.

1.8 Schedule network – Use Retained Logic CPM Precedence Diagram Method of scheduling.

1.9 Analyze in detail, activities included in contract schedule to determine activity time durations in units of working days. Base durations on engineering and design resources, drawing production, submittal review periods, procurement lead time and duration, manufacturing times, labor (crafts), equipment, and materials required to perform each activity on a normal workday basis. No on-site activity shall have a duration over 10 working days except non-construction activities such as submittals, submittal reviews, procurement and delivery of materials or equipment, and concrete curing.

2. PRODUCTS

SUBMITTALS – Submit one (1) digital copy of schedule unless specified otherwise. Provide submittals specified in this section to the County for review and acceptance.

2.1 Baseline CPM Contract Schedule

Provide the County with a means to monitor and follow progress of all phases of work, with contractually specified interim milestones and completion dates, and with constraints, restraints or sequences included in the contract. Degree of schedule detail required shall include factors to the satisfaction of the County, including but not limited to the following:

2.1.1 Master list of submittals and all other requirement as referenced in Section 01 33 00 Submittals.

2.1.2 Contract interim milestones and contract completion date, substantial completion dates, constraints, restraints, sequence of work indicated.

2.1.3 Type of work to be performed, sequences, and labor trades involved.

2.1.4 Purchases, manufacture, tests, delivery, and installation activities for major materials and equipment.

2.1.5 Deliveries of County furnished goods and/or materials in accordance with dates or schedule windows of such times set forth in the contract or furnished by the County.

2.1.6 Preparation, submittal, and acceptance of shop and/or working drawings and material samples showing a 30-day minimum time specified for the County and third party reviews of normal or routine submittals, so identified in the specifications, and the same time frame shall be allowed for at least one re-submittal or submittals so identified in the contract documents.

2.1.7 Approvals and permits required by regulatory agencies or other third parties.

2.1.8 Schedules for subcontract work.

2.1.9 Assignment of responsibility for performing specific activities.

2.1.10 Access and availability to work areas.

2.1.11 Identification of interfaces and dependencies with preceding, concurrent and follow-on construction or contractors and utilities.

2.1.12 Actual tests, submissions of test reports, and acceptance of test results.

2.1.13 Start up, testing, training, and assistance required under the contract.

2.1.14 Planning for phased or total takeover by the County.

2.1.15 Punch-list and final clean up.

2.1.16 Identification of construction restrictions as well as any activity requiring unusual shift work, such as two shifts, six day weeks, specified overtime, or work at times other than a standard work day.

2.2 The schedule of values shall be prepared and submitted together with the construction schedule.

2.3 Failure to meet these requirements may result in a determination and recommendation that the Board of Supervisors determine that the successful bidder as non-responsible because such failure reflects the bidder's ability to manage the work.

3. Current CPM Contract Schedule Updates

3.1 Initially, upon approval of the baseline CPM contract schedule, establish the current CPM contract schedule from the baseline CPM contract schedule. Thereafter, update the current contract schedule monthly with data date designated by the County. Use updated current contract schedule for subsequent planning, scheduling, and execution of work to be accomplished. Obtain County prior acceptance before making deviations in logic and activity durations in the current CPM contract schedule.

3.2 Participate with the County in periodic meetings, at least monthly, on dates directed by the County and seven days prior to monthly status. At meeting held seven days prior to the data date, provide preliminary updated current CPM contract schedule that forecasts project status on the data date and contains actual start and actual finish dates for activities in progress or completed, remaining durations of activities already in progress, percent completed, logic changes, new or deleted activities, and new change order/modifications.

3.3 Submit a stand alone portion of the network (fragnet), if current progress reflects negative float of minus 10 days or more for a milestone activity, as indicated by most recent CPM contract schedule, allowed by contract as amended by approved change orders/modifications. Show activities affected, date delay or disruption occurred or how productivity was impacted, and unmitigated impacts to schedule caused delay or disruption. Submit similar fragnet showing Contractor's plan to mitigate delay or disruption and subsequent impacts to schedule at the County's request. Provide written narrative describing circumstances that caused delay or disruption and methodology used to determine extent of delay or disruption. Submission of such fragnets does not constitute permission to proceed with plan. Execute some or all of the following remedial actions, and submit a recovery schedule that may include:

3.3.1 Increase construction manpower in such quantities and crafts as necessary to eliminate the backlog of work.

3.3.2 Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or combination of the foregoing to eliminate the backlog of work.

3.3.3 Reschedule the work in conformance with the specifications requirements.

4. Before implementing any of the above actions, notify and obtain acceptance from the County. If such actions are accepted, incorporate current CPM contract schedule revisions before next update.

5. Addition of equipment or construction forces, increasing working hours or other methods, manner, or procedure to return to contractually required completion date will not be considered justification for a change order/modification, nor be treated as acceleration where the need for a recovery schedule has been caused by the Contractor and/or its subcontractors or suppliers at any tier.

6. When the Contractor experiences change order/modifications or delays and a time extension is requested, submit to the County a written time impact analysis illustrating the influence of each change or delay on current contract schedule completion date utilizing current CPM contract schedule. Include in each time impact analysis a fragnet demonstrating how the Contractor proposes to incorporate the change order/modification or delay into the current CPM contract schedule. The fragnet shall contain a sequence of new and/or activity revisions that are proposed to be added

to the current CPM contract schedule in effect at the time change or delay is encountered to demonstrate influence of delay and method of incorporating the delay and its impact into the schedule as they are encountered.

6.1 Each time impact analysis shall demonstrate estimated time impact based on events of delay, date of change order/modifications, proceed order, or unilateral change order/modification given to the Contractor, status of construction at that point in time, and event time computation of activities affected by change or delay. Event times used in analysis shall be those included in latest version of the current CPM contract schedule, in effect at time change or delay was encountered.

6.2 Submit each time impact analysis, within ten days after a delay occurs. If the Contractor does not submit a time impact analysis for a specific change order/modification or delay within specified period of time, the Contractor will be deemed to have irrevocably waived rights to additional time and cost.

6.3 Because float time within current CPM contract schedule is jointly owned, it is acknowledged and agreed by the Contractor that the County caused delays on the project may be offset by County caused time savings (including, but not limited to: critical path submittals returned in less time than allowed for the contract, acceptance of substitution requests which result in a savings of time along the critical path for the Contractor, etc.). In such an event, the Contractor will not be entitled to receive an extension of time or delay damages until the County caused time savings are exceeded and contract completion data also exceeded.

6.4 The County will accept or reject each time impact analysis. Upon acceptance, a copy of a time impact analysis signed by the County will be returned to the Contractor for incorporation into the schedule.

6.5 Upon mutual agreement by both parties, incorporate fragnets illustrating the influence of change orders/modifications and delays into the current CPM contract schedule during first update after agreement is reached.

6.6 In the event the Contractor does not agree with the decision of the County regarding impact of a change or delay, the County’s determination shall govern.

7. The Contractor shall resolve out-of-sequence progress, if any, to provide the actual construction sequence to calculate the current critical path(s) and identify any deviations of interim milestones and/or project completion.

8. As-built schedule – Submit as-built schedule covering work performed under the Contract within 30 days after final completion. As-built schedule – Certified by a planner/scheduler and Contractor's project manager as being the manner in which Contract was executed. Submittal and acceptance of the schedule will be a condition precedent to reduction/release of retainage at the end of the contract.

9. Schedule reviews – The County will review and respond to scheduling submittals within 14 business days after submittal, unless a different review period is specified in this section. Submit a revised schedule within seven days after receipt of the County's response if the County requires changes or additional information.

10. Early completion schedule – If the schedule duration proposed by the Contractor is less than the completion date in the NTP, the proposed schedule will not nullify the Contractor's right to the NTP duration. The Contractor agrees that in the event a proposed early completion schedule (or any subsequent update) which is found to be acceptable by the County, indicating a duration which is less than time allowed by Contract for completion of work or of interim milestone, Contract completion time shall only be shortened by a change order/modification to equal Contractor's proposed baseline CPM contract schedule duration.

    If the schedule duration proposed by the Contractor is less than the completion date in the NTP, the proposed schedule will not nullify the Contractor's right to the NTP duration.

11. Three week rolling bar chart schedule – Once a week, on a day mutually agreed to by the County and the Contractor, a meeting will be held to assess the progress achieved by the Contractor during previous work week. Submit a project schedule listing activities completed and in progress for the previous week and the activities scheduled for the succeeding two weeks based on the current CPM contract schedule. The three week rolling bar chart schedule shall be provided from the current CPM contract schedule and include all activities scheduled including: activity ID, description, early start and early finish, total float, original duration, remaining duration, percent complete, performance of the activity, and pertinent remarks as to activity status. The schedule shall be submitted to the County before the weekly meeting for review. Submit copies of schedule on 11-inch by 17-inch paper.

12. Monthly Updated Current Contract Schedule

    a. One computer generated backup copy of monthly updated current CPM contract schedule file.

    b. Written narrative for updated current CPM contract schedule.

13. Fragnets

    a. One computer generated backup copy of fragnet files.

    b. Written narrative of fragnet assumptions.

14. Contract Time Scaled Network Diagrams – Submit computer generated time-scaled network diagram entitled “Current Time Scaled Network Diagram” with submittal of items referenced below.

    a. Submit with initial early work schedule submittal.

    b. Submit every month with updated current CPM contract schedule.

15. Written Narrative Reports – Include a stand alone narrative of sufficient detail to explain basis of Contractor’s submittal with each schedule submittal.

    15.1 CPM Contract Schedule Submittals – Explain determination of activity durations and describe Contractor’s approach for meeting required interim and final completion milestone dates, as specified in the Contract. Include as a minimum basis and assumptions used in preparing the submittal, including crew sizes, equipment requirements, and anticipated delivery dates; restraints; critical path activities; production rates; activities requiring overtime or additional shifts; activities that contain time contingencies for impacts to be expected from normal rainfall; holidays and other non-work days; potential problem areas; permits; coordination required with the County; utilities and other parties; and long lead delivery items requiring more than 30 days from order to delivery. Identify work items that may be expedited by use of overtime or additional shifts. Identify and explain sequencing and other constraints such as manpower, material, and equipment. Include listing of holidays and special non-work days.

    15.2 Current CPM Contract Schedule Submittals – State in narrative, work actually completed and reflect progress along critical path in terms of days ahead of or behind allowable dates. Specific requirements of narrative are as follows:

15.2.1 If updated current CPM contract schedule indicates an actual or potential delay to contract completion date or interim milestone dates as specified under the contract documents or modified by change order/modification, identify causes of delays, disruptions and interruptions and provide explanation of work affected and proposed corrective action to meet milestone dates involved or to mitigate potential delays or disruptions. Document and log in a matrix format activities with non-mitigated negative float until the negative float is mitigated. Identify deviations from previous month's critical path. The matrix will include applicable activity number, description, planned start and finish dates, current start and finish dates, and float quantity.

15.2.2 Identify by activity number and description, activities in progress and which activities are scheduled to complete during the next period.

15.2.3 Identify by activity number and description, activities to be started during the month following the report period. Show Contractor's forecast early and late start, and finish dates.

15.2.4 Discuss added change order/modification work items.

3. EXECUTION

3.1 Baseline CPM Contract Schedule

3.1.1 Provide Contractor's detailed activities and sequencing for work included in the contract. Assign unique activity identification for each detailed activity.

3.1.2 Indicate Contractor's best estimate for original durations, early dates, late dates, logic ties, constraint dates, and total float. Schedule activities in the sequence which Contractor intends to perform work.

3.1.3 Include following activity sequence for major material and equipment procurement:

3.1.3.1 Submittal preparation; review for acceptance; and fabricate/deliver – Divide procurement items that may contain multiple submittals occurring at different time intervals into separate sequences that can be tracked on individual basis. Include a maximum original duration of 20 working days for re-review.

Resubmittal activities shall contain submittal preparation activities for other material and equipment procurement (non-major) to schedule.

3.1.4 Baseline CPM contract schedule activity requirement are as follows:

3.1.4.1 Activity descriptions – Briefly convey scope and location of work indicated.

3.1.4.2 Activities – Discrete items of work accomplished under contract that provide measurable and recognizable parts of work.

3.1.4.3 Include as contract deliverables, submittal and approval of permit applications and variances, samples of materials, shop drawings, working drawings, inspection and test plans, safety and security plans, and site traffic control plans. Include activities of the County that may affect progress as well as those of affected utility companies and other similarly involved third parties. Include activities in the baseline CPM contract schedule as stipulated in general requirements.

3.1.4.4 Work activities – Show duration in work days.

3.1.4.5 Work activities – Durations of 10 working days or less except for non-construction activities such as procurement of materials, or fabrication of equipment. Should a work activity require more than 10 working days, subdivide work activity to define appropriate work items.

3.1.4.6 Critical path is defined as the sequence(s) of activities with the least amount of float.

3.1.4.7 Failure to include any element of work required for performance of the contract in baseline CPM contract schedule will not excuse Contractor from completing work required to achieve milestone completion, notwithstanding acceptance of baseline CPM contract schedule submittals.

Activities that are susceptible to weather delays caused by rain shall contain time contingencies for those potential delays. The time contingencies shall be described in the appropriate activity log windows of

scheduling software. In scheduling the work, Contractor shall plan for normal rainfall (including its subsequent effects on days following extremely heavy rain).

3.2 Baseline CPM Contract Schedule Changes

When commencing new work associated with a change order/modification, incorporate work into the current baseline CPM contract schedule submittal as new activities after discussion with the County concerning how changes will be placed into the revised baseline CPM contract schedule. After an official change order/modification has been issued for work, add it to the schedule.

3.3 Fragnets

3.3.1 Submit revised current CPM contract schedule within 14 days of request. If Contractor falls behind in prosecution of work, as indicated by negative critical path, or submittal of current CPM contract schedule no longer appears to represent actual prosecution of work.

3.3.2 Properly connect to and constrain by, previously existing predecessor and successor activities, as applicable, activities of revised portion(s) of schedule. Band impacted activities in separate networks (fragnets); indicating specific delay or impact issues and submit to the County for review. Combine approved fragnets into current CPM contract schedule.

3.3.3 Time extensions will be granted only to the extent that equitable time adjustments for activity or activities affected exceed total or remaining float along critical path of activities at time of actual delay, or at time a change order/modification was issued. Float or slack time is not for the exclusive use or benefit of the Contractor but is an expiring resource available to all parties as needed to meet contract milestones and contract completion date. Time extensions will not be granted nor delay damages paid until delay occurs:

3.3.3.1 Which is beyond the control and without the fault or negligence of the Contractor and its subcontractors or suppliers, at any tier; and

3.3.3.2 Which extends actual performance of work beyond applicable current Contract completion date and most recent date predicted for completion of project on approved schedule update, current as of time of the

delay or as of time of issuance of a change order/modification.

3.4 Submittal of Schedule

3.4.1 Contractor shall submit the construction schedule within ten (10) calendar days, per Section 00 01 00, Paragraph 1.14e, after receipt of the Notice to Proceed (NTP) digitally and a back up USB drive that is compatible with P6. The Contractor shall provide to the County for review one (1) copy of the construction schedule indicating the sequence of operations, description of the work, calendar definition and duration showing entire job performed within the specified contract time.

3.4.2 If the schedule duration proposed by the Contractor is less than the completion date in the NTP, the proposed schedule will not nullify the Contractor's right to the NTP duration.

3.4.3 The County shall review the Contractor's construction schedule. The Contractor shall incorporate all the revisions requested by the County and submit the final schedule within seven (7) calendar days of its receipt from the County.

3.4.4 The schedule of values shall be prepared and submitted together with the construction schedule.

3.4.5 Failure to meet these requirements may result in a determination and recommendation that the Board of Supervisors determine that the successful bidder as non-responsible because such failure reflects the bidder's ability to manage the work.

3.4.6 The schedule shall be revised at no additional cost to the County and resubmitted for review when:

3.4.6.1 Changes to contract affect contract completion time.

3.4.6.2 "Slippage" occurs because of procurement delays, rain, strikes and other delays.

3.4.6.3 Any activities are modified from previous submittal.

3.4.6.4 Delay on initial non-critical items is of such magnitude as to change the critical path.

3.5 Responsibility for Completion

The Contractor shall furnish sufficient forces, offices, facilities and equipment, and shall work such hours including night shift and overtime operations, as necessary to ensue the prosecution of the work in accordance with the current monthly construction schedule update. If, in the opinion of the County, the Contractor falls behind in meeting the construction schedule as presented in the current monthly schedule update, the Contractor shall take such steps as may be necessary to improve its progress, and the County may require it to increase the hours of work, the number of shifts, overtime operations and/or the amount of construction plant and equipment without additional cost to the County.

END OF SECTION

SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.

2. Periodic construction photographs.

B. Related Sections include the following:

1. Division 1 Section, Submittal Procedures, for submitting photographic documentation.

2. Division 1 Section, Closeout Procedures, for submitting digital media as Project Record Documents at project closeout.

PART 2 – PRODUCTS

2.01 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in uncompressed TIFF format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1024 by 768 pixels.

PART 3 – EXECUTION

3.01 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in file name for each image.

2. Field Office Images: Maintain one set of images on a USB drive in the field office at project site, available at all times for reference. Identify images same as for those submitted to the Architect and Project Manager.

C. Preconstruction Photographs: Before commencement of demolition, or commencement of construction, take digital photographs of project site and surrounding properties, including existing items to remain during construction, from different vantage points.

D. Periodic Construction Photographs: Take digital photographs weekly, with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

E. Architect or Project Manager Directed Construction Photographs: From time to time, Architect or Project Manager may instruct photographer about number and frequency of photographs and subject, general directions or vantage points for photographs. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittal Procedures
B. Construction Progress Schedules
C. Shop Drawings
D. Product Data
E. Samples
F. Manufacturers' Instructions
G. Manufacturers' Certificates
H. Coordinated Drawings
I. Request for Information
J. Contractor's Photographs

1.02 SUBMITTALS LIST AND SCHEDULE

A. Submittal: Within 30 days or submission of List of Submittals, whichever is later, after award of contract, and before submitting items for review, submit one (1) digital copy of submittals list and schedule.

B. The Contractor will submit and document all submittals as directed by the County Project Manager.

C. Schedule: Compile complete schedule of submittals anticipated to be made during progress of work.

1. Include list of each type item for which Contractor's drawings, shop drawings, coordination drawings, product data, samples, certificates of compliance, manufacturer's certificates, warranties, and other types of submittals are required. Include number of Contractor's drawings, shop drawings, and coordination drawings anticipated within each submittal.

2. Sequentially number each submittal. Use original submittal number with sequentially numbered suffix for resubmittals.

3. Allow at least 10 working days, average, for Architect's review of submittals following receipt of submittal, including return to Contractor.

4. Indicate date of submittal by the Contractor to the Architect and date of receipt of reviewed submittals by Contractor from Architect.

5. Coordinate schedule with subcontractors and materials suppliers.

6. On acceptance by Architect, adhere to schedule except when specifically otherwise permitted. Accurately maintain submittal log for duration of contract.

D. Revisions: Revisions to original submittal list and schedule will only be accepted by the County Project Manager when revisions are required by circumstances not reasonably anticipated by Contractor during preparation of original schedule.

1.03 SUBMITTAL PROCEDURES

A. Transmit each submittal directly to Architect and copy the County Project Manager on the transmittal.

1. Bind submittals sturdily, neatly label covers.
2. Include job number as it appears on Contract Documents.
3. Include state agency application or approval number.
4. When requested by the County, all submittals shall be submitted by pdf. File.

B. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.

C. Identify Project, Architect, Contractor, Subcontractor or supplier, manufacturer; pertinent Drawing Sheet and detail number(s) and specification Section number, as appropriate.

1. Provide name and telephone number of individual who may be contacted for further information.

D. Apply Contractor's stamp with Contractor's original signature or initials affixed thereto, certifying that review, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements

of the work and Contract Documents. Stamped signatures or initials are acceptable.

E. Schedule submittals to expedite the project. Coordinate submission of related items.

1. Make all submittals in accordance with the progress schedule and far enough in advance of scheduled dates of installation to provide required time for reviews for securing necessary approvals for possible revision and submittal and for placing orders and securing delivery.

F. Prior to mobilization identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed work.

1. Requests for deviations from Contract Documents shall be submitted for consideration before submittal of affected items. Submit in accordance with substitution requirements of Section 01 65 00 Transport, Handling and Storage. Only deviations which have been previously accepted in writing shall be included in submittals.

G. Provide space for Contractor and Architect review stamps.

H. Revise and resubmit submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

I. Determine and verify all field dimensions and conditions, materials, catalog numbers and similar data.

J. Coordinate as required with all trades and all public agencies involved.

K. Unless otherwise specifically authorized by Architect, make all submittals in groups containing all associated items. Architect may reject partial submittals as not comply with the provisions of this Section.

L. Resubmittals:

1. Subject to same terms and conditions as original submittal.

2. The County Project Manager will accept not more than one resubmittal.

a. Should additional resubmittals be required, Contractor shall reimburse County for Architect's account for time spent in processing additional resubmittals at rate of 2.5 times rate of Direct Personnel Expense (DPE). Direct Personnel Expense is defined as direct salaries of Architect's personnel engaged or Project and portion of costs of mandatory, and customary contributions and benefits related thereto, including employment taxes and other statutory employee benefits, insurance sick leave, holidays, vacations, pensions, and similar contributions and benefits.

1.04 CONSTRUCTION PROGRESS SCHEDULES

A. Submit as required in Section 01 32 00.

1.05 SHOP DRAWINGS

A. Submit a schedule of the shop drawings, listing their required submission and review dates to the County Project Manager for approval. The submission time shall be in accordance with the requirements set forth in Section 1.02, Submittals List and Schedule, Paragraph A. The schedule shall allow sufficient time for checking by the Architect. In addition, the shop drawing submission and review dates shall be incorporated into the progress schedule required in the General Conditions.

1. "Elapsed time due to 'Revise and Resubmit' or 'Not Approved' action, indicated, on submittal review (due to inaccurate data or incomplete definition), shall not adversely affect equipment delivery and/or installation schedules".

2. "Allotted time for review/approval process shall be a minimum of ten (10) working days from the date individual submittals are received by the Architect.

B. Submit newly prepared information, drawn to accurate scale. Highlight, encircle or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as to the basis of Shop Drawings. Standard information prepared without specific reference to the Project will not be approved as Shop Drawings.

C. Shop Drawings shall include fabrications and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:

1. Dimensions
2. Identification of products and materials included.
3. Compliance with specified standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.

D. Sheet Size: Except for templates, patterns and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 inch x 11 inch, but not larger than 30 inch x 42 inch.

E. The Contractor shall review, stamp with his approval as herein required, and submit with reasonable promptness and in orderly sequences, in accordance with the submittal schedule. All shop drawings required by the Contract Documents or subsequently by the Architect as covered by modifications shall be properly identified. At the time of submission the Contractor shall inform the Architect in writing of any deviation in the shop drawings.

F. Stamp: Each page of shop drawings shall bear the Contractor's stamp, which shall signify the Contractor's representation that he has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained in the shop drawings, all in accordance with the requirements of Section 01 33 00 Submittals. Each stamp shall be accompanied by a wet signature or initial of an employee of the Contractor who may be contacted for information. Stamped signatures or initials are not acceptable.

G. Submittals not certified by being stamped and signed will be returned without action as well as those, in the Architect's opinion, that have not been adequately reviewed or coordinated by the Contractor.

H. Method of Review: Submit shop drawings, electronically as a pdf file using as directed by the County Project Manager. Comments or corrections will be noted on the shop drawings and returned to the Contractor, who shall identify all changes made since the previous submittal and resubmit in the same manner. After it is reviewed by the Architect, the shop drawings will be stamped and returned to the Contractor who shall make distribution of copies as required.

I. The Architect will review and approve shop drawings with reasonable promptness so as not to cause any delay, but only for conformance with the design concept of the project and with the

information given in the Contract Documents. The Architect's approval of a separate item shall not indicate approval of an assembly in which the item functions.

1. Contractor shall allow additional time if processing must be delayed to permit coordination with subsequent submittals.

J. Submittal of shop drawings to the Architect shall be made by the Contractor with a dated transmittal form or letter, and not by subcontractors or suppliers.

K. The Architect's approval of shop drawings shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's approval relieve the Contractor from responsibility for errors or omissions in the shop drawings.

1. Notations by the Architect which increase contract or time of completion shall be brought to County Project Manager's attention and authorization by the County shall be obtained before proceeding with work.

L. No portion of work requiring shop drawings shall be commenced until the shop drawings have been approved by the Architect.

M. SHOP DRAWING PROCESSING

1. Requirements for Submittal of Shop Drawings

a. Shop drawings shall be submitted directly to the Architect and copy of transmittal to the County Project Manager.

2. Each shop drawing submitted for review shall have the following information:

a. Project Name
b. Specs. No.
c. Contract No.
d. Technical Specifications Section No.

3. Each item of the submittal must be referenced to the proper item of the specification or drawings.

4. A signed statement from the General Contractor stating that the submittal has been reviewed by him and that it conforms with the drawings and specifications.

5. Provide a copy of each transmittal to the County Project Manager and Inspector.

6. Types of Approvals

   a. “No Exception Taken” (Approved). This stamp will be used by the Architect for accepted shop drawings and will qualify the submittal for shop drawing number.

   b. “Exception Noted” (Approved as Noted). This stamp will be used by the Architect when minor correction will make the submittal acceptable. These corrections will be shown in red on each of the submittals or on a correction list. This approval will qualify the submittal for a shop drawing number.

   c. “Resubmit” (Rejected). Submittals which do not conform to the drawings and specifications will be returned without stamping or issuance of a shop drawing number. The rejection transmittal will state why the submittal was not acceptable and request that it be resubmitted.

N. Assignment of Shop Drawings Numbers

Each accepted submittal shall be stamped by the Architect and assigned a shop drawing number using either of the following systems. The shop drawing number will be shown on each sheet that is stamped by Architect.

1. A simple numerical sequence may be used whereby each submittal is assigned a number in order of approval (SD-1, SD 2).

2. A numerical sequence by classification may be used such as SD-S-1 for a Structural Submittal; SD-AC-1 for an Air Conditioning Submittal; SD-C-1 for a Civil Submittal, SD-L-1 for a Landscape Submittal; SD-A-1 for an Architectural Submittal; and SD-X-1 for Miscellaneous Submittals.

3. Material submittals and paint color chips should be assigned a shop drawing number for identification purposes.

O. Transmittal of Submittals

The General Contractor shall submit to the Architect a set of shop drawings which comply with this Exhibit. Upon receipt of the submittal, the Architect will review or have his consultants review the submittal for compliance with the drawings and specifications.

P. Processing

1. Procedure

a. Shop drawings will be stamped or returned as per Section M of this Exhibit. Accepted and numbered shop drawings shall be returned to the General Contractor. The Architect will provide a pdf copy of approved shop drawings to the County Project Manager, Building Inspector, and Contractor.

b. The County Project Manager is to check shop drawings for any deviation from the drawings or specifications prior to releasing them to the Contractor. If there are discrepancies is in the shop drawings, they should be sent back to the Architect for correction.

1.06 PRODUCT DATA

A. Submit pdf copy of product data using as directed by the County Project Manager.

B. Product data shall identify applicable products, models, options and other available data specific to the project requirements.

C. After review and approval by the Architect, one (1) digital copy will be distributed to the County Project Manager, Building Inspector, and General Contractor. The approved product data sheets shall be retained at the site by the General Contractor to be used for reference.

1.07 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of the product with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

B. Unless precisely specified, submit samples of finishes from the full range of manufacturers' standard colors, textures and patterns for Architect selection, or in custom colors selected.

C. Include identification on each sample with full Project information, as required for Shop Drawings, Item, 1.04 above.

D. Submit a minimum of three (3) samples or as specified in individual sections of the specifications, two of which will be retained by the Architect.

E. Reviewed samples which may be used in the work are indicated in individual specification sections.

F. Approval or rejection of samples will be made by the Architect in writing.

1.08 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits and certifications as appropriate.

C. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

1.09 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification sections, submit manufacturers' certificate to Architect for review in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits and certifications as appropriate.

C. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

1.10 COORDINATED DRAWINGS

A. Submit drawings which indicate routing, locations, sizes, types and numbers of components in concealed spaces where potential conflict may occur between structures, mechanical, electrical, fire sprinklers, plumbing, irrigation, communications and ceiling suspension systems.

B. Indicate locations of all ceiling penetrations and surface-mounted items. Provide cross sections at all areas to indicate proper support of ceilings and non-interference with work of other sections of the specifications. Cross sections shall indicate coordination required and proposed solutions for routing of elements where potential conflict exists. A reproduction of Architect's reflected ceiling plan is not acceptable.

C. Drawings shall be based on field measurements, shop drawings and product data.

D. Conflicts shall be brought to the County Project Manager's attention immediately.

E. Submit to the Architect, in writing, requests for clarification or interpretations that will affect the intent of the Contract Documents.

F. The coordinated drawings shall indicate each class of work in the affected area. The drawing or written submittal shall include Contractor's recommendations for the solution of any potential conflicts as well as recommendations tendered by any work of any section of the specifications which may be affected thereby.

G. Submit the coordinated drawings in a scale of not less than 1/8" – 1' – 0" with necessary sections and profiles at an appropriate, clearly readable enlarged scale. Submit the coordinated drawings as one reproducible and two blue-line prints as a pdf file as directed by the County Project Manager.

H. The Architect will review the submittals, make appropriate notations and comments to ensure the solution meets the intent of the Contract Documents and then return to Contractor for implementation.

I. The Contractor shall be responsible for the proper coordination of the work of all sections of the specifications in the execution of coordinated drawing. Any installation of materials, components or equipment under one section of the specifications without full and complete agreement, knowledge and consent by fabricators of adjacent or otherwise related or affected work will not be approved.

J. It shall be incumbent upon the Contractor that all fabricators of work involved in the execution of coordinated drawings be informed, consulted and advised in sufficient advance time to arrive at solutions where no extension of contract time or extra cost to the County will be approved due to Contractor's negligence in the expeditious, timely submittal of coordinated drawings.

1.11 REQUEST FOR INFORMATION

A. Submit Request for Information (RFI) or interpretation in writing to the County.

B. Response will be in writing, by the County, either in the construction field meeting notes or on the RFI itself, within 10 working days of receipt of RFI.

1. No change in cost interpretations or clarifications will be accepted as such.

2. Change in cost interpretation or clarifications will institute a Change Order procedure.

1.12 CONSTRUCTION PHOTOGRAPHS

A. Submit with payment request monthly. See Section 01 32 33.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

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SECTION 01 33 23

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Submittals

1. Shop drawings.

2. Product or catalog data.

3. Samples.

B. The Contractor will prepare and submit shop drawings as directed by the County Project Manager.

C. Related work specified elsewhere.

1. Operating and maintenance manuals.

2. Spare parts or hardware lists.

3. Tests and certificates.

1.02 DEFINITIONS

A. Shop Drawings

1. Original drawings prepared by Contractor, Subcontractor, Supplier or Distributor, which illustrate some portion of the work; showing fabrication, layout, setting or erection details.

2. Identify details by reference to sheet and detail numbers shown on Contract Drawings.

B. Product or Catalog Data

1. Manufacturers standard drawings modified to delete nonapplicable data or include applicable data.

2. Manufacturers catalog sheets, brochures, diagrams, schedules, charts, illustrations or other descriptive data. Mark each copy to identify pertinent dimensions, materials, products or models.

C. Samples

1. Physical examples to illustrate materials, equipment or workmanship.

2. Office samples to show functional characteristics of product or material. Submit with full range of colors available.

3. Field samples and mock-up; erect at site in location acceptable to Project Manager.

1.03 CONTRACTOR'S RESPONSIBILITIES

A. Prior to Submittal

1. Review and approve Shop Drawings, Product Data and Samples prior to submission to the Department.

2. Coordinate each submittal with work of the project and Contract Documents so as to cause no delays in the work.

3. By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the work and of the Contract Documents.

4. The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Department's acceptance unless the Contractor has specifically informed the Department in writing of such deviation at the time of submission and the Department has given written acceptance to the specific deviation.

5. Contractor's responsibility for errors and omissions in submittals or deviations from Contract Documents is not relieved by the Department's review of submittals.

6. The Contractor shall direct specific attention, in writing or on submitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the Department on previous submittals.

B. After Submittal

1. Begin no work which requires submittals until return of such submittals with the Department's stamp and signature indicating review.

2. Distribute copies of submittals to subcontractors, suppliers or manufacturers as their interests appear.

1.04 IDENTIFICATION OF DATA

A. All submittals for review shall have the following identification data, as applicable, contained thereon or permanently adhered to.

1. Project Name and Location

2. Specifications Number

3. Subcontractor's, Vendor's, and/or Manufacturer's Name, Address and Phone Number

4. Product Identification

5. Shop Drawing Title, Contractor's Drawing Number, and Date of Drawing and Revisions

6. Applicable Contract Drawings and Specifications Section Numbers

7. Contractor's Approval, Signature and Date

B. Submittal Format

Submittal No. _____

Project Name _____

_____

_____

Specifications No. _____

Product _____

Section No. _____

Supplier _____

We have reviewed the submitted, and have verified that it meets the criteria required in accordance with the plans and specifications.

Contractor's Name _____

Signature _____

Title _____

C. Catalog Data

1. Each separate catalog, brochure or single page data sheet submitted shall have the identification required and the Contractor's approval.

2. Catalogs or brochures containing multiple items for review need identification only on the cover. Identify page numbers and catalog items.

3. In the event that one or more of the multiple items are not accepted in any submittal, additional copies required will not be required until all items are accepted.

4. Provide a space approximately 4" x 4" for the Department to affix its status stamp.

1.05 COLOR AND FINISH SELECTION

A. Contractor Submittals

1. Submit as soon as practical, subsequent to award of contract, names of manufacturers and pertinent products or materials proposed for use in which a color selection is required.

2. Submit standard color charts or samples as requested by the District. All items for color selection must be submitted prior to issuance of any approvals.

3. Contractor is responsible for submitting products that comply with technical specifications.

1.06 SUBMISSION REQUIREMENTS

A. Submit all Shop Drawings, Product or Catalog Data and Samples to the District by transmittal containing identification of project, specifications number and identification of items being submitted.

B. Product Data

1. Original Submittal – one (1) digital copy of all Shop Drawings and/or Product Data for review in ample time to coordinate necessary features of construction with all fabrication and installation requirements.

2. Resubmittal – When required, copies will be returned to Contractor. After revision submit new copies as stipulated for original submittal. Indicate all changes.

C. Samples

1. Original Submittal – Furnish three (3) samples, unless otherwise specified, of each item for which samples are required for review. Obtain review prior to delivery of material to project site. Such samples shall be representative of actual material proposed for use in project and of sufficient size to demonstrate design, color, texture, and finish.

2. Resubmittal – All rejected samples will be returned upon request. All resubmittals shall consist of three (3) samples.

1.07 REVIEW AND PROCESSING

A. General

1. The Department will review and accept or take other appropriate action upon Contractor's submittals for conformance with the design concept of the work and with the information given in the Contract Documents. Acceptance of a specific item shall not indicate acceptance of an assembly of which the item is component.

2. Submittals not approved by the Contractor will be returned to Contractor. Submittals will not be reviewed or accepted by the Department or Architect without Contractor's prior approval.

B. Review

1. Product Data – After review, one (1) digital copy bearing the Department's review stamp and signature will be returned to Contractor.

2. Samples – After review one (1) sample will be returned and the remainder will be retained by the Department until completion of the work.

END OF SECTION

SECTION 01 35 46

INDOOR AIR QUALITY PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Example Indoor Air Quality Management Plan

SUBMITTALS

A. Indoor Air Quality Management Plan: Describe in detail measures to be taken to promote adequate indoor air quality; use SMACNA IAQ Guideline for Occupied Buildings Under Construction.

1. Submit IAQ Plan at pre-construction meeting. See Exhibit 01 35 46–1, Example Indoor Air Quality Management Plan.
2. Identify construction activities likely to produce odor or dust.
3. Identify areas of project potentially affected, especially occupied areas.
4. Evaluate potential problems by severity and describe methods of control.
5. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent HVAC systems, types of filters and schedule for replacement of filters.
6. Describe cleaning and dust control procedures.
7. Describe commissioning procedure.

B. Identify interior finishes that generate odors, moisture, or vapors or are susceptible to absorption of odors and vapors, and indicate air handling zone, sequence of application, and curing times.

C. Provide a LEED Letter Template, signed by the General Contractor declaring that a Construction IAQ Management Plan has been developed and implemented, and including the MERV value of each air filter used during construction and at the end of construction.

D. Provide 18 photographs – six photographs taken on three different occasions during construction – along with identification of the SMACNA approach featured by each photograph, in order to show consistent adherence to the LEED credit requirements.

1. As an alternative to providing photographs, declare which of the five Design Approaches of SMACNA IAQ Guideline for Occupied Buildings under Construction which were used during building construction. Include adequate description of the design approaches employed.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 IMPLEMENTATION *[Note to AE: Provide Construction Documents to ensure the following:]*

A. An Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building as follows:

1. Controls, sequences, permanent equipment/systems shall meet the Design Intent / Basis of Design in accordance with the Project's schedule without imposing hardship to the Commissioning requirements and schedule.
2. Meet the recommended Design Approaches of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guideline for Occupied Buildings under Construction, Chapter 3.
3. Protect stored on-site or installed absorptive materials from moisture damage.
4. HVAC equipment and supply air ductwork shall not be used for ventilation during construction without meeting the following criteria as specified in the IAQ.
   a. Meet all requirements of *Section 01 76 00 - Protecting Installed Construction*.
   b. Coordinate with the Ventilation Contractor to avoid the use of return air ducting.
      1) Seal return air inlets or otherwise positively isolate return air system to prevent recirculation of air; provide alternate return air pathways.
   c. If the Permanent Design does not permit temporary isolation of Return Ducting then filtration media with a Minimum Efficiency Reporting Value (MERV) of 11 shall be used at each return air grill.
      1) Within Design parameters, operate HVAC system on 100 percent outside air.

d. Ensure that all air filters are correctly installed prior to starting use. Replace all filtration media at a minimum of weekly or sooner as necessary to maintain cleanliness. Replace all filtration immediately prior to occupancy. Provide filtration media having a Minimum Efficiency Reporting Value as scheduled maintaining LEED compliance.

B. Prior to permanent use of return air ductwork without intake filters, clean up and remove dust debris generated by construction activities using a HEPA vacuum cleaning system.

C. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.

D. Prevent the absorption of moisture by:

1. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.
2. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.
3. Provide sufficient TEMPORARY ventilation for drying. Permanent equipment may be allowed to be used once all Contractor-submitted care provisions have been approved by Owner.

E. Begin construction ventilation only when building envelope is sealed. When working in a portion of an occupied building, prevent movement of air from construction area to occupied area.

* * *

SECTION 01 45 00

QUALITY CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. Tests.

B. Inspections.

C. County will employ and pay for the services of an Independent Testing Laboratory or Soils Engineer to perform specified testing and/or inspections.

D. Related requirements specified elsewhere:

1. Refer to the various trade sections for specific test and inspection requirements.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

A. Los Angeles County Building Code.

B. Uniform Building Code Standards, as applicable.

C. California Code of Regulations.

1. Title 17 and 24.

1.03 QUALITY ASSURANCE

A. General Test Requirements. Materials to be furnished under the Contract are subject to testing and inspection for compliance with requirements of Drawings and Specifications.

B. Testing Laboratory or Agency shall be the licensed Testing Laboratory or Agency meeting the requirements of ASTM E-329, designated by the County and referred to hereafter as the Testing Laboratory. Perform all testing under supervision and control of a California registered professional engineer employed by the Testing Laboratory.

C. Soils or Foundation Engineer will be the registered professional Geotechnical Engineer employed and paid by the County.

D. Disqualified Material. Any material shipped or delivered to the site by the

Contractor from the source of supply prior to having satisfactorily passed the required testing and inspection, or prior to the receipt of a notice from the County or Architect that such testing and inspection will not be required, shall not be incorporated in the Work.

1.04 QUALITY CONTROL

A. Earthwork.

1. Approval of fill material.

2. Compaction tests.

3. Inspection of subgrades and excavations.

B. Concrete.

1. Materials.

a. Portland cement tests.

b. Concrete aggregates.

c. Reinforcing bars.

2. Concrete quality.

a. Concrete mix designs.

b. Strength tests of concrete.

3. Concrete inspection.

a. Job site inspection.

b. Batch plant or weighmaster inspection.

C. Masonry.

1. Materials.

a. Tests of brick or block masonry units.

b. Tests of mortar and grout materials.

c. Reinforcing steel bars.

2. Mortar and grout quality.

a. Strength tests for mortar and grout

3. Masonry inspection.

a. Job site inspection.

D. Structural steel and metal deck tests and inspections.

1. Materials.

a. Material identification and certification.

b. Testing of unidentified material.

2. Inspection of structural steel, light gage steel deck and welding.

a. Welding inspection (shop and field).

E. Low Voltage cables, system tests and inspection.

F. Electrical generator, ATS, load bank, fuel sensor alarms, lighting and panel board testing.

G. Mechanical HVAC testing and inspections

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials to be tested and/or inspected as specified in respective sections.

PART 3 - EXECUTION

3.01 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel, provide access to Work.

1. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.

B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.

C. Furnish copies of products test reports as required.

D. Furnish incidental labor and facilities:

1. To provide access to Work to be tested.
2. To obtain and handle samples at the Project site or at the source of the product to be tested.

3. To facilitate inspections and tests.

4. For storage and curing of test samples.

E. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

1. When tests or inspections cannot be performed after such notice, reimburse County for laboratory personnel and travel expenses incurred due to Contractor's negligence.

F. Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.

3.02 FIELD QUALITY CONTROL

A. Tests.

1. County will select an independent testing laboratory to conduct tests. Selection of material required to be tested shall be by the laboratory or County's representative and not by Contractor.

2. Contractor shall notify County in sufficient time in advance of manufacture of material to be supplied, which must by terms of the contract be tested, in order that the County may arrange for testing.

3. County will select and pay testing laboratory costs for all tests and inspection, except as provided elsewhere in this section.

B. Test reports.

1. One copy of all test reports shall be forwarded to the County by the testing agency. Such reports shall include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Sample taken but not tested shall also be reported. Records of special sampling operations as required shall also be reported. The reports shall show that the material or materials were sampled and tested in accordance with the requirements of (Title 24) and with the approved specifications. Test reports shall show the specified design strength. They shall also state definitely whether or not the material or materials tested comply with requirements.

C. Verification of test reports.

1. Each testing laboratory shall submit to the County a verified report in duplicate covering all of the tests which were required to be by that laboratory during the progress of the project. Such report shall be furnished each time that work on the project is suspended, covering the tests up to that time, and at the completion of the project, covering all tests.

D. Inspection.

1. The County shall at all times have access for the purpose of the inspection to all parts of the work and to the shops wherein the work is in preparation, and the Contractor shall at all times maintain proper facilities and provide safe access for such inspection.

2. The County shall have the right to reject materials and workmanship which are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the County. If the Contractor does not correct such rejected work within a reasonable time, fixed by written notice, the County may correct same and charge the expense to the Contractor.

3. Should it be considered necessary or advisable by the County at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out the same, the Contractor shall on request promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of the Contractor or his subcontractor, he shall defray all expenses of such examinations and of satisfactory

reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and material necessarily involved in the examination and replacement shall be allowed the Contractor.

4. Reimbursement of Inspection Costs. Contractor shall reimburse the County all or any part, of the actual excessive inspection costs incurred by the County due to any or all of the following.

   a. Contractor's failure to complete the Work within the Contract Time and any previously authorized extensions thereof.

   b. Claims between separate contractors.

   c. Covering of any of the Work before the required inspections or tests are performed.

   d. Extra inspections required for Contractor's correction of defective Work.

E. Inspector.

1. An Inspector employed by the County will be assigned to the Work.

2. The work of construction in all stages of progress shall be subject to the personal continuous observation of the Inspector. He shall have free access to any or all parts of the work at any time. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to keep him fully informed respecting the progress and manner of the work and the character of the materials. Inspection of the work shall not relieve the Contractor from any obligation to fulfill this Contract.

* * *

SECTION 01 50 00

TEMPORARY FACILITIES

1 - GENERAL

1.01 DESCRIPTION

1.02 Office.
1.03 Storage structure.
1.04 Telecommunications.
1.05 Hardware and Software Requirements.
1.06 Toilets.
1.07 Protection from Weather.
1.08 Utilities.
1.09 Construction signboards.
1.10 Temporary chain link fencing.
1.11 Temporary Walkways and Driveways
1.12 Storage of materials.
1.13 Parking.
1.14 Staging areas.
1.15 Steel plates.

1.02 OFFICE

Contractor shall provide an office facility of at least 150 square feet. Facility shall have a lockable exterior door, screened windows, heating and air conditioning, a six -foot-wide desk with drawers, plan tables, plan rack, bookcase, shelf, a minimum three drawer file cabinet and at least three chairs. This facility may also be used as the Contractor's office.

1.03 STORAGE STRUCTURE

Contractor shall provide and maintain on the premises, where directed, watertight storage structure for all materials which might be damaged by weather, including storage facilities for concrete test samples or other material samples required for work.

1.04 TELECOMMUNICATIONS

1. Telephone

Contractor shall provide, at his own expense, a non-pay telephone limited to local calls. Local calls are considered to be those within 213, 310, 323, 562, 626, 714, 818, 909, and 949 area codes.

2. Digital Subscriber Line (DSL)

Contractor shall provide, at his own expense, one (1) DSL line for use by Contractor and the County and their authorized representatives respectively.

3. Virtual Private Network Card (VPN)

Contractor shall provide, at his own expense, one (1) VPN Card for access into the County network to be returned to the County at acceptance of the project.

1.05 HARDWARE AND SOFTWARE REQUIREMENTS

A. The Contractor shall provide a computer for the project. The computer shall be for the Contractor's use. The computer shall be maintained by the Contractor until the project is substantially complete.

The Contractor shall provide the following minimum hardware and software requirements for both computers:

- Windows 11, Primavera P6, Outlook 360 and Microsoft Office
- 19" viewable widescreen monitor with contrast ratio of 800.1 and speakers (Dell 1908FP+AS501).
- Intel, Core i5, or better
- Video Card with 128 MB memory
- 2 GB of RAM memory
- USB

B. Security Requirements

For the above noted computer, the Contractor shall provide the following minimum security requirements:

- Installation of anti-virus software
- Upgrade virus definitions as they become available
- Upgrade Microsoft patches (critical and security) and services packs as they become available
- Installation of firewall (hardware or personal) for broadband Internet access (DSL, cable modem, etc.)

- Maintain confidentiality of log-on ID, password, and SecureID passcode (for VPN)

1.06 TOILETS

Contractor shall install and maintain in a sanitary condition, suitable chemical toilets for use of workmen. Toilets shall be in a location approved by the Department. There shall be a minimum of one (1) toilet for each multiple of twenty (20) Contractor's employees, or fractional part thereof, working at the job site. The temporary restroom facilities shall be serviced a minimum of three (3) times a week.

1.07 PROTECTION FROM WEATHER

The existing building structure and interior finish and furnishings shall be protected from rain, dew, wind, and all other elements of the weather during periods when roof areas are unprotected by roofing or when breaches are present in exterior walls. Such areas shall be covered with weathertight tarpaulins or roofing materials firmly secured or by other approved methods. Refer to General Conditions. When, in the opinion of the Department, breaches in roof or wall areas afford access to unauthorized persons, the Contractor shall, at no additional expense to the County, construct at such breaches, substantial barricades of type and material as approved by the Department.

1.08 UTILITIES

The Contractor shall arrange for and provide all utility services necessary to the work, including electrical current for power and light, and water supplies; or at Contractor's option, he may use free of charge, available County utility services as may exist on the site. Motors connected to County electrical circuits shall not exceed 1/3 horsepower. Contractor shall provide, maintain and remove upon completion of work, all temporary connecting lines to sources of supplies, and temporary meters and accessories as needed.

The Contractor shall bear all expenses involved in the provisions of providing and connecting all temporary utility services. The County will assume payment for utility service charge at the time the various permanent meters are set. Refer to Project General Requirements section for permanent utility services.

1.09 CONSTRUCTION SIGNBOARDS

Refer to article entitled "Advertising" of the General Conditions. Prior to any ground breaking operation or in the case ground breaking is not required, within ten (10) days after award of contract, the Contractor shall furnish and erect two (2) identification signboards 4'-0 x 8'-0 in size, constructed of 3/4" exterior grade plywood within a frame, supported on posts, and adequately braced to resist wind stresses. The sign background shall be painted with two (2) coats of exterior type paint over a suitable primer and lettered with block letters professionally applied.

The signboard shall set forth, in sequence, the following information with the layout as directed by the Department.

CAMP GLENN ROCKEY SECURITY UPGRADES PROJECT
County of Los Angeles
Board of Supervisors

Kathryn Barger	5th District
Hilda L. Solis	1st District
Holly J. Mitchell	2nd District
Lindsey P. Horvath	3rd District
Janice Hahn	4th District

Fesia Davenport, Chief Executive Officer, Chief Executive Office
Mark Pestrella, Director, Department of Public Works
Guillermo Viera Rosa, Interim Chief Probation Officer, Department of Probation

JTC ARCHITECTS
Name of Contractor

In addition, individual signs of Contractors, subcontractors and materialmen may be displayed as approved.

Signs shall be promptly removed by the Contractor or by the owner, if individually owned, upon completion of the work. The size, construction, subject matter and location of all signs shall be subject to the approval of the Department.

1.10 TEMPORARY CHAIN LINK FENCING

1. For the work outside of the secured facility property walls, the Contractor shall provide and maintain a 6 ft. high chain link fence around the construction area(s) consisting of 11 gauge (minimum) x 2" mesh chain link fabric attached to substantial steel pipes spaced at 10 feet on center maximum. Provide top and bottom tension wires and corner post bracing. Provide chain link gates with welded steel pipe frames and all hardware required for proper operation. Fencing shall not have any loose or easy to remove tie wires, hog rings, etc.

2. Provide and maintain the County specified chain link fence enclosures around each jobsite with vehicle and man gates as specified by the County.

3. Obtain and pay for all required permits and inspections. Construct in accordance with applicable codes and regulations of public agencies having jurisdiction.

4. Chain link fencing is not allowed inside the facility, use alternate method to secure the work areas.

1.11 TEMPORARY WALKWAYS AND DRIVEWAYS

A. All new temporary walkways shall be properly joined or tied in with existing walkways. All permanent walkways shall consist of concrete.

B. Areas where temporary walkways or driveways have been installed shall be returned to their condition prior to construction.

1.12 STORAGE OF MATERIALS

Storage of materials shall be only within areas designated by the Department.

1.13 PARKING

The facility parking may be restricted to the County staff and visitors. The Contractor and subcontractors may be required to arrange for off-site parking for construction personnel at no additional cost to the County.

1.14 STAGING AREAS

Contractor shall coordinate with County for location, extent and type of construction staging areas.

1.15 STEEL PLATES

Cover all unattended trenches with traffic grade steel plates. Paint all edges in bright yellow to prevent trip hazards.

* * *

SECTION 01 57 00

STORM WATER POLLUTION PREVENTION

PART 1 - GENERAL

1.01 **Water Pollution Control.**

1.02 **Best Management Practices (BMPs).** Apply BMPs for project that disturbs less than 1 acre of soil.

1.03 **Terms and Definitions.**

1. **Active Areas of Construction -** areas subject to land surface disturbance activities related to the Project including, but not limited to, the Project site, staging areas, immediate access areas, and storage areas. Previously active areas will be considered active areas until temporary or final soil stabilization BMPs are implemented.

2. **Accumulated Precipitation Procedure (APP) –** the methods and procedures for management and discharge of accumulated precipitation on the Project site.

3. **Best Management Practices (BMPs) -** shall be defined as specified in the permits listed in 1.05.

4. **BMP Manager** - an individual who meets the requirements of Los Angeles Regional Water Quality Control Board MS4 Permit Order No. R4-2012-0175-DWQ, Section VI. D. 8. L ii (2).

5. **BMP Manual -** the edition of the Los Angeles County Department of Public Works Construction Site Best Management Practices (BMPs) Manual in effect as of the date of advertisement of the Contract.

6. **Exposed Soil -** native soil left exposed as the result of uncovering, removal of vegetation or pavement, grading, excavation, or any other construction activity. Soil protected with temporary soil stabilization BMPs will not be considered exposed soil.

7. **Inactive Disturbed Soil Areas (DSA) –** areas that have been disturbed and have not or will not be disturbed for at least 14 Days.

8. **Non-Storm Water Discharges -** discharges that do not originate from precipitation events.

9. **Run-On -** storm water discharges that flow onto the Project site.

10. **Run-On Control BMPs -** BMPs used to divert or direct run-on either around or through the Project site.

1.04 **Abbreviations.**

Abbreviation	Word or Words
APP	Accumulated Precipitation Procedure
BMP	Best Management Practice
NPDES	National Pollutant Discharge Elimination System
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board

1.05 **General.** This Project lies within the boundaries of the County of Los Angeles and shall conform to the following requirements:

a) Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities therein, except the City of Long Beach (Order No. R4-2012-0175. NPDES Permit No. CAS004001). Within the City of Long Beach (Order No. 99-060, NPDES Permit No. CAS004003).

b) Within the unincorporated areas of the County of Los Angeles, Los Angeles County Code, Chapter 12.80.

1.06 **Best Management Practices (BMPs).**

a) General. The Contractor shall effectuate a year-round program for implementing, inspecting, and maintaining BMPs for wind erosion control, tracking control, erosion and sediment control, non-storm water control, and waste management and materials pollution control.

Best Management Practices conforming to the “Minimum Requirements" specified in Table 1.06 shall be implemented throughout the duration of the Project. The Contractor shall be responsible for the implementation, maintenance, and inspection of BMPs throughout any temporary suspension of the Work or designated construction moratorium.

The National Weather Service weather forecast shall be monitored by the Contractor on a daily basis. Whenever a rain event is predicted, the contractor shall implement all required BMPs according to the BMP Manual and these Special Provisions.

BMP Manual. Water pollution control work shall conform to the requirements in the BMP Manual. BMP Manual may be accessed at Public Works’ Contracts Opportunities, https://dpw.lacounty.gov/contracts/opportunities.aspx, under **County Sites links (scroll to the bottom of the page).**

The Contractor shall have a minimum of one readily accessible copy of the BMP Manual on the Project site at all times.

b) BMP Manager. The Contractor shall designate a BMP Manager who meets the requirements of Los Angeles Regional Water Quality Control Board (RWQCB) MS4 Permit Order No. R4-2012-0175-DWQ, Section VI, D. 8.I.ii (2).

MS4 Permit Order No. R4-2012-0175-DWQ, Section VI, D. 8.I.ii (2):
"Each Permittee shall ensure that its inspectors are knowledgeable in inspection procedures consistent with the State Water Board sponsored program QSD or a Qualified SWPPP Practitioner (QSP) or that a designated person on staff who has been trained in the key objectives of the QSD/QSP programs supervises inspection operations. Each Permittee may provide internal training to staff or require staff to obtain QSD/QSP certification. Each inspector must be knowledgeable of the local BMP technical standards and ESCP requirements."

The BMP Manager shall have the responsibility and authority to fully implement, maintain and inspect the required BMP's in accordance with the Contract Documents and as directed by the County Project Manager. The BMP Manager shall be fully knowledgeable of the requirements in the BMP Manual.

The designated BMP Manager's name and qualifications shall be submitted in accordance with MS4 Permit Order No. R4-2012-0175-DWQ, Section VI, D. 8.I.ii (2), prior to issuance of the Construction Contract, Part 2 NTP.

c) Minimum Requirements. The Contractor shall implement an effective combination of erosion and sediment controls and maintain the appropriate Construction Site BMPs shown in Table 1.06. The BMPs shown in this table meet or exceed the Waste Discharge Requirements referenced in 1.05.

Table 1.06
Construction Site BMPs

ID	BMP Name	Minimum Requirement
Temporary Soil Stabilization		
SS-1	Scheduling	**X**
SS-2	Preservation of Existing Vegetation	**X**
SS-3	Hydraulic Mulch	
SS-4	Hydro seeding	
SS-5	Soil Binders	
SS-6	Straw Mulch	
SS-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats	**X**
SS-8	Wood Mulching	
SS-9	Earth Dikes/Drainage Swales & Ditches	
SS-10	Outlet Protection/Velocity Dissipation Devices	
SS-11	Slope Drains	
SS-12	Streambank Stabilization	
Temporary Sediment Control		
SC-1	Silt Fence	**X**

SC-2	Sediment/Desilting Basin	
SC-3	Sediment Trap	
SC-4	Check Dam	
SC-5	Fiber Rolls	**X**
SC-6	Gravel Bag Berm	**X**
SC-7	Street Sweeping and Vacuuming	**X**
SC-8	Sandbag Barrier	**X**
SC-10	Storm Drain Protection	**X**

Wind Erosion Control		
WE-1	Wind Erosion Control	**X**
Tracking Control		
TC-1	Stabilized Construction Entrance/Exit	**X**
TC-2	Stabilized Construction Roadway	
TC-3	Entrance/Outlet Tire Wash	
Non-Storm Water Management		
NS-1	Water Conservation Practices	**X**
NS-2	Dewatering Operations	**X**
NS-3	Paving and Grinding Operations	**X**
NS-4	Temporary Stream Crossing	
NS-5	Clear Water Diversion	
NS-6	Illicit Connection/Illegal Discharge Detection and Reporting	**X**
NS-7	Potable Water/Irrigation	**X**
NS-8	Vehicle Equipment Cleaning	**X**
NS-9	Vehicle Equipment Fueling	**X**
NS-10	Vehicle Equipment Maintenance	**X**
NS-11	Pile Driving Operations	
NS-12	Concrete Curing	**X**
NS-13	Material and Equipment Use Over Water	
NS-14	Concrete Finishing	**X**
NS-15	Structure Demolition Over or Adjacent to Water	
NS-16	Temporary Batch Plant	
Waste Management and Material Pollution Control		
WM-1	Material Delivery	**X**
WM-2	Material Use	**X**
WM-3	Stockpile Management	**X**
WM-4	Spill Prevention and Control	**X**
WM-5	Solid Waste Management	**X**
WM-6	Hazardous Waste Management	**X**
WM-7	Contaminated Soil Management	
WM-8	Concrete Waste Management	**X**
WM-9	Sanitary/Septic Waste Management	**X**
WM-10	Liquid Waste Management	**X**

Additional BMPs may be required as a result of actual field conditions, Contractor activities, or construction operations.

Year-Round Implementation Requirements. Implementation shall conform to the requirements in the BMP Manual and the following:

Temporary Soil Stabilization

i. Active Areas of Construction shall be stabilized and temporary sediment controls implemented prior to a rain event.

Temporary Sediment Control

ii. Sediment shall not be discharged offsite or to the storm drain system or receiving waters.
iii. Stockpiles shall be removed from roadways at the end of each work day and shall be covered and bermed with perimeter sediment controls prior to every rain event and when not in use.

Wind Erosion Control

iv. Wind erosion control BMPs shall be implemented in conformance with the requirements of the jurisdictional air quality regulatory agency.

Tracking Control

v. Each entrance to, and exit from, the Project site shall be stabilized. Traffic entering/exiting the Project site shall be directed so as to only use such stabilized entrances/exits. Tracking of mud and/or sediment onto paved surfaces shall be removed by the end of each Day.

Non-Storm Water Management

vi. Accumulated precipitation shall be discharged in accordance with the Accumulated Precipitation Procedure, Section 7.2 of the BMP Manual.
vii. BMP Manual may be accessed at Public Works' Contracts Opportunities, **County Sites links,** https://dpw.lacounty.gov/contracts/opportunities.aspx
viii. Non-storm water BMPs shall be implemented to prevent un-authorized discharges.
ix. Non-storm water discharges shall be in compliance with Section III of the Waste Discharge Requirements referenced in 1.05.

Waste Management and Material Pollution Control

x. Material and waste stockpiles shall be covered prior to all rain events.
xi. Stockpiles of temporary asphalt concrete ("cold mix") shall be covered at all times.
xii. The Contractor shall have a minimum of 3 spill response cleanup on the Project site at all times.
xiii. Spills and leaks shall be cleaned up within one hour after spillage and disposed of off the Project site.
xiv. Concrete waste shall be contained in a concrete washout bin. At grade and below grade washouts are prohibited. There shall be no discharge of concrete washout or waste into the underlying soil or onto the surrounding areas. Concrete waste shall be considered as including, but not be limited to, slurry, cement, wash waters, additives, or grout.

1.07 **Accumulated Precipitation Procedure (APP).** The Contractor shall prepare an accumulated precipitation procedure (APP) for review and approval by the County Project Manager before any discharge from the Project site and as required by the County Project Manager. The APP shall describe the location of proposed discharges, the BMPs to be implemented (e.g., NS-2), and the actual equipment to be used. The APP shall be prepared and submitted in accordance with BMP NS-2 and Section 7 of the BMP Manual, https://dpw.lacounty.gov/contracts/opportunities.aspx

1.08 **BMP Inspections.** The Project site shall be inspected by the BMP Manager and documented on the LACDPW BMP checklist (contained in the BMP Manual) as follows:

a) Within 24 hours prior to a rain event.
b) Within 48 hours after a rain event (0.01 inch or more of accumulated precipitation).
c) At 24-hour intervals during extended rain events.
d) Once every week.

1.09 **Non-Storm Water Discharge Reporting.** If the Contractor identifies any non-storm water discharge(s) as identified in Section III of the Waste Discharge Requirements referenced in 1.05, or if the Project receives a written notice or order from any regulatory agency, the Contractor shall so inform the County Project Manager within 24 hours. The Contractor shall submit a written report to the County Project Manager within 5 Days of the discharge event, notice or order. The report shall include the following information:

a) The date, time, location, nature of the operation and type of discharge, including the cause or nature of the notice or order.

b) The BMPs implemented before the discharge event, or prior to receiving the notice or order.

c) The date of deployment and type of water pollution control practices deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent recurrence.

d) The Contractor shall conduct applicable water quality monitoring per the MS4 Permit Order No. R4-2012-0175-DWQ, Section VI, D. 8.l.ii (2) Section III A.4 and Table 8 of the Waste Discharge Requirements referenced in 1.05.

1.10 **Progressive Enforcement.** The Agency, as a permittee, is subject to enforcement action by the State Water Resources Control Board (SWRCB), Environmental Protection Agency, private citizens and citizen groups. The Contractor shall notify the County Manager immediately following receipt of a request from any jurisdictional regulatory agency, to enter, inspect, sample, monitor or otherwise access the Project site or the Contractor's records pertaining to water pollution control.

The Agency will assess the Contractor a penalty of $1,000 for each Day that the Contractor fails to fully-comply with the specified requirements. The penalty will be deducted from Contract progress payments due the Contractor.

The Contractor shall be responsible for the costs and liabilities imposed by law as a result of its failure to fully-comply. Costs and liabilities include, but are not limited to, fines, penalties and damages whether assessed against the Agency or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act. In addition the Agency will deduct, from any monies due the Contractor, the total amount of any legal fees, staff costs, and consultant fees.

Payment. Payment for the implementation of BMPs, including the BMP Manager, construction, deployment, inspection, maintenance, removal, and the furnishing of all necessary labor, equipment, materials, and all other related costs shall be considered as included in the lump sum Bid price for "IMPLEMENTATION OF BMPs."

Payment will be prorated on a monthly basis over the duration of the Contract.

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SECTION 01 57 19

TEMPORARY AND ENVIRONMENTAL CONTROLS

SECTION 1 - GENERAL

1.1 SUMMARY

This section establishes general control requirements for protection of land and water resources; control of noise, dust, and debris, and other environmental pollution; regulation traffic, and control of other activities of the Contractor and the Contractor's subcontractors in performance of the work of the contract.

1.2 DEFINITIONS

A. Environmental pollution and damage means the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to human life; affect other species of importance to humanity; or degrade the utility of the environment for aesthetic, cultural, or historical purposes.

B. Sediment means soil and other debris that has been eroded and transported by storm or well production runoff water.

C. Inert solids/inert waste means non-liquid solid waste including, but not limited to, soil and concrete, that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established pursuant to Division 7 of the California Water Code and does not contain significant quantities of decomposable solid waste.

D. Inert fill means a permitted facility that accepts inert waste such as asphalt and concrete exclusively.

E. Construction and demolition waste includes solid wastes such as building materials, packaging, rubbish, debris, and rubble resulting from construction, remodeling, repair, and demolition operations.

1. Rubbish includes both combustible and noncombustible wastes such as paper, boxes, glass, crockery, metal and lumber scrap, tin cans, and bones.

2. Debris includes both combustible and noncombustible wastes such as leaves and tree trimmings that result from construction or maintenance and repair work.

F. Class III landfill means a landfill that accepts nonhazardous waste such as household, commercial, and industrial waste, including construction, remodeling, repair, and demolition operations.

G. Chemical waste includes petroleum products, bituminous materials, salts, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.

H. Sanitary Wastes:

1. Garbage includes refuse and scraps resulting from preparation, cooking, distribution, or consumption of food;

2. Sewage means domestic sanitary sewage.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 00.

B. Environmental Protection Program: Prior to commencement of the work of this contract. Compile and submit to the County the written environmental protection program proposed by the Contractor for compliance with requirements of this section, as defined under paragraph 1.4 below. Meet with the County to review the proposed environmental protection program, make changes in the plan, and secure the County's approval of the written environmental protection program, prior to commencement of the work.

1.4 QUALITY CONTROL

A. Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this section. Comply with all pertinent Federal, State, and local regulations pertaining to water, air, solid waste, and noise pollution. Require the Contractor's subcontractors to comply with the provisions of this section.

B. Environmental Protection Program:

1. After award of the contract, and prior to commencement of the work, schedule and conduct a meeting with the County representatives to discuss solid waste management and environmental protection, recycling, and rebate programs required in connection with the work.

2. Not more than 21 calendar days after the meeting, prepare and submit a written and/or graphic Solid Waste Management and Environmental Protection Plan including, but not necessarily limited to:

   a. List of Federal, state and local laws, regulations, and permits concerning environmental protection, pollution control, noise abatement, and noise control that are applicable to the Contractor's proposed operations;

   b. Procedures to be implemented to provide the required environmental protection and to comply with applicable laws and regulations;

   c. Location or locations of solid waste disposal areas proposed to be used by the Contractor, with statement as to current permits or licenses issued to those disposal areas;

   d. Contractor's proposed procedures for recycling and re-use of materials;

   e. Contractor's proposed participation in rebate programs.

   f. Revise and submit the Solid Waste Management and Environmental Protection Plan as required by the County.

   g. Approval of the Contractor's Waste Management and Environmental Protection Plan will not relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protective measures.

3. With each application for progress payment, submit a summary of solid waste generated by the construction and demolition operations.

   a. Submit on form copied from the example at the end of this

section on a different form acceptable to the County;

b. Include copies of all manifests, weight tickets, receipts, and invoices specifically identifying the work and waste materials from recycling centers, class III landfills, and inert fills.

C. Prepare and maintain a 3-ring binder with rebate information and product identification as required for the County to qualify for rebate programs; submit the binder with final closeout submittals.

SECTION 2 - PRODUCTS

2.1 MATERIALS

Except for materials proposed by the Contractor for compliance with the requirements of this Section, and approved in advance by the County, no materials are needed.

SECTION 3 - EXECUTION

3.1 PROTECTION OF LAND RESOURCES

A. It is intended that land resources within boundaries of the project, but outside the limits of permanent work performed under this contract, shall be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project.

B. Insofar as possible, confine activities of the Contractor to pertinent areas defined on the drawings or elsewhere in the Contract Documents. Maintain natural drainage patterns. Conduct construction activities in such a manner that ponding or stagnant water conducive to mosquito breeding habitat will not occur at any time.

C. Land Resources: Do not remove, cut, deface, injure, or destroy trees or other vegetation outside the work area limits. Do not remove, cut, deface, injure, or destroy trees or other vegetation inside the work area limits except as permitted by the County and where land resources are damaged by the Contractor, promptly replace or repair to the approval of the County and at the Contractor’s expense.

D. Tree Trimming: In accordance with recognized standards for such work, trim and seal tree limbs overhanging the line of the work and in danger of being damaged by the Contractor's operations. Remove other tree limbs as directed by the County so the tree will present a balanced appearance. Roots: Do not cut any roots unnecessarily during excavating or trenching operations, expose roots 75 mm (3 inches) in diameter of larger, encountered in the course of excavation, and do not sever but wrap them in burlap as a protective measure while exposed, and at the edge of the excavation or trench, neatly trim all roots 25 mm (1 inch) in diameter or larger that are severed in the course of excavation and paint them with a heavy coat of tree seal approved by the County.

E. When and as directed by the County obliterate all signs of temporary construction such as work areas, structures, foundation of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction; Level all temporary roads, parking areas, and other areas which have become compacted or shaped; At unpaved areas where vehicles are operated, provide a suitable surface treatment or wet down periodically to prevent dust from becoming a nuisance, keep haul roads clear of objects which create unsafe conditions, and promptly remove contaminants and construction materials dropped from construction vehicles.

F. Do not drop mud and debris from construction vehicles onto public streets; sweep turning areas and pavement entrances as needed.

3.2 NOISE CONTROL: Do not permit noise levels exceeding the following:

A. Trenchers, pavers, graders, and trucks: 90 dBA at 50 feet as measured under the noisiest operating conditions;

B. All other equipment: 85 dBA at 50 feet.

C. Use whisperized type generators as approved by the County.

D. Jack Hammers: Equip with exhaust mufflers and steel muffling sleeves; Use whisperized type air compressors as approved by the County.

E. Operations: Keep noise equipment as far as possible from noise-sensitive site boundaries, do not leave machines idling, use electric power in lieu of internal combustion engine power when practicable; Maintain equipment in a manner to reduce noise from excessive vibration, faulty mufflers, and similar

sources, provide mufflers on all engines, and schedule operations to minimize their duration at any given location.

F. Monitoring: As needed, provide portable sound metering devices meeting requirements of ANSI S1.4 for Type 2 sound level meters. Promptly locate and correct noncomplying noise levels.

G. Contractor shall take all practical measures to minimize, or eliminate if possible, air borne and structure borne noise generated from construction activities. Contractor shall comply with the ground vibration limits as specified by ANSI S3.29-1983.

H. The use of explosives and riveting will be prohibited.

3.3 RECYCLING REQUIREMENTS

Implement a recycling program which includes separate collection of waste materials. Refer to technical specifications for recycling of building materials via an on-site crushing operation.

3.4 ARCHAEOLOGICAL FINDINGS DURING CONSTRUCTION

There are no known archaeological remains at the project site. Should skeletons, artifacts, or other archaeological remains be uncovered: Suspend operations of this contract at the site of discovery, continue operations in other areas, and notify the County immediately of the finding. Should the discovery site require archaeological studies resulting in delays and/or additional work, the Contractor will be compensated by an adjustment under pertinent provisions of the contract.

3.5 BURNING RUBBISH AND DEBRIS

Do not permit open burning of rubbish, debris, and/or other combustibles on the site.

3.6 DUST CONTROL/AIR QUALITY

A. Contractor shall prevent air borne debris and dust generated during construction activities from traveling outside the area of work in accordance with SCAQMD Rule 403. All loose materials being hauled onto or out of the site in open truck beds or trailers shall be covered in accordance with State of California Vehicle code Section 23114. Wheels of all vehicles shall be cleaned prior to leaving the Project site.

B. County and City of San Dimas streets shall be kept free of construction dirt and debris at all times by use of street sweeping equipment. The degree of cleanliness to be maintained will be determined by the County.

C. Contractor shall water down all construction activities, such as excavation that create dust.

D. The Contractor shall provide temporary dust proof enclosures to ensure that particulate matter does not migrate outside of enclosed work areas to adjacent occupied hospital areas. The Contractor's means and methods shall dictate the exact method used to comply with this requirement.

E. Maintain and operate construction equipment so as to minimize exhaust emissions. During construction, the site shall be watered and all equipment cleaned once a day to reduce particulate and dust emissions.

F. The Contractor shall not allow any construction equipment with an internal combustion engine to idle more than five (5) minutes in accordance with California Vehicle Code § 2485 (diesel).

3.7 COMPLIANCE

A. The County will notify the Contractor in writing of any observed noncompliance with the provisions of this section, and will describe actions to be taken. Such notice, when delivered to the Contractor or his authorized representative at the job site, will be deemed sufficient for the purpose. Immediately upon receipt of such notice, initiate the required action or actions.

B. Noncompliance: If the Contractor fails or refuses to comply promptly, the County may issue an order stopping all or part of the work of this contract until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it was determined that the Contractor was in compliance.

3.8 TRAFFIC REGULATION

A. Traffic Maintenance: Determine the routing of construction vehicles before starting work, based on restrictions indicated on the drawings and the safeguards and procedures necessary to carry out the work. In addition be

responsible for controlling construction traffic within and adjacent to the site, provide all entrances, lifts and safeguards required necessary to the progress of the work, and effectively control such traffic to provide minimum hazard to the work and all persons, route all construction equipment, trucks, and similar vehicles via existing public streets to and from the site as approved by the governing authorities and the Construction Access Plan.

B. Obtain and pay for permits and inspections necessitated by the use of public streets, sidewalks, curbs, and paving. Post guarantees and bonds that may be required, and repair and make good any damages thereto, acceptable to the authorities having jurisdiction, construct and maintain temporary walks and bridges for pedestrians. Keep streets adjacent to the site open to vehicular and traffic.

C. Maintain constant access for police, fire, and ambulance service.

D. Provide and maintain for proper control of traffic and safety of all concerned. All necessary barricades, suitable and sufficient lights, reflectors, and danger signals, warning and closure signs, directional and detour signs, and whatever additional measures necessary.

E. Indicate on a 24-hour basis all restricted and dangerous conditions existing on or adjacent to the site, illuminate barricades, danger signals, warning signs and obstructions and night and keep waning lights burning from one hour before sunset and until one hour after sunrise.

3.9 Parking: Do not permit parking on site to interfere with activities related to the performance of the work. The Contractor is responsible for providing offsite parking for all Contractor construction personnel at no additional cost to the County, if the County provided Contractor parking area does not provide enough parking spaces for construction personnel.

END OF SECTION

SECTION 01 60 00

PRODUCT HANDLING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included: Products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

2. Additional procedures also may be prescribed in other Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. Include within the Contractor's written quality assurance program such procedures as are required to assure full protection of work and materials.

1.3 MANUFACTURER'S RECOMMENDATIONS

A. Except as otherwise approved by the Architect, determine and comply with manufacturer's recommendations on product handling, storage, and protection.

1.4 PACKAGING

A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.

B. Maintain packaged materials with seals unbroken and labels intact until time of use.

C. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the County.

D. The Architect may reject as non-complying such material and products that do not bear identification satisfactory to the Architect as to manufacturer, grade, quality, and other pertinent information.

1.5 PROTECTION

A. Protect unfinished surfaces, including jambs and soffits or openings used as passageways, through which equipment and material are handled.

B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.

C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the County.

1.6 REPAIRS AND REPLACEMENTS

A. In the event of damage, promptly make replacements and repairs to the approval of the Architect and at no additional cost to the County.

B. Additional time required to secure replacements and to make repairs will not be considered by the Architect to justify an extension in the Contract Time of Completion.

END OF SECTION

SECTION 01 66 00

TRANSPORT, HANDLING & STORAGE

PART 1 GENERAL

1.01 DESCRIPTION (PREPARATION FOR SHIPMENT)

A. Shop prime:

1. Structural steel surfaces not to be encased in concrete shall be shop primed with specified primer. Refer to Section 05 15 20 Structural Steel for primer.

2. After factory tests and acceptance, machined and/or polished surface to remain unpainted shall be coated with minimum 2 mil thickness of rust preventive compounds, or as recommended by manufacturer.

B. Protection:

1. Protect steel surfaces to ensure that their cleanliness during shipment, storage and erection.

2. Protect structural steel against damage from all sources whether mechanical, chemical or environmental.

1.02 TRANSPORTATION AND HANDLING

A. Verification of intent to ship, arrival date and cartage company must be made known to County by Contractor.

B. Immediately on delivery, a complete and thorough inspection of the structural steel by County and Contractor shall be made. Any damages incurred in shipping or handling shall be replaced promptly by Contractor at no cost to the County.

1.03 STORAGE AND PROTECTION

A. Storage and protection shall be the responsibility of the Contractor.

B. Provide complete weather protection for stored structural steel. Storage must be in Los Angeles County, and all material must be insured.

C. Inspection of stored structural steel to assure it will be free from damage or deterioration shall be provided at no additional cost.

D. All storage, handling and rehandling costs, insurance and responsibility for protection and proper installation of such material is the obligation of the Contractor. No payment, pursuant to this provision for material shall in any way relieve the Contractor of its responsibility to obtain or provide, at its expense, any such material or release the Contractor from any of its obligations under this Contract.

E. Department may enter upon the premises where the material is stored for inspection, checking, or any other purpose he deems necessary.

F. The Contractor will be reimbursed for any Los Angeles County taxes levied against such material while so stored, upon presentation of the receipted tax bill for same.

G. Contractor must furnish with his Request for Payment acceptable evidence showing such material has been paid for in full, together with a verified statement that same is/are free from liens and encumbrances and will be utilized in the work covered by this Contract and a material list sufficient for physical inventory at the storage location.

END OF SECTION

SECTION 01 74 19

CONSTRUCTION AND DEMOLITION DEBRIS RECYCLING FOR LOS ANGELES COUNTY PROJECTS

PART 1 GOAL

Consistent with the County's efforts to comply with the California Integrated Waste Management Act of 1989 (Public Resources code, Section 40000 et seq.), one goal of this project is to reduce, reuse, and/or recycle the construction and demolition debris generated by the project in accordance with Los Angeles County Code, Chapter 20.87, Construction and Demolition Debris Recycling and Reuse.

PART 2 GENERAL DEBRIS RECYCLING REQUIREMENTS

2.1 Prior to the commencement of construction, the Contractor shall submit to the Los Angeles County Public Works, Environmental Programs Division (EPD), a Construction and Demolition Recycling and Reuse Plan (RRP) via EPIC-LA.

2.2 Contractor shall submit a RRP for any work done for or on behalf of the County that generates C&D debris.

PART 3 DEBRIS RECYCLING REQUIREMENTS FOR ANY WORK DONE FOR OR ON BEHALF OF THE COUNTY

3.1 The RRP submitted in accordance with Paragraph 2.2 of this Section must demonstrate that the Contractor will reduce, reuse, and/or recycle the C&D debris generated by the project. The RRP must demonstrate that the project will deliver debris to an approved facility for recycling or reuse of at least 70% of the mixed and inert debris and 100% of soil and land clearing debris generated by the project. A list of approved facilities is available on the CND website under reference materials (dpw.lacounty.gov/epd/CD/cd_attachments/Recycling_Facilities.pdf).

The RRP must also identify proper recycling or disposal of 100% of universal waste generated by alteration or renovation projects.

3.2 As part of the Contractor's request for final payment, the Contractor shall submit a Final Compliance Report to EPD for review and approval.

The Final Compliance Report shall include information and documentation as set forth in the Section D of the C&D Recycling and Reuse Guidelines.

3.3 As part of the approval of the final payment, EPD will review the Final Compliance Report to determine if the Contractor documented the quantity of debris generated, reused, and recycled, and achieved a recycling/reuse rate at least 70% by weight and of mixed and inert debris and 100% of soil debris generated and disposed during the project duration.

3.4 If EPD determines that the applicant has not provided sufficient documentation to show that all of the project C&D Debris and universal waste included in the RRP, were properly recycled, reused and/or disposed, within one year of the completion of the project plus any additional time provided by Public Works for the correction of any deficiencies, or if the documentation indicates that the project C&D debris and universal waste were not properly recycled, reused and/or disposed, EPD will calculate the applicable penalty in accordance with the penalty schedule below:

Tons of C&D Not Recycled and Not Reported	**Penalty Amount**	
For up to the first ton	$ 100	fixed amount; plus, as applicable, amounts below
From above the first ton up to 15 tons	$ 60	per ton (or fraction thereof); plus, as applicable, amounts below
From above 15 tons up to 45 tons	$ 45	per ton (or fraction thereof); plus, as applicable, amounts below
From above 45 tons	$ 30	per ton (or fraction thereof)

PART 4 COST

Cost of compliance with the C&D Ordinance shall be considered as included in the Contractor's lump sum base bid.

SECTION 01 74 23

FINAL CLEANING

1.00 GENERAL

1.01 DESCRIPTION

A. Principal work in this Section:

1. Keep premises, adjacent private properties and public properties free from accumulations of waste, debris and rubbish caused by construction operations.

2. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all exposed surfaces.

1.02 SAFETY REQUIREMENTS

A. Standards: Maintain Project in accord with State and local safety and insurance standards.

B. Hazard control:

1. Store volatile wastes in covered metal containers, and remove from premises daily.

2. Prevent accumulation of wastes which create hazardous conditions.

3. Provide adequate ventilation during use of volatile or noxious substances.

C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

1. Do not burn or bury rubbish and waste materials on Project site.

2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains. Store in containers with tight-fitting lids and remove to legal dump site.

3. Special reference is made to the Los Angeles County Department of Public Works Storm Water Pollution Control Requirements for Construction Sites which require implementation of the NPDES standards.

2.00 PRODUCTS (Not applicable)

3.00 EXECUTION

3.01 DURING CONSTRUCTION

A. Remove or paint over, as appropriate to the substrate, graffiti on the site or surrounding fence daily.

B. Wet down materials and rubbish to lay dust and prevent it from blowing.

C. Provide on-site covered containers for collection of waste materials, debris and rubbish. Provide a collection can at each location used as an eating area. Pick-up all garbage daily.

D. Remove waste materials, debris and rubbish from site and legally dispose of at legal public or private dumping areas off County's property.

E. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

F. Comply with the County of Los Angeles Department of Health design /construction and maintenance risk assessment: Policies and Procedures Infection Control Policy Guidelines Procedure No.918.01.

3.02 FINAL CLEANING

A. In preparation for Substantial Completion or Occupancy conduct final inspection of all work.

B. Repair, patch and touch-up marred surfaces to specified finish to match adjacent surfaces.

C. Contaminated earth:

1. Final clean-up operation includes the removal and disposal of earth contaminated or unsuitable for support of plant life in planting areas, and filling of resulting excavations with suitable soil.

2. Contaminated areas include those used for disposal of waste concrete, mortar, plaster, masonry, and similar materials, areas in which washing out of concrete and plaster mixers or washing of tools and like cleaning operations have been performed, and areas that have been oiled, paved, or chemically treated.

3. Do not dispose of waste oil, solvents, paints, solutions, or like penetrating material by depositing or burying on County's property. All material shall be disposed in accordance with all regulatory requirements.

D. Broom clean paved surfaces; rake clean other surfaces of grounds.

E. Keep Project clean until Final Acceptance by the County.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Sections of the Specifications, apply to this section.

1.02 SUMMARY

This section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:

A. Inspection procedures.
B. Project record document submittal.
C. Operation and maintenance manual submittal.
D. Submittal of warranties.
E. Final cleaning.
F. Certificate of compliance
G. Punch correction response if any.

1. Closeout requirements for specific construction activities are included in the appropriate sections.

1.03 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request:

1. In the application for payment that coincides with, or first follows, the date substantial completion is claimed, show one hundred (100) percent completion for the portion of the Work claimed as substantially complete.

a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the contract sum.

b. If one hundred (100) percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

2. Prepare and deliver to the County a completion list enumerating all items of work not complete, the work required to complete the items of work, the reason that each item is not complete, the action taken by the Contractor to complete all other work in light of the item at work remaining, and the date that the item of work will be completed.

3. Advise the County of pending insurance changeover requirements.

4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.

5. Obtain and submit releases enabling the County unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

6. Submit record drawings, operation and maintenance manuals, project photographs, damage or settlement surveys, property surveys, and similar final record information.

7. Deliver tools, spare parts, extra stock, and similar items if any.

8. Make final changeover of permanent locks and transmit keys to the County. Advise the County's personnel of changeover in security provisions.

9. Complete startup testing of systems and instruction of the County's operation and maintenance personnel. Discontinue and remove temporary facilities from the site, along with mock-ups, construction tools, and similar elements.

10. Complete final cleanup requirements, including touch-up painting.

11. Touch up and otherwise repair and restore marred, exposed finishes.

B. Inspection Procedures: On receipt of a request for inspection, the County and the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The County will prepare the Certificate of Substantial Completion upon successful inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The County and the Architect will repeat inspection when requested and assured that the Work is substantially complete. If, after making such reinspection, the County determines that the work is not substantially complete, the Contractor shall be responsible for the cost that the County and the Architect incurred in the performance of additional inspections for the purpose of determining Substantial Completion.

2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.04 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.

2. Submit an updated final statement, accounting for final additional changes to the contract sum.

3. Submit a certified copy of the architect's final inspection list of items to be completed or corrected, endorsed, and dated by the architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the architect.

4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion or when the County took possession of and assumed responsibility for corresponding elements of the Work.

5. Submit consent of surety to final payment.

6. Submit a final liquidated damages settlement statement.

7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure: The County will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed.

1. Upon completion of reinspection, the County will prepare a certificate of final acceptance. If the Work is incomplete, the County will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled, but are required for final acceptance.

2. If necessary, reinspection will be repeated, and the Contractor shall be responsible for the costs of the County and the Architect incurred in the performance of the reinspection or reinspections.

1.05 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the architect's and County's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.

2. Mark new information that is important to the County, but was not shown on Contract Drawings or Shop Drawings.

3. Note related Change-Order numbers where applicable.

4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets and print suitable titles, dates, and other identification on the cover of each set.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual one (1) copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.

1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.

2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.

3. Note related Record Drawing information and product data.

4. Upon completion of the Work, submit record Specifications to the County for records.

D. Record Product Data: Maintain one (1) copy of each product data submittal. Note related Change Orders and markup of Record 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 otherwise be readily discerned later by direct observation.

3. Upon completion of markup, submit complete set of record product data to the County for records.

E. Record Sample Submitted: Immediately prior to Substantial Completion, the Contractor shall meet with the architect and the County's personnel at the Project site to determine which samples are to be transmitted to the County for record purposes. Comply with the County's instructions regarding delivery to the County's sample storage area.

F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the County for records.

G. Maintenance Manuals: Organize operation and maintenance data as described in Section 01 78 23, Operations and Maintenance manuals.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

A. Operation and Maintenance Instructions: Arrange for each Installer of equipment that requires regular maintenance to meet with the County's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments.

B. As part of instructions for operating equipment, demonstrate the following procedures:

1. Startup.
2. Shutdown.
3. Emergency operations.
4. Noise and vibration adjustments.
5. Safety procedures.
6. Economy and efficiency adjustments.
7. Effective energy utilization.

C. See additional requirements for training in the specification sections.

3.2 FINAL CLEANING

A. General: The General Conditions require general cleaning during construction. Regular site cleaning is included in Division 1, Section 01 74 23, "Final Cleaning."

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.

a. Remove labels that are not permanent labels.

b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

e. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean and remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the project of rodents, insects, and other pests. Provide one (1) copy of each pest control inspection report to the County.

D. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the County's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

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SECTION 01 78 23

OPERATIONS AND MAINTENANCE

PART 1 - GENERAL

1.01 WORK INCLUDED

A. To aid the continued instruction of operating and maintenance personnel, and to provide a positive source of information regarding the products incorporated into the Work, furnish and deliver the data described in this Section and in other Sections of Division 1.

1.02 SUBMITTALS

A. Submit three (3) copies of a preliminary draft of the proposed Manual or Manuals to the Agency for review and comments.

B. Unless otherwise directed in other Sections, or in writing by the Agency, submit five (5) copies of the final Manual along with (1) copy of Manual on USB drive latest version of Word to Engineer prior to indoctrination of operation and maintenance personnel.

PART 2 - PRODUCTS

2.01 INSTRUCTION MANUALS

A. Where Instruction Manuals are required to be submitted under other Sections of these Specifications, prepare in accordance with the provisions of this Section.

B. Format:

1. Size: 8-1/2" x 11"

2. Paper: White bond, at least 20-lb. Weight

3. Test: Neatly written or printed

4. Drawings: 11" in height preferable; bind in with text; foldout acceptable; larger drawings acceptable but to fit within the Manual and provide a drawing pocket inside rear cover or bind in with test.

5. Sheets: Separate each portion of the Manual with neatly prepared flysheets briefly describing content of the ensuing portion; flysheets may be in color.

6. Measurements: Provide measurements in U.S. standard units such as feet and inches, lbs., and cfm; where items may be expected to be measured within ten years in accordance with metric formula, provide additional measurements in the "International Systems of Units" (SI).

C. Provide front and back covers for each Manual, using durable material approved by the County and clearly identified on or through the cover with at least the following information:

OPERATING AND MAINTENANCE INSTRUCTIONS

- name and address of Work
- name of Contractor
- general subject of this Manual
- space for approval signature of Architect and approval date

D. Contents: Include at least the following:

1. Neatly typewritten index near the front of the Manual, giving immediate information as to location within the Manual of emergency information regarding the installation.

2. Complete instructions rearing operation and maintenance of equipment.

3. Complete nomenclature of part of equipment.

4. Complete nomenclature and part number of replaceable part, name and address of nearest vendor, and all other data pertinent to procurement procedures.

5. Copy of guarantees and warranties issued.

6. Manufacturers' bulletins, cuts, and descriptive data, where pertinent, clearly indicating the precise items included in this installation and deleting, or others that are not relevant to this installation.

7. Such other data as required in pertinent Section of these Specifications.

PART 3 - EXECUTION

3.01 PREPARATION OF MANUAL

A. General

1. Prepare data in the form of an instructional Manual.

2. When multiple binders are used, correlate data into related, consistent groupings.

B. Include a directory for each product. Provide names, addresses and telephone numbers of Contractor, sub-contractor, suppliers, installers and authorized service and parts suppliers. Format as follows:

1. General Contractor: _____
   Address: _____
   Telephone No.: _____
   Person to Contact: _____

2. Subcontractor:
   Address: _____
   Telephone No.:_____
   Person to Contact: _____

3. Installer: _____
   Address: _____
   Telephone No.: _____
   Person to Contact: _____

4. Manufacturer:_____
   Address:_____
   Telephone No.: _____
   Person to Contact:

5. Local Service Representative:_____
   Address: _____
   Telephone No.: _____
   Person to Contact: _____

C. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

1. Product Data: Include only those sheets pertinent to specific product. Clearly identify pertinent data; line out inapplicable test.

2. Drawings: Supplement product data with drawings as necessary. Coordinate drawings with information in Project records Documents to ensure correct illustration of completed installation.

3. Written test, as required to supplement product data for particular installation.

4. Submittal format and content: Provide each of the following items, as applicable, for each required items or system. Requirements will vary, depending on the equipment. Refer also to specific Specification Section requirements.

5. System description: Provide a detailed narrative description of each system, describing function, components, capacities, controls and other data specified and including the following:

    a. Number of
    b. Sizes
    c. Type of operation
    d. Detailed operating instructions, including start up and shutdown of each system, with indications for position of controls, as applicable.

6. Wiring diagrams: Complete wiring diagrams for internally wired components including controls.

7. Operating sequence: Describe in detail.

8. Manufacturers' data: Provide catalog data sheets, specifications, nameplate data and parts list.

9. Preventative maintenance: Provide manufacturers' detailed maintenance recommendations.

10. Troubleshooting: Provide manufacturers' sequence for troubleshooting procedures foe operational problems.

11. Extra parts: Provide a listing of extra stock parts furnished as part of the Contract.

12. Warranties: Provide specific manufacturer's warranty. List each component and control covered, with day and date warranty begins, date of expiration, name, address and telephone number of person to contact regarding problems during warranty period.

13. Provide operating and maintenance data on work required by the Scope of Work.

3.03 INSTRUCTION OF COUNTY'S PERSONNEL

A. Prior to final inspection and acceptance, instruct County's designated and maintenance personnel in operation, adjustment and maintenance of products equipment and systems.

B. Operation and Maintenance Manual shall constitute the basis of instruction.

* * *

SECTION 01 78 36

GUARANTEES AND WARRANTIES

PART 1 GENERAL

1.01 REQUIREMENTS

A. Section Includes: Requirements for the compilation and submittal of guarantees, warranties, and other documents specified.

1. Compile specified guarantees and warranties.
2. Compile specified service and maintenance contracts.
3. Co-execute submittals when so specified.
4. Review submittals to verify compliance with Contract Documents.
5. Submit to County's Representative for review with transmittal to the County.

B. Related Sections:

1. Section 01 33 00 Submittals.

1.02 SUBMITTAL REQUIREMENTS

A. General: Make submittals in accordance with the relevant requirements of Section 01 33 00.

B. Requirements:

1. Assemble warranties, bonds, and service and maintenance contracts, executed by each of the respective manufacturers, supplies and subcontractors.

2. Submit an original, signed copy.

3. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.

a. Product or work item.
b. Firm, with name of principal, address and telephone number.
c. Scope.

d. Date of beginning of warranty, bond, or service and maintenance contract.
e. Duration of guarantee, warranty, or services and maintenance contract.
f. Provide information for County personnel:
(1) Proper procedure in case of failure.
(2) Instances which might affect the validity of guarantee or warranty.
g. Contractor, name of responsible principal, address, and telephone number.

1.03 FORM OF SUBMITTALS

A. Prepare in duplicate packets and as a digital packet.

B. Format:

1. Size 8 1/2-inches by 11-inches, punch sheets for standard 3-ring binder.

2. Fold larger sheets to fit into binders.

3. Cover: Identify each packet with typed or printed title (GUARANTEES AND WARRANTIES).

List:
a. Title or project.
b. Name of Contractor.

C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers as required.

1.04 TIME OF SUBMITTALS

A. For equipment or component parts of equipment put into services during progress of construction:

1. Submit documents within 10 days after inspection and acceptance.

B. Otherwise make submittals within 10 days after Date of Substantial Completion, prior to final request for payment.

C. For items of work, where acceptance is delayed materially beyond Date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of guarantee/warranty period.

1.05 SUBMITTALS REQUIRED

A. Submit guarantees, warranties, and service and maintenance contracts as specified in pertinent Sections of Specification.

* * * *

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Project Record Documents required include:

1. Marked-up copies of Contract Drawings.

2. Marked-up copies of Shop Drawings.

3. Marked-up As-built record Drawings.

4. Marked-up copies of Specifications, addenda and Change Orders.

5. Marked-up Product Data submittals.

6. Record Samples.

7. Field records for variable and concealed conditions.

8. Record information on Work that is recorded only schematically.

B. Maintenance of Documents and Samples: Store record documents and Samples in the field office apart from Contract Documents used for construction. Do not permit Project Record Documents to be used for construction purposes. Maintain record documents in good order, and in a clean, dry, legible condition. Make documents and Samples available at all times for inspection by the Architect.

1.2 RECORDING

A. Record drawings shall include dimensions from not less than two permanent and salient building points.

B. Post changes and modifications to the Documents as they occur. Do not wait until the end of the Project.

C. The Architect and/or the County Project Manager will periodically review record documents to assure compliance with this requirement.

1.3 PROCEDURES

A. Promptly following Contract Award, General Contractor shall secure from the County one complete set of Specifications and prints of the Contract Drawings and mark them as "Project Record Documents."

B. Timing of Entries: Make entries within 24 hours after receipt of information.

C. Contractor shall be responsible for maintaining and recording changes on "Project Record Document" set.

D. Do not use "Project Record Documents" set for any purpose except entry of new data and for review by the Architect, County Project Manager and County Inspector. Maintain separate job sets for subcontractors and workers daily use.

E. Maintain "Project Record Documents" set at job site where designated by the County Project Manager.

F. Use all means necessary to protect "Project Record Documents" set from deterioration, loss or damage until completion of work.

G. Making Entries On "Project Record Documents" Drawings: Using an erasable color pencil, other than blue, not ink or indelible pencil, clearly describe change by note and by graphic line as required. Date entries. Call attention to entry by a "cloud" around area or areas affected. In even of overlapping changes, different colors may be used for each change.

1. Changes due to approved change orders may be indicated by referencing change order number and scope of change in lieu of revising "Project Record Documents".

2. Location and depth below finish grade or above ceilings and attic spaces of utilities shall be fully dimensioned and indicated on "Project Record Documents". Dimensions shall be taken to building lines of permanent landmarks.

H. The Architect's approval of current status of "Project Record Documents" will be a prerequisite to the County's approval of requests for progress payments and request for final payment.

1. Progress Approvals: Prior to submitting each request for progress payments, secure the County Inspector's approval of status of "Project Record Documents."

2. Prior to submitting request for final payment and final inspection, General Contractor shall submit "Project Record Documents" set to the County Inspector, with transmittal letter, in duplicate, for approval and further processing.

3. The General Contractor shall certify that the "Project Record Documents" are complete and accurately reflect all changes or modifications to the original Construction Documents.

SECTION 01 91 00

COMMISSIONING

PART 1 - GENERAL

1.1 SUMMARY

A. Work includes the completion of formal commissioning procedures on selected mechanical and electrical equipment and systems, as listed under Commissioning Scope below.

B. Commissioning is defined as the process of verifying that the design, installation, functional performance, and maintenance requirements of selected building systems meet or exceed the specified design criteria and therefore satisfies the Owner's Project Requirements.

C. Commissioning during construction, acceptance, and warranty phases is intended to achieve following objectives:

1. Verify and document equipment is installed and started per manufacturer's recommendations and to industry accepted minimum standards.
2. Verify and document equipment and systems receive complete operational checkout by installing contractors.
3. Verify and document equipment and system performance.
4. Verify completeness of operations and maintenance materials.
5. Ensure owner's operating personnel are trained on operation and maintenance of building equipment.

D. The commissioning process includes work and services throughout the project schedule, and is not just the functional performance testing during the Construction Phase.

E. Contractor shall be responsible for participation in the commissioning process as outlined below, and in subsequent sectional references and attachments throughout the project documents.

F. Commissioning process does not take away from or reduce responsibility of the system designers or installing contractors to provide finished and fully functioning product.

G. Commissioning procedures will be designed and coordinated under the direction of the Commissioning Authority (CA).

1.2 RELATED SECTIONS

A. Division 22 Section Commissioning of Plumbing for commissioning process activities for plumbing systems, assemblies, equipment, and components.

B. Division 23 Section Commissioning of HVAC for commissioning process activities for HVAC&R systems, assemblies, equipment, and components.

C. Division 26 Section Commissioning of Electrical Systems for commissioning process activities for electrical systems, assemblies, equipment, and components.

1.3 COORDINATION

A. Commissioning Team.

1. Commissioning Authority (CA)
2. Owner's Technical Staff (Owner or OTS)
3. General Contractor (C, CxC)
4. Construction Manager
5. Subcontractors (Subs)
6. Manufacturer's Representatives/Vendors
7. Architect/Design Professionals (A/E)
8. Mechanical Contractor (MC) / Electrical Contractor (EC)
9. Test and Balance (TAB) Contractor
10. Controls Contractor (CC)
11. Installing subcontractors

B. Management.

1. Commissioning Authority (CA):
   a. Under contract with the Architect (A) or Owner.
   b. Manages commissioning process with assistance of Commissioning Team: Contractor, Subcontractors and Design Professionals (A/E).

C. Scheduling: CA to work with OTS, C and Sub's to schedule commissioning activities.

1. Contractor (C) to integrate commissioning activities into master construction schedule.
2. Involved parties to address scheduling issues in timely manner to expedite commissioning process.

1.5 COMMISSIONING PROCESS

A. Following activities describe commissioning tasks coordinated by CA and C during construction in order of occurrence.

1. Scoping Meeting: Members of design and construction team involved in commissioning process meet and agree on scope of work, tasks, schedules, deliverables, and responsibilities for implementation of Commissioning Plan.
2. Commissioning Plan: Provides guidance in execution of commissioning process.
    a. Project Manual (specification) takes precedence over Commissioning Plan.
3. Submittals: Equipment documentation submitted to CA during normal submittals, including detailed startup procedures.
4. Startup/Pre-Functional Checklists: CA works with C and Sub's to develop startup plans and documentation formats, including providing Sub's, MC and EC with pre-functional checklists to be completed by Sub's and C during startup process.
5. Functional Performance Testing: CA develops specific equipment and system functional performance test procedures.
    a. Contractor and Sub's review procedures and provide feedback.
    b. C and Sub's execute procedures under direction of, and documented by, CA.
6. Deficiencies and Resolution: CA documents items of non-compliance in materials, installation or operation.
    a. Items are corrected at C or Sub's expense and equipment or systems are retested.
7. Operations and Maintenance (O&M) Documentation: CA reviews O&M documentation for completeness.
8. Training: CA reviews and coordinates training provided by C and Sub's and verifies it is completed.
9. Seasonal Testing: Deferred or seasonal testing is conducted, as required.

1.6 COMMISSIONING RESPONSIBILITIES

A. Services for Owner's Technical Staff (OTS) and Design Team are not a part of this contract.

1. Responsibilities are listed here to clarify commissioning process. See also, responsibility table included at end of this section.

B. Commissioning Authority (CA):

1. Primary Role: Develop and coordinate execution of testing plan to verify and document systems are functioning in accordance with design intent and Construction Documents.

2. May assist with problem-solving deficiencies, but ultimately that responsibility resides with Contractor (C), Sub-contractors (Sub's), and Architect (A).

3. Not responsible for design concept, design criteria, code compliance, general construction scheduling, cost estimating, or construction management.

4. Construction and Acceptance Phase:
   a. Coordinate and direct commissioning activities.
   b. Work with C (CxC) and Sub's to ensure commissioning activities are scheduled.
   c. Maintain up-to-date Commissioning Plan.
   d. Help plan and conduct commissioning scoping meeting and controls integration meetings.
   e. Request and review additional information required to perform commissioning tasks, including O&M materials, contractor startup and checkout procedures, and sequences of operation.
   f. Review Contractor submittals applicable to commissioned systems, concurrent with Architect and Owner reviews.
   g. Develop startup and checkout plans with Subs.
   h. Write and distribute pre-functional checklists, tests and startup forms.
   i. Perform site visits to observe component and system installations.
   j. Attend construction job-site meetings to monitor construction and commissioning progress.
   k. Review completed pre-functional checklist and startup reports.
   l. Assist with coordination of startup requirements with TAB requirements.
   m. Write functional performance test procedures for equipment and systems.
   n. Coordinate, witness, and document functional performance tests completed by sub's.
      1) Coordinate retesting as necessary until satisfactory performance is verified.
   o. Maintain master deficiency and resolution record, and provide OTS with written progress reports and test results with recommended actions.
   p. Review training proposed by sub's for Owner's operating personnel.
   q. Review O&M manuals.

r. Prepare Final Commissioning Report.

5. Warranty Period:

a. Coordinate and supervise seasonal or deferred testing and deficiency corrections.
b. Assist in review of Record documentation.
c. Assist in end of warranty review/walk-through inspection.

C. Design Team (A/E):

1. Construction and Acceptance Phase:

a. Attend commissioning scoping meeting, controls integration meeting and additional meetings, as necessary.
b. Provide design intent and sequence of operation documentation as required by CA.
c. Assist in resolution of system deficiencies identified during commissioning.
d. Review and approve operations and maintenance manuals (O&M).
e. Optional: Witness equipment startup and performance testing.

2. Warranty Period:

a. Assist in resolution of system deficiencies identified during warranty period commissioning.

D. Owner's Technical Staff (OTS):

1. Construction and Acceptance Phase:
   a. Plan/Attend
   b. Arrange for facility operating and maintenance personnel to participate in commissioning activities and training sessions.
   c. Provide final acceptance for commissioning work.
2. Warranty Period:
   a. Ensure seasonal or deferred testing and deficiency issues are addressed.

E. Contractor (C, Contractor or Sub):

1. Construction and Acceptance Phase:

a. Contractor to assign a commissioning coordinator (CxC) to facilitate coordination of commissioning work by CA.
b. Attend commissioning scoping meeting, controls integration meeting and additional meetings, as necessary.

c. Furnish copies of construction documents, addenda, change orders and approved submittals and design drawings related to commissioned equipment to CA.
d. Ensure Sub's execute their commissioning responsibilities according to Project Manual and Commissioning Plan.
e. Coordinate training of owner personnel.
f. Work with Sub's to prepare O&M manuals, according to Project Manual, including updating original sequences of operation to Record (as-built) conditions.
g. Develop startup and checkout plan for commissioned equipment based on manufacturer's recommendations and pre-functional checklists from CA.
    1) Submit to CA for review and approval prior to startup.

2. Warranty Period:

    a. Ensure Sub's execute required seasonal or deferred functional performance testing.
    b. Ensure Sub's correct deficiencies and make necessary adjustments to O&M manuals and Record Drawings for issues identified during warranty period.

F. Mechanical Contractor, Electrical Contractor, Controls Contractor and TAB Contractor:

1. Construction and Acceptance Phases:

    a. Attend commissioning scoping meeting, controls integration meeting and additional meetings, as necessary.
    b. Provide additional requested documentation, prior to normal O&M manual submittals, to CA for development of startup and functional testing procedures.
    c. Assist in clarification of operation and control of commissioned equipment where Project Manual, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.
    d. Help develop startup and checkout plan for commissioned equipment based on manufacturer's recommendations and pre-functional checklists from CA.
    e. During startup and checkout process, execute pre-functional checklists for commissioned equipment.
        1) Perform and document completed startup and system operational checkout procedures.
    f. Resolve punch list items before functional testing.
        1) Air and water TAB to be completed with discrepancies and problems resolved before functional testing.

g. Perform functional performance testing, under direction of CA, for commissioned equipment.
h. Resolve equipment or system deficiencies and retest as required to verify modified performance.
i. Prepare O&M manuals according to Project Manual, including updating original sequences of operation to record conditions.
j. Provide training of Owner's operating personnel.
k. Coordinate with equipment manufacturers to determine requirements to maintain validity of warranties.

2. Warranty Period

a. Execute seasonal or deferred functional performance testing.
b. Correct deficiencies and make necessary adjustments to O&M manuals and Record Drawings for issues identified during warranty period.

G. Controls Contractor (CC). Commissioning responsibilities of CC during construction and acceptance phases, in addition to those listed in Paragraph (F), are:

1. Sequences of Operation Submittals. Temperature controls submittals to include complete and detailed sequences of operation for each piece of equipment, regardless of completeness and clarity of sequences in Project Manual, and include:

a. Narrative description of system, describing its purpose, components and function.
b. Interactions and interlocks with other systems.
c. Delineation of control interactions between packaged controls and building automation system, including listing of monitored points, controlled points, and adjustable points.
d. Written sequences of control for packaged controlled equipment.
e. Sequences of control for modes of operation (Start-up, Warm-up, Cool-down, Normal occupied, Unoccupied, Emergency Shutdown, etc.).
f. Capacity control sequences and equipment staging.
g. Temperature and pressure control sequences (setbacks, resets, etc.).
h. Sequences for control strategies (economizer control, optimum start/stop, optimization, demand limiting, etc.).
i. Effects of power or equipment failure with standby component functions.
j. Sequences for alarms and emergency shutdowns.
k. Seasonal operational requirements.

2. Control Drawings Submittal

a. Control drawings to have key to abbreviations.
b. Control drawings to provide graphic schematic depictions of systems and each component.
    1) Schematics to include system and component layout of equipment that control system monitors, enables or controls, even if equipment is primarily controlled by packaged or integral controls.

c. Provide full points list with following included for each point:

    1) Controlled system
    2) Point abbreviation
    3) Point description
    4) Point type (digital/analog, input/output)
    5) Display unit
    6) Control point or setpoint (Yes / No)
    7) Monitoring point (Yes / No)
    8) Intermediate point (Yes / No)
    9) Calculated point (Yes / No)

3. Record Drawing version of control drawings and sequences of operation to be included in final controls O&M manual submittal.

4. Written plan indicating step-by-step manner and procedures that will be followed to test, checkout and adjust control system prior to functional performance testing.

5. Signed and dated certification to CA and Owner upon completion of control system checkout.

H. Equipment Suppliers

1. Provide requested submittal data, including detailed startup procedures and specific responsibilities of Owner to keep warranties in effect.
2. Provide information requested by CA regarding equipment sequence of operation and testing procedures.
3. Assist in equipment testing per agreements with Sub's.

1.7 COMMISSIONING SCOPE:

System	Equipment
HVAC System:	Roof top units
	Make up air units
	Exhaust fans
	HVAC control system

System	Equipment
Electrical System:	Sweep or scheduled lighting controls Lighting occupancy sensors
Plumbing System:	Domestic Hot Water System

PART 2 PRODUCTS

2.1 TEST EQUIPMENT

A. Standard testing equipment required to perform startup and initial checkout and required functional performance testing to be provided by Division Contractor for equipment being tested.

B. Testing equipment to be of sufficient quality and accuracy to test or measure system performance as required by Project Manual.

C. Datalogging equipment or software required to test equipment to be provided by CC but shall not become property of Owner.

PART 3 EXECUTION

3.1 MEETINGS

A. Scoping Meeting:
   1. CA will schedule, plan and conduct Commissioning Scoping Meeting and Controls Integration Meetings with entire commissioning team in attendance.
   2. CA to distribute meeting minutes to those in attendance.

B. Miscellaneous Meetings. Other meetings to be planned and conducted by CA as construction progresses

   1. Meetings to cover coordination, deficiency resolution and planning issues

3.2 REPORTING

A. Regular Reports: CA to provide regular reports to Owner with increasing frequency as construction and commissioning progresses.

B. Progress Reports: CA to regularly communicate with commissioning team, apprising them of commissioning progress and scheduling changes through memos, progress reports, etc.

C. Commissioning Report: CA compiles final Report that summarizes tasks, findings, and documentation of commissioning process.
   1. Report addresses actual performance of building systems in reference to design intent and contract documents.
   2. Report includes:
      a. Completed pre-functional inspection checklists,
      b. Functional performance testing records
      c. Diagnostic monitoring results
      d. Identified deficiencies
      e. Recommendations
      f. Summary of commissioning activities

3.3 SUBMITTALS

A. CA reviews submittals related to commissioned equipment
   1. Reviews intended primarily to aid in development of functional performance test procedures.

B. CA may submit written requests for additional information from contractors to facilitate the commissioning process.

C. CA may request additional design and operations narratives from design team and Controls Contractor.

3.4 START-UP, PREFUNCTIONAL INSPECTION CHECKLISTS

A. Following procedures apply to equipment commissioned, according to Article 1.6, Commissioning Scope.

B. General: Pre-functional Inspection Checklists are developed and completed for major equipment and systems being commissioned.

   1. Checklist documents equipment nameplate and characteristics data and confirms as-built status of equipment or system.
   2. Checklists ensure systems are complete and operational, so functional performance testing can be scheduled.

C. Start-up Plan. CA assists responsible contractors and Sub in developing detailed start-up plans for equipment.

1. Primary role of CA in this process is to ensure there is written documentation and that each manufacturer-recommended procedures be completed.

2. CA creates pre-functional checklists, based primarily on manufacturer's startup and checkout procedures.

    a. Each start-up item will have date and initial line for completion by contractor during start-up.

3. Start-up plans and documentation to be provided to Owner and A/E team for review.

D. Completion of Pre-functional Inspection Checklists and Startup:

1. Subs and equipment suppliers schedule startup and checkout with Owner, C, CxC and CA.
2. CA may observe start-up procedures for major pieces of primary equipment.
    a. Multiple Units: Sampling strategy may be used according to commissioning plan.
3. Lower-level equipment components (e.g., VAV boxes, reheat coils) CA may observe sampling of start-up procedures.
    a. Sampling procedures are identified in commissioning plan.
4. Subs and Vendors execute startup and provide CxC with signed and dated copy of completed start-up and pre-functional inspection checklists for routing to CA.
5. Only individuals who have completed or witnessed line item task are to make initials or checks on forms.

E. Deficiencies, Non-Conformance and Approval in Checklists and Startup.

1. Subs to clearly list any items of start-up and pre-functional procedures not successfully completed at bottom of form or on an attached sheet.
   a. Procedures form and any outstanding deficiencies are provided to CA within two days of test completion.
2. CA reviews and verifies pre-functional inspection checklists and start-up reports and recommends approval to Owner.
3. CA assists Subs and Vendors to correct and retest deficiencies or uncompleted items, involving other members of Commissioning Team as necessary.

3.5 FUNCTIONAL PERFORMANCE TESTING

A. Following procedures apply to all equipment commissioned, according to Article 1.7, Commissioning Scope and to all commissioning functional performance testing.

B. Objectives and Scope:
1. Demonstrate each system is operating according to documented design intent and Construction Documents.
2. Functional performance testing comprises tests to verify components, equipment, systems, and interfaces between systems operate correctly and includes operating modes, interlocks, control sequences, and responses to emergency conditions.
3. Verification procedures are directed, witnessed, and documented by CA.

C. Development of Test Procedures:
1. CA develops specific test procedures and forms to verify and document proper operation of each piece of equipment and system.
2. CA provides test procedures to Contractors and Sub's who review the tests for feasibility, safety, equipment and warranty protection prior to execution.
3. CA may submit tests to Owner for review.
4. Test procedure forms, developed by CA, to include the following information:
   a. System and equipment or component name(s).
   b. Equipment location and ID number.
   c. Date.
   d. Project name.
   e. Participating parties.
   f. Instructions for setting up test, including special cautions, alarm limits, etc.
   g. Specific step-by-step procedures to execute test.

h. Acceptance criteria of proper performance with date passed and initials boxes.
i. Section for comments or notes.

D. Execution of Functional Performance Tests:

1. Test Methods: Functional performance testing and verification may be achieved by direct manipulation of system inputs (i.e. heating or cooling sensors), manipulation of system inputs with building automation system (i.e. software override of sensor inputs), trend logs of system inputs and outputs using building automation system, or short-term monitoring of system inputs and outputs using stand alone data loggers.

a. Combination of methods may be required to test complete sequence of operations.
b. CA determines which method, or combination, is most appropriate.

2. Setup: Each test procedure is performed under conditions that simulate normal operating conditions as closely as possible.

a. Sub executing test provides necessary system modifications to produce specified conditions (flows, pressures, temperatures, etc) necessary to execute test and, at completion of test, returns affected building equipment and systems to their pre-test conditions.

3. Sampling: Multiple identical pieces of non-life-safety or non-critical equipment may be functionally tested using sampling strategy developed by CA and approved by Owner. A 10% sampling rate is typical

4. Test values: If after three attempts at testing of specified sample percentage, failures are still present, remaining units are tested at Contractors' expense.

E. Coordination and Scheduling: Subs provide sufficient notice to CA regarding completion schedule for pre-functional checklists and startup of equipment and systems.

1. CA schedules functional tests through Owner, Contractor and affected Sub's and following sequential priorities followed:

a. Equipment is not "temporarily" started (for heating or cooling), until pre-start checklist items and manufacturer's pre-start procedures are completed and moisture, dust and other environmental and building integrity issues have been addressed.

b. Functional performance testing does not begin until pre-functional, start-up and TAB is completed for given system.

c. Controls system and equipment it controls are not functionally tested until points have been calibrated and pre-functional checklists are completed.

F. Problem Solving:
1. CA may recommend solutions to deficiencies identified during functional testing. Contractor, Subs and A/E team to resolve, correct and retest deficiencies.

3.6 DOCUMENTATION, NON-CONFORMANCE AND APPROVAL OF TESTS

A. Documentation:

1. CA witnesses and documents results of functional performance tests using forms developed for that purpose.

a. Prior to testing, forms are provided to Contractor, Sub's and Owner for review and approval.

B. Non-Conformance:
1. CA records results of functional test on procedure or test form.

a. Deficiencies identified during verification testing are documented on standard form and reported to Owner, Contractors and sub's.
b. Deficiency Report: Includes details of components or systems found to be non-compliant with parameters of test plans.
c. Report details adjustments or alterations required to correct system operation, and identifies responsible party.

2. Corrections of minor deficiencies identified may be made during tests at discretion of CA and deficiency and resolution documented on procedure form.

3. Make every effort to expedite testing process and minimize unnecessary delays, while not compromising integrity of procedures.

4. Identified deficiency resolution:

a. No dispute on deficiency and responsibility to correct it:
1) CA documents deficiency and adjustments or alterations required to correct it.
2) Sub corrects deficiency and notifies CA that equipment is ready to be retested.
3) CA reschedules test and test is repeated.

b. Dispute about deficiency or who is responsible:
    1) Deficiency is documented on non-compliance form and copy given to Owner and Contractor.
    2) Resolutions are made at lowest management level possible and additional parties are brought into discussions as needed.

        a) Final interpretive authority is with A/E team.
        b) Final acceptance authority is with Owner.

    3) CA documents resolution process.

    4) Once interpretation and resolution have been decided, appropriate party corrects deficiency and notifies CA that equipment is ready to be retested.

        a) CA reschedules test and test is repeated until satisfactory performance is achieved.

C. Cost of Retesting:

1. Sub's:
    a. Responsible for costs to retest pre-functional or functional test, if they are responsible for deficiency.
    b. If not responsible for deficiency, cost recovery for retesting costs to be negotiated with C.

2. Time for CA and Owner to direct any retesting because pre-functional checklist or start-up test item, reported to have been successfully completed, but determined during functional testing to be faulty, will be back charged to C.

D. Approval:

1. CA makes formal approval of functional performance test after review.
2. CA recommends acceptance of each test to Owner.
3. Owner gives final approval on each test.

3.7 DEFERRED TESTING

A. Unforeseen Deferred Tests: Functional testing that cannot be completed due to building structure, required occupancy condition, or other deficiency may be delayed upon approval of Owner.

1. Tests are conducted in same manner as seasonal tests as soon as possible.

B. Seasonal Testing: Seasonal variation in operations or control strategies may require additional testing during opposite season to verify performance of HVAC system and controls.

1. During warranty period: Seasonal testing and other deferred testing is completed as required to fully test sequences of operation.
   a. CA coordinates these activities.
2. Tests are executed and documented, with deficiencies corrected by appropriate Subs.
3. Final adjustments to O&M manuals and Record Drawings due to testing are also completed.

3.8 COMMISSIONING PLAN

A. Commissioning Authority has prepared the Commissioning Plan:
1. Attend meetings called by the Commissioning Authority for purposes of completing the commissioning plan.
2. Required attendance and participation of relevant subcontractors, installers, suppliers, and manufacturer representatives.

B. General Contractor is responsible for compliance with the Commissioning Plan

C. Commissioning Plan: The commissioning schedule, procedures, and coordination requirements for all parties in the commissioning process.

D. Commissioning Schedule:
1. Submit anticipated dates of startup of each item of equipment and system to Commissioning Authority within 60 days after award of Contract.

   a. Re-submit anticipated startup dates monthly, but not less than 4 weeks prior to startup.
   b. Prefunctional Checklists and Functional Tests are to be preformed in sequence from components, to subsystem, to systems.
   c. Provide sufficient notice to Commissioning Authority for delivery of relevant Checklists and Functional Test procedures, to avoid delay.

3.9 STARTUP PLANS AND REPORTS

A. Startup Plans: For each item of equipment and system for which the manufacturer provides a startup plan, submit the plan not less than 8 weeks prior to startup.

B. Startup Reports: For each item of equipment and system for which the manufacturer provides a startup checklist (or startup plan for field checkout

sheet), document compliance by submitting the completed startup checklist prior to startup, signed and dated by responsible entry.

C. Submit directly to the Commissioning Authority.

3.10 PREFUNCTIONAL CHECKLISTS

A. A Prefunctional Checklist is required to be filled out for each item of equipment or other assembly specified to be commissioned:

1. No sampling of identical or near-identical items is allowed
2. These checklists do not replace manufacturer's recommended startup checklists, regardless of apparent redundancy.
3. Prefunctional Checklist form will not be completed until after award of the contract; the following types of information will be gathered via the completed Checklist forms:
    a. Certification by installing contractor that the unit is properly installed, started up, and operating and ready for Functional Testing.
    b. Confirmation of receipt of each shop drawing and commissioning submittal specified, itemized by unit.
    c. Manufactured, model number, and relevant capacity information; list information; "as specified," "as submitted," and "as installed."
    d. Serial number of installed unit.
    e. List of inspections to be conducted to document proper installation prior to startup and Functional Testing; these will be primarily static inspections and procedures; for equipment and systems may include normal manufacturer's startup checklist items and minor testing.
    f. Sensor and actuator calibration information.

B. General Contractor is ultimately responsible for filling out Prefunctinoal Checklists, after completion of installation and before startup; witnessing by the commissioning Authority is not required unless otherwise specified:

1. Each line item without deficiency is to be witnessed, initialed, and dated by the actual witness; checklists are not completed until all line items are initialed and dated completed without deficiencies.
2. Checklists with incomplete items may be submitted for approval provided the General Contractor attests that incomplete items do not preclude the performance of safe and reliable Functional Testing; re-submission of the Checklist is required upon completion of remaining items.
3. Individual Checklists may contain line items that are the responsibility of more than one installer; General Contractor shall assign responsibility to appropriate installers or subcontractors,with identification recorded on the form.
4. If any Checklist line item is not relevant, record reasons on the form.

5. General Contractor may independently perform startup inspections and/or tests, at his option; see Section 017500 for additional general startup requirements.
6. Regardless of these reporting requirements, General Contractor is responsible for correct startup and operation.
7. Submit completed Checklists to Commissioning Authority within two days of completion.

C. Commissioning Authority is responsible for furnishing the Prefunctional Checklist to General Contractor:

1. Initial Drafts: General Contractor is responsible for initial draft of Prefunctional Checklists where so indicated in the Contract Documents.

2. Provide all additional information request by Commissioning Authority to ad in preparation of checklists, such as shop drawing submittal, manufacturers' startup checklists, and O&M data.

3. Commissioning authority may add any relevant items deemed necessary regardless of whether they are explicitly mentioned in the Contract Documents or not.

4. When asked to review the proposed Checklist, do so in a timely manner.

D. Commissioning Authority Witnessing: Required for:

1. Each piece of primary equipment, unless sampling of multiple similar units is allowed by the commissioning plan.

2. A sampling of non-primary equipment, as allowed by the commissioning plan.

E. Deficiencies: Correct deficiencies and re-inspected or re-test, as applicable, at no extra cost to Owner:
1. If difficulty in correction would delay progress, report deficiency to the Commissioning Authority immediately.

3.11 FUNCTIONAL TESTS

A. A Functional Test is required for each item of equipment, system, or other assembly specified to be commissioned, unless sampling of multiple identical or near-identical units is allowed by the final test procedures.

B. General Contractor is ultimately responsible for execution of required Functional Tests, after completion of Prefunctional Checklist and before closeout.

C. Commissioning Authority is responsible for witnessing and reporting results of Functional Tests, including preparation and completion of forms for that purpose.

D. General Contractor is responsible for correction of deficiencies and re-testing at no extra cost to Owner; if a deficiency is not corrected and re-tested immediately, the Commissioning Authority will document the deficiency and the General Contractor's stated intentions regarding correction:

1. Deficiencies are any condition in the installation or function of a component, piece of equipment or system that is not in compliance with the Contract Documents or does not perform properly.
2. When the deficiency has been corrected, the General Contractor completes the form certifying that the item is ready to be re-tested and returns the form to the Commissioning Authority; the Commissioning Authority will reschedule the test and the General Contractor re-test.
3. Identical or Near-Identical Items: If 10 percent, or three, whichever is greater, of identical or near-identical items fail to perform due to material or manufacturing defect, all items will be considered defective; provide a proposal for correction within 2 weeks after notification of defect, including provision for testing sample installations prior to replacement of all items.
4. General contractor shall bear the cost of Owner and Commissioning Authority personnel time witnessing re-testing.
5. General Contractor shall bear the cost of Owner and Commissioning Authority personnel time witnessing re-testing if the test failed due to failure to execute the relevant Prefunctional Checklist correctly; if the test failed for reasons that would not have been identified in the Prefunctional Checklist correctly; if the test failed for reasons that would not have been identified in the Prefunctional Checklist process, General Contractor shall bear the cost of the second and subsequent re-test.

E. Functional Test Procedures:

1. Some test procedures are included in the Contract Documents; where Functional Test procedures are not included in the Contract Documents, test procedures will be determined by the Commissioning Authority with input by and coordination with General Contractor.

2. Examples of Functional Testing:
   a. Test the dynamic function and operation of equipment and systems (rather than just components) using manual (Direct observation) or monitoring methods under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint).

b. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc.

c. Systems are run through all the HVAC control system's sequences of operation and components are verified to be responding as the sequence's state.

d. Traditional air or water test and balancing (TAB) is not Functional Testing; spot checking of TAB by demonstration to the Commissioning Authority is Functional Testing.

F. Deferred Functional Tests: Some test may need to be performed later, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design or other site conditions; performance of these test remains the General Contractor's responsibility regardless of timing.

3.12 TEST PROCEDURE - GENERAL

A. Provide skilled technicians to execute starting of equipment and to execute the functional Tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary test, adjustments and problem-solving.

B. Provide all necessary materials and system modifications required to produce the flows, pressures, temperatures, and condition as necessary to execute the test according to the specified conditions. At completion of the test, return all affected equipment and systems to their pre-test condition.

C. Sampling: Where Functional Testing of fewer than the total number of multiple identical or near-identical items is explicitly permitted, perform sampling as follows:
1. Identical Units: Defined as units with same application and sequence of operation; only minor size of capacity difference.
2. Sampling is not allowed for:
   a. Major equipment.
   b. Life-safety-critical equipment.
   c. Prefunctional Checklist execution.
3. XX= the percent of the group of identical equipment to be included in each sample; defined for specific type of equipment.
4. YY= the percent of the sample that if failed will require another sample to be tested; defined for specific type of equipment.
5. Randomly test at least XX percent of each group of identical equipment, but not less than three units. This constitutes the "First Sample".
6. If YY percent of the units in the first sample fail, test another XX percent of the remaining identical units.

7. If YY percent of the units in the second sample fail, test all remaining identical units.
8. If frequent failures occur, resulting in more troubleshooting than testing, the Commissioning Authority may stop the testing and require General Contractor to perform and document a checkout of the remaining units prior to continuing testing.

D. Manual Testing: Use hand- held instruments, immediate control system readouts, or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the “observation”).

E. Simulating Conditions: Artificially create the necessary condition for the purpose of testing the response of a system; for example apply hot air to a space sensor using a hair dryer to see the response in a VAV box.

F. Simulating Signals: Disconnect the sensor and use a signal generator to send an amperage, resistance or pressure to the transducer and control system to simulate the sensor value.

G. Over-Writing Values: Change the sensor value known to the control system in the control system to see the response of the system; for example, change the outside air temperature value from 50 degrees F to 75 degrees F to verify economizer operation.

H. Indirect Indicators: Remote indicators of a response of condition, such as a reading from a control system screen reporting a damper to be 100 percent closed, are considered indirect indicators.

I. Monitoring: Record parameters (flow, current, status, pressure, etc.) of equipment operating using dataloggers of the trending capabilities of the relevant control systems; where monitoring of specific points is called for in functional Test Procedures:

1. All points that are monitored by the relevant control system shall be trended by General Contractor; at the Commissioning Authority’s request, General Contractor shall trend up to 20 percent more points than specified at no extra charge.
2. Other points will be monitored by the Commissioning Authority using dataloggers.
3. At the option of the commissioning authority, some control system monitoring may be replaced with datalogger monitoring.
4. Provide hard copies of monitored data in columnar format with time down left column and at least 5 columns of point values on same page.
5. Graphical output is desirable and is required for all output if the system can product it.
6. Monitoring may be used to augment manual testing.

3.13 OPERATION AND MAINTENANCE MANUALS

A. See Section 01780 for additional requirements.

B. Add design intent documentation furnished by Architect to manuals prior to submission to Owner.

C. Submit manuals related to items that were commissioned to Commissioning authority for review; make changes recommended by Commissioning Authority.

D. Commissioning Authority will add commissioning records to manuals after submission to Owner.

3.14 SUMMARY TABLE OF RESPONSIBILITIES

Activity		Commissioning Authority (CA)	Contractor (C) (CxC) and Subcontractors, including Manufacturer Reps/Vendors	Owner (OTS) Owner's Technical Staff	Design Professionals (A/E) Architect/ Engineers	Sub-Contractor (Sub's)
1.	Commissioning Plan	Writes and manages the commissioning plan. Review and comment	Reviews plan for understanding and scope issues.	Reviews and accepts.	May review and comment.	Reviews and comments.
2.	Construction Submittals of commissioned equipment and assemblies	Reviews for information to inform functional testing	Reviews for compliance with specification and submits to A, OTS and CA for review.	Reviews CA and A comments, and reviews selected submittals.	Reviews CA comments, incorporates with their own comments and submits to (C).	Provides submittal material to (C).
3.	Controls Integration Meetings	Fully participates.	Works with A/E and Sub's with support from CA.	May participate	May participate in meeting that deal with design issues upon Owner Request via executed SSA.	Work with C and support from CA.
4.	Prefunctional Checklists, Tests and Startup forms	Develops based on information provided by A/E	Reviews for scope issues.	May review with CA.	None.	Reviews for scope issues.
5.	Construction Startup and Checkout Plan	Reviews and approves.	Develops by combining prefunctional checklists, tests and startup forms and manufacturer data.	May review with CA.	None.	Per scope of contract.
6.	Prefunctional Checklists Execution.	Spot checks selected items. Reviews completed forms.	Assists DBC with format and checkout. Reviews completed forms.	Spot checks selected items. Reviews completed forms.	None.	Works with C to execute the checklists.

Activity		Commissioning Authority (CA)	Contractor (C) (CxC) and Subcontractors, including Manufacturer Reps/Vendors	Owner (OTS) Owner's Technical Staff	Design Professionals (A/E) Architect/ Engineers	Sub-Contractor (Sub's)
7.	Startup	Witnesses major equipment or systems. Reviews completed forms.	Coordinates tasks and schedules with Subcontractors.	Observes selected systems.	May witness selected systems upon Owner request via executed SSA.	Works with C to coordinates tasks and schedules with Subcontractors.
8.	Construction Observation	Some observation of critical systems and issues.	Observes to ensure Sub-contractors are executing accepted installation and startup plans.	Periodic walk-through. Reports findings to CA and C.	Per scope of contract.	Works with C to observe and ensure Subcontractors are executing accepted installation and startup plans.
9.	Management and Keeper of Issues Log	Manages, develops and keeps updated	Uses log to address issues.	Reviews and provides input to CA.	None (but may add all open issues to their punch list near end of construction).	Uses log to address issues.
10.	Commissioning Meetings	Plans, conducts and takes and distributes minutes for regular commissioning meetings.	Attends commissioning meetings.	Attends commissioning meetings.	May attend selected commissioning meetings upon Owner request via executed SSA.	Attends selected commissioning meetings
11.	Functional Performance Test Procedure Development	Writes procedures for all tests, except regulated tests such as fire alarm, fire suppression, elevators and electrical tests.	Reviews for safety, warranty and scope.	May review.	None.	Reviews for safety, warranty and scope.
12.	Test Plan (process, schedule and sequencing)	Develops plan with input from C and Sub's.	Reviews and accepts.	May review.	None.	Reviews and accepts.
13.	Functional Performance Test Execution	Oversees and witnesses all tests and documents testing.	Helps execute testing.	May participate in selected tests.	May review design issues upon Owner request via executed SSA.	Executes testing with help of C.
14.	Test and Balance (TAB) of Air and Water Systems	Reviews and comments to C, A/E .	Assists TAB contractor in documenting per project contract, and will help resolve issues, if any. Approves final results.	May review.	May help resolve issues, if any, upon Owner request via executed SSA..	Executes and documents per project contract, and will help resolve issues, if any. Approves final results.

Activity		Commissioning Authority (CA)	Contractor (C) (CxC) and Subcontractors, including Manufacturer Reps/Vendors	Owner (OTS) Owner's Technical Staff	Design Professionals (A/E) Architect/ Engineers	Sub-Contractor (Sub's)
15.	O&M Manuals	Reviews for clarity, usability and completeness. Comments to Owner.	Works with Sub's to develop O&M Manual and submits to A.	Reviews and comments. Resolves issues on comments from reviewer. Provides final direction to C.	Submittal review per CO scope.	Works with C to develop O&M Manual and submits to A.
16.	Systems Manual	Receives some data from C, develops other required data and compiles into manual.	Provides specified data and information and submits to CA.	Provides Owner objectives / design intent. Assists in initial outline and reviews / comments on final.	Submittal review per CO scope.	Works with C to provide specified data and information.
17.	Training	Coordinates with Owner regarding functional testing as hands-on training for OTS	Assists in training agenda. Works with Sub's to implement training agendas.	Receives training.	None	Works with C to develop and fill in training agendas. Executes training.
18.	Scheduling	Reviews the Contractor's schedule for commissioning activities. Provides input. Notifies Owner of concerns.	Works with Sub's to control the schedule.	May review.	None	Works with C to control the schedule.
19.	As-Built / Redlines	May check to see that C / DBC are keeping redlines updated.	Develops and submits to A per their scope.	Reviews and accept redlines.	Submittal review per CO scope.	Develops and submits to C per their scope.
20.	Commissioning Report	Compiles and submits to Owner.	None.	Accepts Report.	Submittal review per CO scope.	None.
21.	Seasonal and Deferred Testing	Same as for functional testing.	Same as for functional testing. Schedules testing with OTS.	Same as for functional testing. Works with C to schedule.	None	Works with C to help perform functional testing.

* * *

SECTION 02 08 00

HAZARDOUS MATERIALS, ASBESTOS AND LEAD ABATEMENT

1.00 GENERAL

1.01 DESCRIPTION

A. Based on the results of the survey, lead-based paint and asbestos fibers are not contained in the building materials. The County makes no representation or warranty that the conditions indicated by the survey report either are representative of those conditions existing throughout the area, or that unforeseen developments may not occur, or that materials other than, or in proportions different from those indicated may not exist. The Contractor shall be responsible for verifying and notifying the County immediately, if and when identified or suspected of hazardous materials and if any, abatement quantities prior to submittal of bid. The Contractor is advised that the location of all asbestos containing materials may not be clearly known and that the Contractor shall proceed with caution in all phases of work.

1.02 CONTRACTOR'S RESPONSIBILITY

A. Work included - Base Bid: Contractor shall furnish all labor, materials, and equipment required for proper removal and disposal of lead-based paint and asbestos containing materials from the existing utility building and kennel building to be demolished as part of the project.

B. The Contractor shall be responsible for hiring a certified abatement subcontractor to perform the lead-based paint and asbestos abatement in a manner that complies with all applicable local, state, and federal laws and regulations.

C. The Contractor shall submit a complete work plan, including methodology, specifications and schedule for abatement work, complying with all applicable laws and regulations. Submit the name and license number of a State of California certified abatement subcontractor for the County's approval prior to performance of the abatement work. Certification must be by the State Contractor License Board and currently registered by the State of California Division of Occupancy Safety and Health.

D. The Contractor shall obtain and pay for the required notifications and permits for removal and disposal of the lead-based paint and asbestos containing materials.

E. The Contractor at his expense shall provide all tests and inspections required by applicable regulations, codes, standards, contract documents and any other tests and inspections that he deems necessary for his own use.

F. The Contractor, prior to any demolition work, must abate all lead-based paint and asbestos containing materials and provide air monitoring to verify that the air is clean and acceptable as required by applicable laws and regulations.

G. Remove and dispose all lead-based paint and asbestos containing materials in accordance with jurisdictional and regulatory agency requirements. Abated materials for disposal shall be segregated from normal construction debris and transported off-site to an approved landfill.

1.03 COUNTY'S RESPONSIBILITIES - HAZARDOUS MATERIALS ABATEMENT MONITORING SERVICES

The County will hire an Environmental Consultant to provide abatement monitoring services that are customarily rendered when providing professional services of this nature, and shall include, but not be limited to the following:

A. Review the Contractor/subcontractor submitted abatement detailed work plan, methodology, and other pertinent documents to verify compliance with applicable guidelines, laws, and regulations, including the proper licenses, certificates and all other applicable documents required to perform and complete the project.

B. Visually observe the progress of the work, including but not necessarily limited to the following:

1. Verify contained work areas, isolated work areas, and decontaminated enclosure system design and installation.

2. Verify that the proper abatement methods and procedures are being followed.

3. Take air tests, core samples and bulk samples to complete the work.

4. Conduct periodic review of isolation and containment barriers to determine the level of compliance with the requirements.

5. Observe abatement process to assure that methods for removal and disposal are in accordance with applicable laws and regulations. Verify that abated materials for disposal are segregated from normal construction debris and transported off-site to an approved landfill.

6 Provide ongoing progress and final close-out reports.

Note: The use of an Environmental Consultant by the County to monitor the abatement work will not relieve the Contractor of his responsibilities to conduct tests and inspections required by applicable laws and regulations, codes, and standards for the protection and safety of his employees.

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SECTION 02 05 00

SELECTIVE DEMOLITION

PART 1 – GENERAL Division 0 and 1 shall apply to this section.

1.01 SUMMARY: Perform the demolition and removals as indicated, specified, and required.

A. Work In This Section: Principal items include:
   1. Demolish and remove indicated existing improvements, structural components and finishes as shown on demolition plans.
   2. Clean up and disposal of demolition and removal debris.

1.02 QUALITY ASSURANCE:

A. Requirements of Regulatory Agencies: Secure demolition and removal permits where required by public agencies having jurisdiction.

1.03 JOB CONDITIONS:

A. Existing Conditions: Intent of the Design-Build Drawings is to show existing building conditions with information developed from record drawings, and to generally show the amount and types of demolition and removals required to prepare existing areas for new Work. Contractor shall make a detailed survey of existing conditions pertaining to the Work before commencing demolition. Demolition Drawings do not show all requirements for demolition; carefully review all Drawings and field verify for additional aspects of demolition, removals and alterations.

B. Protection: Maintain fully charged fire extinguishers and water hoses readily available during all demolition operations. Test electrical conductors for disconnection prior to removing.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.01 SITE BARRICADES: Verify with County.

3.02 DEMOLITION AND REMOVALS:

A. Improvements: Remove existing improvement, architectural, structural, mechanical and electrical components, finishes and miscellaneous improvements as indicated and required ready for acceptance of new work.

3.03 SALVAGE AND DISPOSAL:

A. Disposal: Contractor shall make arrangement to procure their own trash removal including all required trash bins, removal services, dump charges and permits. Clean up

and dispose of debris promptly and continuously as the Work progresses, and do not allow debris to accumulate.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCEMENT

PART 1 – GENERAL Division 0 and 1 shall apply to this section.

1.01 SUMMARY: Provide reinforcing steel bars and mesh, complete.

A. Section Includes:

1. Reinforcing bars and mesh for cast-in-place concrete.

B. Related Work:

1. Cast in place concrete

1.02 REFERENCES: The Work shall conform to the reference standards and specifications of the issues listed below, to requirements indicated and specified, to required fire ratings, and to the pertaining regulatory requirements of authorities having jurisdiction. The specifications, codes, publications, and standards listed, but referred to hereafter by the basic designation only, form a part of this Section to the extent referenced herein:

A. American Concrete Institute (ACI):

117- .....Standard Tolerances for Concrete Construction and Materials.
315- .....Details and Detailing of Concrete Reinforcement.
318- .....Building Code Requirements for Reinforced Concrete.

B. American Society for Testing and Materials (ASTM):

A82 .....Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement.
A185 .....Specifications for Welded Steel Wire Fabric for Concrete Reinforcement.
A615 .....Specifications for Deformed Billet-Steel Bars for Concrete Reinforcement.
A706 .....Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement.

C. American Welding Society (AWS):

A2.4 .....Standard Symbols for Welding, Brazing, and Nondestructive Examination.
A5.1 .....Carbon Steel Electrodes for Shielded Metal Arc Welding.
D1.4 .....Structural Welding Code - Reinforcing Steel.

D. Concrete Reinforcing Steel Institute (CRSI):

MSP-2.....Manual of Standard Practice for Reinforced Concrete Construction
Recommended Practice for Placing Reinforcing Bars.
Reinforcing Bar Splices.

E. Western Concrete Reinforcing Steel Institute (WCRSI):

Manual of Standard Practice for Reinforced Concrete Construction

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Certificates: Submit copies of current AWS welding certificates for each welder operator performing Work of this Section. If requested by the Architect or Inspector, submit experience record for each welder operator.

1.04 DELIVERY, STORAGE, AND HANDLING:

A. Storage and Care of Electrodes: Comply with combined recommendations of AWS and the electrode manufacturer. Use of electrodes that have been wetted is prohibited.

B. Marking and Shipping Reinforcement: Bundle and tag reinforcing bars with suitable identification to facilitate sorting and placing, and transport to and store at the site off the ground to avoid damage to material. Deliver reinforcing materials in timely manner to ensure uninterrupted progress. Store reinforcing materials in a manner with no damage. Provide ready access for inspection and identification. Keep a sufficient supply of tested and approved bars at site to avoid delays.

PART 2 - PRODUCTS

2.01 MATERIALS: Furnish materials meeting test requirements of Article "Source Quality Control" below, as applicable, and following requirements:

Reinforcing bars:	ASTM A615, Grade 60, or as noted. For welding, conform to specified carbon equivalent or use bars conforming to ASTM A706.
Reinforcing mesh:	ASTM A185, mesh size and gage as shown, 60 ksi minimum tensile strength.
Tie wire:	Annealed copper-bearing steel, 16 gage mininum.
Welding electrodes:	AWS A5.1, low hydrogen electrodes, E9018 for Grade 60 steel, E70XX for other bars, all electrodes with minimum 60,000 psi yield strength.
Chairs and supports:	Standard manufactured products conforming to the CRSI Manual of Standard Practice, MSP-2. Use dense precast concrete bar supports with embedded wire ties for reinforcement placed on grade; elsewhere, support the bar reinforcement by wire bar supports of the following classes: Class B or C for concrete exposed in the Work; Class A at other concrete.

2.02 FABRICATION OF REINFORCING BARS:

A. General: Except as modified by Drawings or specified, conform to the CRSI and WCRSI "Manual of Standard Practice for Reinforced Concrete Construction" for fabrication of reinforcing steel.

B. Bending and Forming: Fabricate bars of the indicated sizes and bend and form to required shapes and lengths by methods not injurious to materials. Do not heat reinforcement for bending. Bend bars No. 6 size and larger in the shop only. Bars with

unscheduled kinks or bends are subject to rejection. Use only tested and approved bar materials.

C. Welding: Perform welding, where shown or approved, by the direct electric arc process in accordance with AWS D1.4 using specified low-hydrogen electrodes. Preheat 6" each side of joint. Protect joints from drafts during the cooling process; accelerated cooling is prohibited. Do not tack weld bars. Clean metal surfaces to be welded of all loose scale and foreign material. Clean welds each time electrode is changed and chip burned edges before placing welds. When wire brushed, the completed welds must exhibit uniform section, smooth welded metal, feather edges without undercuts or overlays, freedom from porosity and clinkers, and good fusion and penetration into the base metal. Cut out welds or parts of welds found defective and replace with proper welding. Employ only experienced and certified welding operators. Prequalification of welds shall be in accordance with Code. Conform welding details to AWS D1.4, Figures 3.1, 3.5, 3.8.3, and 3.8.4 unless otherwise indicated. All reinforcing bars to be welded shall have a tested and certified maximum 0.75 carbon equivalent or conform to ASTM A706.

D. Tolerances: reinforcing fabrication shall conform to requirements of CRSI "Placing Reinforcing Bars" and CRSI and WCRSI "Manual of Standard Practice for Reinforced Concrete Construction".

2.03 SOURCE QUALITY CONTROL: Refer to Section 01450 for general requirements and to following paragraphs for specific procedures. The Testing Laboratory shall perform the following conformance testing and select test samples of bars, ties, and stirrups from material at the site or from place of distribution, each sampling including at least two 18" long pieces, and perform the following tests according to ASTM A615 or ASTM A706, as applicable.

A. Identified Bars: Contractor shall obtain mill reports for all types and sizes of reinforcing steel; the reports shall contain steel source, description, heat number, yield point, ultimate tensile strength, elongation percentage, bend test, and chemical analysis. For steel made in USA, no testing will be required if the reports show that material is satisfactory. No foreign steel is acceptable. Certification from any other sources will not be acceptable. The Contractor shall ensure that material delivered for use is that represented by mill reports and obtain copies of the mill reports, examine them, certify whether material represented complies with requirements specified, and make distribution of reports as required. Report chemical composition of each heat, as determined by ladle analysis.

B. Unidentified Bars: When positive identification of any reinforcing bars cannot be made and when random samples are obtained, perform the tests for each 5 tons or fraction thereof, one tensile and one bend test from each size of the unidentified bars. The full section of the bars as rolled shall be used for the tests; machined or reduced sections as specified in Section 9, "Test Specimens", of ASTM A615 are not acceptable. Include at least two samples, of sufficient length to allow tests to be made on the as-rolled bar.

PART 3 - EXECUTION

3.01 INSTALLATION OF REINFORCING: Provide additional reinforcing bars at wall and slab openings as required. Before placing bars, and again before placing concrete, clean bars of loose mill scale, oil, or any other coating that might destroy or reduce the bond. Conform to ACI 318, CRSI and WCRSI "Manual of Standard Practice for Reinforced Concrete Construction", CRSI "Recommended Practices for Placing Bar Supports", and the following.

A. Spacing of Reinforcement: Space reinforcement to maintain proper distance and clearance between parallel bars and between bars and forms. Provide metal spreaders and spacers to hold horizontal steel in position in beams and girders, and elsewhere as necessary. Support steel at proper height on precast concrete members, galvanized "S" chairs, or "Support Bars" and galvanized "S" chairs, or with
hangers, or in other manner, as necessary. Where "Support Bars" are used to hold the slab reinforcement in place, space chairs under the support bars not to exceed the distances specified below. Support slab reinforcement as follows:

1. #3 bars at 2'-0" o.c. maximum.
2. #4 bars at 3'-0" o.c. maximum.
3. #5 bars at 4'-0" o.c. maximum.

B. Splices: Do not splice reinforcing bars except where indicated. Make bar laps in contact unless indicated otherwise at lapped splices (except for slab reinforcement) and firmly wire together before placing concrete. Lap the bars as indicated or, if not indicated, lap as noted on the typical details. Stagger the splices in horizontal wall reinforcement at least 10-feet longitudinally in alternate bars of opposite tiers. Extend stubs and dowels required to receive and engage subsequent Work a sufficient length to develop the strength of the bar. Place dowel and stub bars in forms and secure against displacement during placing of concrete.

C. Securing in Place: Accurately place bars and wire tie in precise position where the bars cross. Bend ends of wire ties away from forms. Wire tie bars to corners of ties and stirrups. Use approved accessories and chairs. Use precast concrete cubes with embedded wire ties to support the reinforcing bars in concrete placed on grade and in footings. Tie stirrups to bars at both top and bottom.

D. Exposed Concrete Surfaces: Provide stainless steel or exterior quality vinyl plastic tipped chairs, bolsters, and accessories where exposed on exterior or interior concrete surfaces not to be painted or permanently covered.

E. Clearances: Maintain minimum clear distances between reinforcing bars and between bars and face of concrete as indicated or directed.

F. Field Welding of Bars: As specified for fabrication in Part 2.

G. Maintaining Bars In Position: Assign a competent ironworker mechanic at every concrete placing location to inspect reinforcement and maintain all bars in the correct positions.

H. Fabric Reinforcement: Roll out, straighten, cut to required size, and lay reasonably flat in place. Lap fabric 6" or one full mesh plus 2", whichever is more, at joints and securely wire tie together and to other reinforcement at nominal 12" centers. Extend fabric to within 1" of expansion and contraction joints. Lift the fabric as concrete is placed to ensure proper embedment in concrete at the position or level indicated.

I. Floor System Reinforcement: Do not place until concrete in walls and columns is placed, concrete shrinkage has occurred, and forms and projecting steel have been thoroughly cleaned.

J. Tolerances: Comply with ACI 117 except for references to pre-stressing steel and ducts.

3.02 MISCELLANEOUS CONCRETE WORK: Provide reinforcing bars and mesh for concrete pits, equipment bases, areaways, cast-in-place concrete valve boxes, splash blocks, and other miscellaneous concrete as shown and required to complete all Work. Conform to applicable requirements herein.

3.03 FIELD QUALITY CONTROL: Refer to Section 01400.

A. Inspection: Obtain inspection and approval of reinforcing by Inspector before concrete is placed.

B. Welding Inspection. Whether welding is performed in the shop or at the site, perform welding of reinforcing bars under inspection of the Testing Laboratory Welding Inspector.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL Division 0 and 1 shall apply to this section.

1.01 SUMMARY: Provide the cast-in-place concrete as indicated and specified, complete.

A. Work Included:
1. Furnishing, placing, patching, and initial curing of cast-in-place concrete, unless otherwise specified.
2. Grout and dry pack, except as otherwise specified.
3. Placing of embedded anchor bolts and inserts.
4. Vapor barrier under building floor slabs on grade.

B. Related Work:
1. Preparation and grading of earth sub-grade under concrete.
2. Furnishing and placing reinforcing for cast-in-place concrete.
3. Finishing and final curing of cast-in-place concrete.

1.02 REFERENCES: The Work shall conform to the reference standards and specifications of the issues listed below, to requirements indicated and specified, to required fire ratings, and to the pertaining regulatory requirements of authorities having jurisdiction. The specifications, codes, publications, and standards listed, but referred to hereafter by the basic designation only, form a part of this Section to the extent referenced herein:

A. American Concrete Institute (ACI):

116R-90..... Cement and Concrete Terminology.
117-90(R90) ..... Standard Tolerances for Concrete Construction and Materials.
201.2R-92..... Guide to Durable Concrete.
211.1-91 ..... Recommended Practice for Selecting Proportions for Normal Weight Concrete.
212.3R-91..... Chemical Admixtures for Concrete.
212.4R-93..... Guide for Use of High-Range Water-Reducing Admixtures (Super plasticizers) in Concrete.
214-77(89)..... Recommended Practice for Evaluation of Strength Test Results of Field Concrete.
301-96 ..... Specifications for Structural Concrete for Buildings.
302.1R-89..... Guide for Concrete Floor and Slab Construction.
303R-91..... Guide to Cast-in-Place Architectural Concrete Practice.
304R-89..... Guide for Measuring, Mixing, Transporting and Placing Concrete.
304.2R-91..... Placing Concrete by Pumping Methods.
305R-91..... Hot Weather Concreting.
306.1-90 ..... Cold Weather Concreting.
308-92 ..... Standard Practice for Curing Concrete.

American Concrete Institute (ACI) - Continued:

309-87 ..... Guide for Consolidation of Concrete.
309.1R-93..... Behavior of Fresh Concrete During Vibration.
309.3R-92..... Guide to Consolidation of Concrete in Congested Areas.
311.1R-92..... Guide for Concrete Inspection.
311.5R-88..... Batch Plant Inspection and Field Testing of Ready-Mixed Concrete.
318-95 ..... Building Code Requirements for Structural Concrete.
323.2R-96..... Use of Fly Ash in Concrete.

B. American Society for Testing and Materials (ASTM):

C31-96..... Standard Method of Making and Curing Concrete Test Specimens in the Field.
C33-97..... Specifications for Concrete Aggregates.
C39-96..... Standard Method of Testing for Compressive Strength of Cylindrical Concrete Specimens.
C40-97..... Test Method for Organic Impurities in Fine Aggregates for Concrete.
C42-94..... Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
C88-90..... Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
C94-98..... Specifications for Ready-Mixed Concrete.
C117-95..... Test Method for Material Finer Than 75-um (No. 200) Sieve in Mineral Aggregates by Washing.
C125-97..... Terminology Relating to Concrete and Concrete Aggregates.
C131-96..... Test Method for Resistance to Degradation of Small-Size Coarse Aggregate and Impact in the Los Angeles Machine.
C136-96a..... Test Method for Sieve Analysis of Fine and Coarse Aggregates.
C138-92..... Unit Weight, Yield and Air Content (Gravimetric) of Concrete.
C143-97..... Slump of Portland Cement Concrete.
C150-97a..... Portland Cement.
C157-93..... Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.
C172-97..... Sampling Fresh Concrete.
C192-95..... Practice for Making and Curing Concrete Test Specimens in the Laboratory.
C227-97a..... Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method).
C230-97..... Specification for Flow Table for Use in Tests of Hydraulic Cement.
C231-97..... Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
C260-97..... Air-Entraining Admixtures for Concrete.
C289-94..... Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method).
C309-97..... Liquid Membrane-Forming Compounds for Curing Concrete.
C342-97..... Test Method for Potential Volume Change of Cement-Aggregate Combinations.

American Society for Testing and Materials (ASTM) - Continued:

C404-97 ..... Aggregates for Masonry Grout.
C494-98 ..... Chemical Admixtures for Concrete.
C618-98 ..... Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
C881-90 ..... Specification for Epoxy-Resin-Base Bonding System for Concrete.

C989-98b ..... Specification for Ground Iron Blast-Furnace Slag for Use in Concrete and Mortars.
C1017-97 ..... Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
C1064-86(93) ..... Test Method for Temperature of Freshly Mixed Portland Cement Concrete.
D75-97 ..... Practice for Sampling Aggregates.
D1751-83(97) ..... Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
E11-95 ..... Wire-Cloth Sieves for Testing Purposes.
E329-98 ..... Specifications for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Product Data: Submit copies of manufacturer's latest published literature for materials specified herein for approval; obtain approval before materials are delivered to the site. Include waterproofing joint filler manufacturer's detailed preparation and installation instructions, with manufacturer's standard detail sheets covering each condition required for the Work.

B. Samples:

C. Mix Design Report Submittal: Submit the Testing Laboratory concrete mix designs and test reports, with standard deviation analyses, required curves, and sieve analyses of fine and coarse aggregates at least 10 working days before the initial placement of concrete occurs. Mix designs shall be signed and sealed by a California registered civil engineer. See Drawings for additional requirements.

D. Certifications: Submit the following:
1. Submit a certificate attesting concrete material samples submitted to Testing Laboratory are representative of the materials to be furnished for concrete for the Work.
2. Submit certification of conformance of admixtures and the chloride ion content of admixtures from each admixture manufacturer prior to mix designs.

E. Non-corrosive, Non-chloride Accelerator: Submit admixture manufacturer's long term non-corrosive test data from independent testing laboratory using an acceptable accelerated corrosion test method (electrical potential measures).

F. Concrete Uniformity: Submit evidence from the ready-mix concrete producer of the uniformity of its concrete, as determined by the coefficient of variation established for the plant by a recognized agency.

G. Other Submittals: As specified elsewhere in this Section.

1.04 QUALITY ASSURANCE:

A. Concrete Manufacturer: Furnish concrete from licensed commercial ready-mix concrete plants conforming to ASTM C94 and approved by Building Official. Requirements herein govern when exceeding ASTM C94.

B. Inspection: Site and batch plant inspection during construction will be performed by Inspector as specified in Section 01450 or by Testing Laboratory. Cooperate with Inspector and the Testing Laboratory during the Work, including handling of test cylinders.

1.05 CONCRETE MIX DESIGNS: Testing Laboratory and cost of Testing Laboratory services, which shall govern except as modified herein. Contractor shall be fully responsible for design of concrete mixes and for maintaining strength and consistency of concrete used in the Work. Review of Testing Laboratory's reports and data by Architect and Structural Engineer will not relieve the Contractor from its responsibility for providing concrete in accordance with requirements indicated and specified.

A. Reports: In each mix design report, Testing Laboratory shall show results of sieve analysis, complete mix design information including the proportions of all materials, and results of compressive strength and shrinkage tests. Make test specimens from at least 3 batches of each mix design. In the test reports, include test results showing the concrete covered by the mix designs meets the drying shrinkage test requirements specified herein or include certified test reports showing conformance as furnished by the ready-mix concrete manufacturer.

B. Costs: The Contractor shall bear all costs for concrete mix designs and related testing, including concrete shrinkage testing, performed by the Testing Laboratory.

C. Admixtures: Admixtures shall be included in the concrete mix designs as follows:
   1. Normal weight concrete shall contain a water reducing admixture.
   2. Concrete slabs placed at an air temperature below 50°F shall contain a non-corrosive, non-chloride accelerator.
   3. Air-entraining agent may be used in normal weight concrete to improve concrete workability. Total calculated air content shall conform to Table 4.6.1 of ACI 318, volume determined by direct measurement or by ASTM C138.
   4. Where hardener finish is required for floor slabs, the maximum air content shall be 3%.
   5. Retarding and/or accelerating admixture may be used for cold or hot weather concreting.

D. Strength Requirements: Design mixes for structural concrete for minimum 28-day compressive strengths required by the Drawings and specified. The trial batch strength for each mix shall exceed the indicated or specified strength by 750 psi or a lesser amount based on standard deviations of strength test records according to ACI 318.

E. Normal Weight Concrete:
   1. Basis: Design all concrete mixes for workability and durability. Control the design mixes in accordance with Section 4.2 through 4.6 of ACI 318. Make adjustments in the cement content as necessary for required concrete strengths at expense of the Contractor. Do not exceed 0.50 absolute water-cement ratio by weight.
   2. Maximum Aggregate Sizes: Not exceeding 3/4 of the minimum clear space between bars and between bars and forms, nor larger than 1/5 of least dimensions between the forms. Design mixes for normal weight concrete with 1" maximum size except maximum 1-1/2" size for foundations and maximum 3/8" size aggregate at congested reinforcing or thin sections.
   3. Admixture: Normal weight concrete shall contain water-reducing agent and may contain an air-entraining agent producing air content of 3.5% to 6.5% by volume and adjusted for weather conditions. Do not use calcium chloride. Other admixtures containing any material releasing nitrates in solution are limited to a maximum 0.06% by weight for chloride ion.

F. Pumped Concrete: For concrete to be placed by the pumping method, Testing Laboratory shall prepare the mix designs specifically for pump placement without increasing the proportion of fine aggregate or increasing drying shrinkage.

G. Concrete Shrinkage Tests: As part of mix design procedures, the Testing Laboratory shall perform shrinkage tests for all structural and slab concrete. Prepare a trial batch of each applicable mix design, using the same aggregates, cement, and admixtures (if any) proposed for use in the Work. Prepare at least 3 specimens for determining the "drying shrinkage" of each mix design.
   1. Test Specimens: Drying shrinkage specimens shall be 4" by 4" by 11" prisms, made, cured, dried, and measured as specified in ASTM C157. Measure and report separately for 7, 14, 21 and 28 days of drying, following 7 days of moist curing; use 10" effective specimen gage length.
   2. Test Results: Average drying shrinkage after 28 days of drying shall not exceed 0.05% for all tested concrete specimens.

H. High Early Strength Concrete: Intent to use high early strength concrete (Type I or II portland cement plus non-corrosive and non-chloride accelerator or Type III cement) shall be submitted for consideration prior to submission of mix designs.

1.06 DELIVERY, STORAGE AND HANDLING: Materials shall be delivered to the site in original unopened containers, clearly indicating manufacturer's name, brand name, model or lot number, and other identifying information. Replace damaged materials and equipment at no cost to extra Owner. Protect and store concrete materials in accordance with ACI 301, Section 2.5. Store materials in a dry location, off the ground, and in such a manner to prevent damage or intrusion of foreign matter.

1.07 PROJECT/SITE CONDITIONS:

A. Environmental Conditions: Do not place concrete during rain or adverse weather conditions without means to prevent all damage. Conform to ACI 305 for hot weather concreting and ACI 306 for cold weather concreting as required; do not use calcium chloride or any type of accelerator. When strong winds occur, set up temporary wind screens to prevent too rapid drying of freshly placed or green concrete slabs.

B. Coordination: Examine Drawings and other Sections to ensure completeness of the Work required under this Section. Provide supplementary Work required to complete the concrete, though not specifically shown on Drawings or specified herein. Verify measurements and dimensions at the site, and cooperate in the coordination and scheduling of the Work of this Section with the Work of related trades, with particular attention given to the installation of items embedded in concrete so as not to delay job progress.

PART 2 - PRODUCTS

2.01 BASIC MATERIALS: Furnish materials meeting the requirements of Article "Source Quality Control" below, as applicable, and following requirements:

Portland cement: ..... ASTM C150, Type II, low alkali, for general use; Type III or Type I or II with a non-corrosive non-chloride accelerator for High Early Strength. Do not change the brand without prior approval.

Stone aggregates: ..... ASTM C33 and ACI 301, Sections 2.4.1, 2.4.3, and Section 3.6, Para. (a), Maximum Size Coarse Aggregate, aggregate sizes conforming to concrete mix designs, from approved pits, free of vegetable matter, opaline, feldspar. or siliceous magnesium substances.

Fine: ..... Hard strong durable natural sand, containing maximum 1% by weight of clay, shale, mica, coated grains, coal, or other lightweight matter. passing a 3/8" mesh sieve, uniformly graded from coarse to fine, with not less than 95% passing No. 4 sieve, and not to exceed 2% passing a No. 200 sieve. If the sieve analysis shows a deficiency of fines or gradation non-uniformity, use combination of the fine aggregates and sand in proportions to produce the required results.

Coarse: ..... Clean, hard, fine-grained, sound gravel or crushed stone containing a maximum of 0.5% by weight of clay, shale, mica, coal, or other lightweight material, and a maximum of 5% by weight of flat, thin, elongated, friable, or laminated pieces. If one dimension exceeds 2-1/2 times its average thickness, the pieces are considered flat or elongated. Furnish coarse aggregates in two gradations, measured separately and introduced into the mix.

Fiber reinforcement: ..... Collated and fibrillated polypropylene fibers for the secondary reinforcement of concrete, "Fiber Mesh" by Fibermesh Inc., "Forta CR" by Forta Corp.

Pozzolan: ..... ASTM C618, Class N natural pozzolan, Class F Fly Ash, 100 pounds maximum per cubic yard; use pozzolan only in concrete for foundation walls and columns.

Air entraining admix:..... ASTM C260, one of the following:
-- Air Mix by The Euclid Chemical Co.
-- NIBVR by Master Builders, Inc.
-- Darex AEA by W.R. Grace & Co.
-- Sika AER by Sika Chemical Corp.

Admixtures:..... ASTM C494, containing not over 0.05% chloride ions.

Water reducing: ..... -- Eucon WR-75 by Euclid Chemical Co.
-- Pozzolith 200N by Master Builders, Inc.
-- PlastoCrete 160 by Sika Chemical Corp.
-- WRDA Hycol by W.R. Grace & Co.

Water reducing and
Retarding ..... -- Eucon Retarder 75 by Euclid Chemical Co.
-- Pozzolith 100XR by Master Builders, Inc.
-- Plastiment by Sika Chemical Corp.
-- Darataro by W.R. Grace & Co.

High range water
reducing--..... Eucon 37 by Euclid Chemical Co.
(Superplasticizer)-- ..... WDRA 19 or Daracem by W.R. Grace & Co.
-- Sikament by Sika Chemical Corp.
..... Rheo Build by Master Builders, Inc.

Accelerator: ..... Accelguard 80 by The Euclid Chemical Co.
-- Pozzolith High Early by Master Builders, Inc.
-- Daraset by W.R. Grace & Co.

Prohibited:..... Admixtures containing calcium chloride, thiocyanates, or admixtures containing more than 0.05% chloride ions.

Reinforced paper:..... Two-ply with asphaltic adhesive, one of following:
-- Sisalkraft SK10 by St. Regis Laminated and Coated Products Div., St. Regis Paper Company.
..... -- Grade A by Glas Kraft, Inc.
..... -- Tuff-Champ by Ludlow Corp.

Water: ..... From potable domestic source.

Joint filler:..... ASTM D1751, and D1752 Type I, as specified.

Joint sealant; ..... As specified in Section 07920, including all accessory materials.

Curing compound: ..... ASTM C309, fugitive dye self-dissipating type.

Curing sheet: ..... ASTM C171, non-staining white types.

Evaporation retardant
and finishing aid:..... Master Builders "Confilm".

Non-shrink grout: ..... Conforming to U.S. Army CE CRD-C 621, non-gas-forming type grout free of oxidizing catalysts and inorganic accelerators, non-staining non-rusting type in exposed areas. For drypack and grout, use one of the following, subject to above usage requirements:
-- Masterflow 713 or Embeco 153 by Master Builders.
..... -- Five Star Grout by U.S. Grout Corp.
..... -- Fondag Nonshrink Grout by Specrete Products, Ltd.
-- Firmix or Euco NS by the Euclid Chemical Co.
-- Ferrolith GDS or Sonogrout by Sonneborn.
-- Vibrofoil or Horngrout by A.C. Horn.

Vapor barrier:..... ASTM D2103 or NBS Voluntary Product Standard PS 17-69, polyethylene sheeting, 8 mil thickness, with minimum 2" wide waterproof plastic self-adhering tape, one of the following:

-- Polyfilm by Dow Chemical Co.
-- Zendel Natural by Union Carbide Corp.
-- Visqueen by Ethyl Corp.

Waterproofing joint filler: ..... Cetco "Waterstop-RX", complete with manufacturer's adhesive and accessory materials.

Bonding compound: ..... Polyvinyl acetate rewettable type, one of the following:
-- Euco-Weld by the Euclid Chemical Co.
-- Weldcrete" by The Larsen Company.

Epoxy adhesive: ..... Two-component, 100% solids, 100% reactive compound, for use on dry or damp surfaces, one of the following:
-- Euco Epoxy #463 or #615 by the Euclid Chemical Co.
..... -- Thiopoxy by W.R. Grace & Co.
..... -- Sikadur Hi-Mod by Sika Chemical Corp.

Epoxy bonding agent: ..... For topping slabs and applied cement finish, ASTM C881 and ACI 503; 2-component, 100% solids, 100% reactive, moisture insensitive, for use on dry or damp surfaces, viscosity grades and pot life best suited for intended use, one of the following:
-- Euco 462 Epoxy System or "Eucopoxy LPL by Euclid Chemical.
-- Sikadur 35 Hi-Mod, Sikadur 32 Hi-Mod LPL, by Sika Chemical.

Patching mortar: ..... One of the following:
-- Euco Thin Coat by the Euclid Chemical Co.
-- Sikatop 121 by Sika Chemical Corp.

2.02 CONCRETE MIXING: Furnish ready-mixed concrete from approved commercial off-site ready-mix concrete plant equipped with automatic batching and recording devices for all ingredients. Use transit mixer trucks equipped with automatic devices for recording number of revolutions of the drum. Conform mixing and delivery to this Section and the applicable Building Code requirements. If referenced specifications, this Section, or Building Code conflict, comply with the most restrictive requirement. Measure and mix concrete in accordance with ACI 304, except as modified herein. For ready-mix concrete, Sections 1 through 10 of ASTM C94 apply. Ready-mix concrete shall conform to materials, testing, and mix design requirements specified herein.

A. Proportioning: For each batch, weigh the fine and coarse aggregate separately, measure the cement and water separately, and introduce separately into the mix so the proportions are accurately controlled and easily checked.

B. Changing Proportions: Do not change concrete proportions established by mix designs without written approval.
1. Cement: If any concrete mix develops less than the required minimum 28-day compressive strength, adjust mix proportions and increase amount of cement as necessary, at no extra cost to the Owner.
2. Water: Do not exceed predetermined amount of mix water because of slowness of discharge from the mixer or for any other reason, but reduce water to minimum necessary to produce concrete that will work readily into corners and angles of forms and around reinforcements, without segregation of materials and without free water collecting on the surface.

3. Aggregates: Reasonable variations in grading will be allowed by the Structural Engineer because of the characteristics of available materials and the need for workability and strength.

C. Limitation of Mix Water: Do not deliver ready-mixed concrete to the site with total amount of mixing water included. Withhold 1-1/2 gallons of water per cubic yard at the plant, then add to mix before concrete is discharged from the mixer truck under supervision of Inspector. Each mixer truck shall arrive at the site with full water tank; if the tank is not full and concrete tests to a slump greater than specified, entire load is subject to rejection.

D. Slump: Adjust quantity of water so concrete at time of placing does not exceed the following slumps when tested according to ASTM C143. Slumps may be increased when concrete contains superplasticizing admixture, subject to prior approval of the Structural Engineer. Use minimum water needed for workability required by part of structure being cast.

E. Batch Tickets: Furnish a bonded weighmaster's certified batch ticket with each transit mixer truck of concrete delivered to the site stating quantities of each material placed in the mixer as listed below, time water is added to mix, and certifying these quantities conform to the applicable mix design. Deliver batch tickets to Inspector at the site at time concrete is delivered. The batch delivery tickets shall show:
1. Source of concrete (name of batch plant).
2. Cubic yards of concrete delivered.
3. Pounds of cement per cubic yard of concrete.
4. Weights of cement, sand, and stone/gravel per truckload.
5. Gallons of water added or to be added.
6. Admixtures and amount of same.
7. Time and date of delivery, and time of first mixing, truck numbers and Inspector's name.

F. Charging: Remove water remaining in the ready-mix truck drum completely before ingredients for the following loads are introduced into drum.

G. Re-tempered Concrete: Do not use concrete not been placed 30 minutes after leaving the mixer, or concrete not placed within 60 minutes after water is added to the mix. Re-tempering of concrete will not be allowed.

2.03 SOURCE QUALITY CONTROL: Refer to Section 01450 for general requirements and to following paragraphs for specific procedures. Testing Laboratory shall perform following conformance testing. Concrete materials which, by previous tests or actual service, have shown conformance may be used without testing when so approved by Architect, Structural Engineer, and Building Official. Testing Laboratory shall perform following conformance testing.

A. Portland Cement: The cement mill laboratory will be acceptable as the testing laboratory for this purpose when approved by public authorities having jurisdiction. Submit evidence to show that cement mill laboratory is qualified to perform tests. Laboratory shall make tests for every 500 barrels or fraction thereof of cement used in accordance with ASTM C150. Perform tensile strength test at 7 days. Tag the cement for identification at the location of sampling. A representative of the testing laboratory shall certify that materials

being used are taken from the lots sampled and tested for this report. If the cement mill laboratory is not approved, Testing Laboratory specified in Section 01450 will test each 250 barrels of cement and perform identification tagging.

B. Aggregate For Normal Weight Concrete: Test the aggregate before and after concrete mix is designed, whenever the character of aggregate varies or source of material is changed, but not less than one test per each 500 cubic yards of concrete. Include a sieve analysis. Obtain samples of aggregates at source of supply or at ready-mix concrete plant in accordance with ASTM D75 and perform tests for the following properties:

Definitions:	ASTM C125.
Sieve analysis:	ASTM C136; sieves conforming to ASTM E11.
Organic impurities:	ASTM C40, fine aggregate color not darker than reference standard color.
Soundness:	ASTM C88, loss after 5 cycles not exceeding 8% of coarse aggregate or 10% of fine aggregate.
Abrasion:	ASTM C131, weight loss not more than 10-1/2% after 100 and 42% after 500 revolutions.
Deleterious materials:	ASTM C33.
Materials finer than No. 200 sieve:	ASTM C117, not over 1% for gravel and 1.5% for crushed aggregate, per ASTM C33.
Reactivity potential:	ASTM C227, C289, and C342, silica released to reduction in alkalinity ratio not over 1.0; include full report for evaluation by the Architect.
Sand equivalent:	ASTM D2419, Calif. Sand Equivalent values not below 80%.

PART 3 - EXECUTION

3.01 EXAMINATION: Report to Owner in writing all conditions that interfere with or prevent correct installation of Work of this Section. Do not proceed with installation of concrete in the affected areas until the adverse conditions are eliminated or corrected. Examine conditions at the job site where Work of this Section is to be performed to ensure proper arrangement and fit of the Work. Start of Work of this Section implies acceptance of job site conditions.

3.02 PREPARATION FOR CONCRETE PLACING: Remove all free water from forms before concrete is deposited. Remove hardened concrete, debris, and foreign materials from forms and from surfaces of mixing and conveying equipment.

A. Wetting: Wet wood forms sufficiently to tighten up any cracks. Wet other materials sufficiently to reduce suction and maintain concrete workability.

B. Earth Subgrade: Lightly dampen 24 hours before placing concrete but do not muddy. Re-roll where necessary for smoothness and remove loose material.

C. Vapor Barrier: Spread a 2" even layer of sand under interior floor slabs on grade and install vapor barrier. Lap joints 6" in the direction of concrete spreading and tape seal. Seal the joints at walls and around penetrations with tape. Cover barrier with a second 2" layer of clean sand.

D. Screeds: Set screeds at walls and maximum 8-foot centers between. Set to provide level floor. Check with an instrument level, transit, or laser during placing operation to maintain level floor.

E. Screeds Over Vapor Barrier: Use weighted pad or cradle type screeds and do not drive stakes through the vapor barrier. Check with an instrument level, transit, or laser.

F. Anchors: Set embedded bolts for the materials and equipment attached to concrete to template, layouts, and the Shop Drawings of related trades. Verify size, length, and location of electric conduit at equipment supports.

G. Waterproofing Joint Filler: Install the filler in vertical and horizontal construction joints of waterproofed walls and slabs. Coordinate location of grooves and rebates to receive joint filler with form construction. Conform installation of joint filler to manufacturer's instructions including preparation of surfaces, application of primer and/or adhesive, and placement of joint filler material.

3.03 CONCRETE PLACING: Conform to applicable provisions of ACI 214. Protect the waterproofed surfaces from damage. Do not place concrete when the ambient temperature is above 85EF or below 40EF at time of concrete placing, or if it is likely to go above 85EF or below 40EF before the concrete has taken initial set unless special precautions are taken.

A. Joints In Concrete: Locate joints only where approved, and obtain prior approval for points of stoppage of any pour. Clean and roughen the surface of construction joints by removing the entire surface and exposing 1/4" amplitude of clean aggregate solidly embedded in mortar matrix by sandblasting, chipping, use of an approved surface retarder, or equivalent method. Water and keep the hardened concrete wet for not less than 24 hours and slush with portland cement slurry just before placing the joining concrete. Cover horizontal surfaces of existing or previously placed and hardened concrete with 2" thick layer of fresh concrete less 50% of coarse aggregate just before balance of concrete is placed.

B. Construction Joints: Except where indicated, locate construction joints to least impair strength and appearance of structure. Obtain approval of layout showing proposed location of construction joints before proceeding. Conform to approved submittal. Place concrete continuously for each piece of the Work. If interruptions are necessary, leave the concrete in an uneven rough condition or provide a construction joint. Before starting new Work, where no construction joint is provided, roughen the concrete with chipping pick, then wash thoroughly and apply a bonding compound. Place new concrete after the bonding compound has dried.
   1. Joints in Walls: Not applicable.
   2. Joints in Slabs: Follow existing slab control joints pattern when patching existing concrete floor slab on grade. Allow a proper time lapse in placing of floor sections adjoining prior placings, as approved.

C. Conveying and Placing: Do not place concrete until the backfill compaction, vapor barrier and reinforcing steel, have been approved by Inspector and other authorities having jurisdiction. Do not use aluminum tubing or any aluminum equipment for pumping,

chuting, or placing concrete. Do not allow concrete to free fall from point of release at mixer, hoppers, tremies, or conveying equipment more than 6 feet for concealed concrete and 3 feet for exposed concrete. Provide tremies or plastic elephant trunks with hopper heads spaced at no more than 10 foot centers for the entire length of wall being placed in any one day. Deposit concrete so that the surface is kept level throughout, a minimum being permitted to flow from one portion to another. Place concrete in horizontal layers not more than 18" thick within 60 minutes after water is first added to the batch. Place concrete by methods that prevent segregation of materials. Do not use the reinforcing or forms to support conveying and placing equipment.

E. Pumping Concrete: Intent to place concrete by pumping shall be indicated in writing and the proposed design mix, as well as method of pumping, shall be submitted for approval before any pumping will be permitted. The pump must be suitable for pumping concrete at a maximum slump of 8" with the high range water reducing admixture (super plasticizer). The design mix, as previously specified, shall have a slump (at the nozzle) not in excess of that specified for normally placed concrete. Grout used to lubricate piping prior to pumping shall not be placed in the Work without prior approval. Water used to clean out pipes shall not be allowed to run into the forms or contact freshly placed concrete. Pumped concrete may contain one of the specified high range water reducing admixtures (super plasticizer). The mix design shall not be modified without approval.

1. Pumping shall be done only with equipment that is in good condition and by methods which are considered good practice. Excessive stoppage due to breakdown of equipment or plugged lines, or need to frequently adjust mix water, will be considered just causes for the Architect or Inspector to direct that the pumping be stopped and other methods of placement be used.
2. The use of aluminum pipes and equipment for conveying pumped concrete is prohibited.
3. Pumping shall conform to ACI 304 (Chapter 9).
4. Use pump equipment having a demonstrated capacity to deliver at least 22 cubic yards of concrete per hour to the forms of the mix designs required and at the required slumps.
5. Support equipment and hoses and do not allow to bear on the forms, reinforcing, or subgrade.
6. Frequently check slump at both pump and point of discharge; conform to a maximum 1" slump difference with discharge slump governing.
7. Maintain standby pumping equipment at the site or available within a 30 minute delivery time in event of primary pumping equipment failure.

F. Slabs: Strike off excess concrete with manual or powered screed to bring surface to required plane. Move screeds across the concrete in a sawing motion as the screed is advanced. Use wood bull floats or darbies following screeding to eliminate high or low areas. Compact and tamp concrete and to bring 1/8" to 3/16" of coarse mortar to the surface; avoid tamping that brings up an excess of fines. Wood float to straightedges and screeds at the required planes. Do not use steel or plastic floats of any kind for the initial screeding and floating operations. Do not apply slab finish until surface water disappears and surface is sufficiently hardened. Remove bleed water and laitance as it appears. Check the level with an instrument level, laser, or transit during concrete placing to maintain a level slab.

G. Slab Joints:
   1. On-Grade Slabs: Place with maximum 12-foot edge dimension. Generally locate joints on column lines, exact locations as shown, directed, or approved.
   2. On-Grade Slab Construction and Contraction Joints: Use standard types equal to "Key-Kold" construction joint at column lines, "Kwik-Joint" contraction joint at intermediate spacings. Machine saw cut 1/8" by 1" deep intermediate joints where indicated or approved. Conform to approved submittal.
   3. Expansion Joints: Conform to details and approved submittal. Provide expansion joint filler finished flush with slab surface except for those joints shown to be sealed with sealant. Use rubber type expansion joint filler where sealant sealed joints occur. Conform to Section 07920 for sealant sealed joints are shown or specified, including the polymer joint filler, backing, and bond breaker. Thickness of filler shall exceed joint width by at least 25% and shall fill joint. Where sealing compound is required, install filler up to depth required for the compound used.

3.04 SLAB FINISHING AND CURING: As specified in Section 03350.

3.05 GROUTING AND DRYPACKING: Install as indicated or required except for the items grouted by other trades.

A. Mixing: Mix the approved non-shrink grout material with sufficient water per manufacturers recommendations, so it flows under its own weight for grout, and to just moisten and bind the material together for drypack.

B. Placing and Curing: Install drypack by forcing and rodding to fill voids and provide complete bearing under plates. Place fluid grout from one side only and puddle, chain, or pump for complete filling of voids; do not remove the dams or forms until grout attains initial set. Finish exposed surfaces smooth and damp cure for at least 3 days.

3.06 MISCELLANEOUS CONCRETE WORK: Provide areaways, cast-in-place valve boxes, pits, splash blocks, bases, and other miscellaneous concrete as indicated and required to complete all Work. Conform to applicable requirements herein.

3.07 FIELD QUALITY CONTROL:

A. Supervision: Perform Work of this Section under supervision of a capable concrete superintendent.

B. Level of Floors: Continuously monitor concrete placing to maintain level floors by the use of an instrument level, transit, or laser.

C. Field Facilities: Contractor shall provide and maintain for use by the Testing Laboratory adequate facilities for safe storage and proper field curing of concrete test cylinders on site as required by ASTM C31.

D. Testing of Concrete: Testing Laboratory will perform following tests:
   1. Compressive Strength Tests: Cast one set of three or more cylinders from each day's placing and each 150 cubic yards, or fraction thereof, of each strength of structural concrete. Date cylinders, assign record number, and tag showing the location from which sample was taken. Also record slump test result of sample. Do not make more than two series of tests from any one location or batch of concrete.
   2. Test Cylinders: Cast cylinders according to ASTM C31; 24 hours later, store cylinders under moist curing conditions at about 70EF. Test according to ASTM C39 at 7 and 28 day ages.
   3. Control Test Cylinders: Cast a set of two or more cylinders for each day's placing of concrete for slabs supported on shoring or steel decking. Set test cylinders on slabs represented by the cylinders and cure the same as slabs.

E. Shrinkage Tests: Testing Laboratory will take drying shrinkage specimens of each class of concrete during construction to ensure the continued compliance with the requirements of this Section, at least one set of 3 specimens from each 500 cubic yards of concrete placed and taken from the same concrete used for preparing compression test specimens. Testing shall be as specified above for the mix design process.

F. Quality Assurance During Placing: Testing Laboratory will perform check sieve analysis of the aggregate being used, check compliance with mix design and the cement being used against mix design; check that water has been removed from the drum before adding mix ingredients for the following load, and witness the loading of mixing trucks. Testing Laboratory will send a written report of each inspection to Architect indicating compliance with this Section.

G. Core Tests: If tests show the compressive strength of any concrete falls below the required minimum, additional testing of concrete which unsatisfactory tests represent may be required. Make core tests according to ASTM C42. Fill core holes with drypack concrete of strength required for concrete. Contractor shall bear cost of tests for below-strength concrete even if such tests indicate concrete has attained required minimum compressive strength, and all costs for required corrections.

3.08 CLEANING: Clean up and remove from the site all waste, debris, surplus materials, and disused equipment and supplies resulting from Work of this Section, and remove all equipment as soon as no longer needed for the Work. Clean up and remove all soil contaminated with concrete or by the washing out of transit mixer trucks.

END OF SECTION

SECTION 05 15 20

METAL FABRICATIONS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide structural steel and metal fabrications, complete.

A. Work In This Section: Principal items include:
1. Repair of structural steel and metal fabrications which are cut into, removed, damaged or displaced during the work.
2. Steel supports for new ceiling mounted equipment.
3. Supports for above-ceiling anchorage of new equipment.
4. Welding pertinent to this section.
5. Shop priming and field touch-up to extent specified.
6. All other structural and miscellaneous metal fabrications indicated or required to complete the work.

B. Related Work Specified in Other Sections:

1. Reinforcing steel.
2. Field painting except as specified herein.

1.02 REFERENCES:

A. AISC Standards: Code of Standard Practice for Steel Buildings and Bridges; Specification for the Design, Fabrication and Erection of Structural Steel for Buildings; and Steel Construction Manual; as amended by local ordinance.

B. AWS Standards: AWS D1.1, Structural Welding Code.

1.03 SUBMITTALS:

A. Shop Drawings: Submit covering structural steel and metal fabrications, including welding, accessories, and fastenings. Fully detail minor connections and fastenings not shown or specified to meet required conditions.

B. Product Data: Submit manufacturer's product data for all manufactured items, including bolts, nuts, anchors, washers, and welding electrodes.

C. Weld Procedures: Submit weld procedures, indicating joint details and tolerances, preheat and interpass temperature, postheat treatment, single or multiple pass, electrode type and size, welding current, polarity and amperes and root treatment.

D. Welder's Certificates: Submit Manufacturer's Certificates, certifying welders employed on the Work, verifying AWS qualification within the previous 6 months.

E. Test Reports: Submit reports of tests conducted on shop and field welded and bolted connections. Include data on type of tests conducted and test results.

1.04 JOB CONDITIONS:

A. Verify field measurements prior to fabrication of items. Use caution to protect concrete floor surfaces and adjacent work from damage.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Structural steel: ASTM A 36 for channels, angles and plates, except where other grade steel may be called for on the drawings.

B. Hollow steel sections: ASTM A500, Grade B, or A 501, Grade B.

C. Structural steel pipe: ASTM A53, Grade B.

D. Unfinished threaded fasteners: ASTM A 307, Grade A, regular low carbon bolts and nuts.

E. Primer: Lead free metal primer, Tnemec 10-99 or Rust-Oleum X-60.

F. Welding electrodes: AWS D1.1, Series as indicated on drawings, and as required for the intended use.

G. Epoxy for bolt setting.

2.02 FABRICATION:

A. Conform to approved submittals, Article "Quality Assurance" above as applicable to the work, and requirements herein. Fabricate and form the Work to meet actual installation conditions as verified at the site.

B. Steel shall be well formed to shape and size, with sharp lines or angles, and shall be welded or bolted, and furnished complete with proper anchorage, as detailed.

C. Welding: Conform to AWS D1.1, as modified by referenced AISC Standards, and as indicated or noted on drawings. Unless otherwise indicated or specified, weld joints by shielded electric-arc method. Grind exposed welds subject to contact to smooth surfaces free of holes, slag, or other defects, flush with adjoining surfaces. No finishing treatment is required for concealed welds and other exposed welds except as specified. Cut out defective welding and replace.

D. Shop Priming: Clean surfaces according to AISC Specifications. Apply shop coat of metal primer to minimum 1.0 mil dry film thickness. Work primer into joints. Do not prime galvanized items,or items embedded in concrete or masonry. Shop prime all ferrous items not to be galvanized unless otherwise indicated or specified.

E. Make threaded connections up tight so threads are entirely concealed.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Brace and secure posts until permanent connections are completed. Provide accessories and fasteners to secure steel in place as shown and required.

B. Shop Prime Coat Repair: Do not apply metal primer in wet weather unless steel is protected from dampness and is dry. Clean field welds, field bolts, and all damaged shop primer after erection and apply a spot coat of the same primer used for the shop coat.

C. Fasteners: Provide fasteners and connectors of approved types as required for the installations, whether or not indicated. Provide galvanized fasteners for galvanized items and for exterior use. Fasten metal work to solid masonry with expansion bolts and to hollow masonry with toggle bolts. Provide screws threaded full length to screw head.

D. Set work accurately, in alignment and where shown, plumb, level, free of rack and twist, and set parallel or perpendicular as required to line and plane of surface.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.01 SUMMARY: Division 1 applies to this Section. This Section covers caulking of the openings and joints indicated, specified, and required to make Work weatherproof and watertight, covers caulking requirements for the entire Work, and pertains to any Section requiring caulking, unless specified otherwise.

1.02 QUALITY ASSURANCE: Application of caulking and sealant shall be executed by a specialist caulking contractor with a minimum of 5 years' experience.

1.03 WARRANTY: Furnish a written warranty against defects in sealant application and sealant materials for 20 years for silicones and 10 years for urethanes covering, without limitation, loss of adhesion or cohesion, leaking, deterioration, color changes, and other defects.

PART 2 - PRODUCTS

2.01 MATERIALS: Sealants shall be properly cured, non-staining, maintain color fastness (resistance to color change), and durable when subjected to intense actinic (ultraviolet) radiation. Furnish products of only one manufacturer. Sealant colors shall match adjoining surfaces; special colors may be required.

A. Sealant and Primer: Non-sagging 1-part sealant conforming to Fed Spec TT-S-00230C(2), "Sealing Compound; Elastomeric Type, Single Component", or Fed Spec TT-S-001543A, "Sealing Compound, Silicone Rubber Base", with sealant manufacturer's recommended primer. Non-silicone self-leveling sealant may be furnished for joints in horizontal surfaces.

B. Joint Backing: Shall be of type approved by sealant manufacturer as both physically and chemically compatible with primer and sealant. Oakum, jute, cotton tape, and vegetable base materials are not acceptable. Use uncoated untreated fibrous glass rope or polyethylene, vinyl, silicone, urethane type polymer sponge, tubing of medium to firm density, not containing oil, butyl, asphalt loading, or neoprene. Use polyethylene film or tape, or aluminum foil for bond breaker.

PART 3 - EXECUTION

3.01 PREPARATION AND PROTECTION: Conform to sealant manufacturer's directions and apply materials to clean dry surfaces free of grease, oils, waxes, or other matter that destroys or impairs adhesion. Remove lacquer coatings on aluminum contacting sealants. Protect all adjoining surfaces and apply temporary masking tape on both sides of joints where surface staining may occur. Fill joints with joint backing material until the joint depth does not exceed 50% of joint width. Provide bond breaker to prevent bonding of sealant to backing material wherever joints exceed 1/2" width, or joint width is shown or required to exceed depth. Prime surfaces as required by manufacturer's instructions.

3.02 APPLICATION: Maximum 3/8" sealant depth unless otherwise shown. Minimum joint width is 1/8" for metal to metal joints and maximum 3/4" width elsewhere unless otherwise shown. Apply sealant under sufficient pressure to fill voids. Finish exposed joints smooth and flush with adjoining surface unless recessed joints are shown. Remove temporary masking as soon as joint is completed.

3.03 CLEANING: Conform to Section 01790. Clean material from surfaces not to receive sealant and restore finish as required. If surfaces adjoining joints are stained and cleaning is not acceptable, remove the affected Work and provide new Work as directed and approved, at no extra cost to Owner.

END OF SECTION

SECTION 09 90 00

PAINTING

PART 1 – GENERAL Division 1 shall apply to this section.

1.01 SUMMARY: Provide and perform painting, complete.

A. Work Included:
1. Preparation of surfaces.
2. Painting of all interior surfaces, except as otherwise specified (existing and new).
3. Paint factory primed and/or finished items as indicated.
4. Paint ceilings and access panels (if applicable).

B. Related Work Not In This Section:
1. Shop prime coats and factory finishes.
2. Painting specified as Work of other Sections.
3. Sealants and calking.
4. Water repellent sealer.
5. Video wall screen paint.

C. Surfaces Not To Be Painted:
1. Non-ferrous metal work (other than zinc-coated surfaces) and plated metal, unless particular items are specified to be painted.
2. Exterior walls and surfaces except where applicable.
3. Surfaces concealed in walls and above solid ceilings.
4. Non-metallic walking surfaces unless specifically shown or specified to be painted.
5. Factory finished surfaces.
6. Ceramic tile and plastic surfaces.
7. Resilient flooring and base.
8. Surfaces indicated not to be painted.
9. Surfaces specified to be finish painted under other Sections.

1.02 AQMD RULES: Furnish paint materials that conform to the current rules and regulations of all governing Air Quality Management Districts and other public environmental control and protection agencies having jurisdiction. If any paint materials specified herein do not conform to said rules and regulations, the paint manufacturer of proposed paint materials shall prepare a list of non-conforming specified painting materials and proposed substitute conforming paint materials; Contractor shall deliver the list to the Design-Build Architect for review.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. List of Paint Materials: Prior to submittal of Samples, submit a complete list of proposed paint materials that identifies each material by manufacturer's name, product name and number, including primers, thinners, and coloring agents, together with manufacturers' catalog data fully describing each material as to contents, recommended usage, and preparation and application methods.
Identify surfaces to receive various paint materials. Do not deviate from approved list.

B. Color Samples: Prior to submittal of Samples obtain the Architect's color and gloss selections and instructions. Using materials from approved list, prepare and submit 8-1/2" by 11" Samples of each complete opaque paint finish.

C. Natural or Stain Finish Samples: Prepare these Samples on 12" squares of the same species and appearance of wood as used in the Work.

1.04 PROJECT CONDITIONS:

A. Protection: Protect all painting while in progress and cover and protect adjoining surfaces and property of others from damage. Exercise care to prevent paint contacting surfaces not to be painted. During painting of exterior work, cover windows, doors, concrete, and other surfaces not to be painted.

B. Weather Conditions: Apply paint to clean, dry, prepared surfaces. Do not apply exterior paint during rainy, damp, foggy, or excessively hot and/or windy weather. Arrange for temporary heat and ventilation for interior painting.

C. Precaution: Place oily rags and waste in self-closing metal container and remove from site at the end of each day. Do not let rags and waste accumulate.

PART 2 - PRODUCTS

2.01 MATERIALS: Use the paint products of only one paint manufacturer unless otherwise specified or approved. In any case, primers, intermediate, and finish coats in each painting system must all be the products of the same manufacturer, including thinners and coloring agents, except for materials furnished with shop prime coat by other trades. To the maximum extent feasible, factory mix paint materials to proper color, gloss, and consistency for application.

A. Dunn Edwards: Products specified herein designate intended types and qualities. Furnish equals from other manufacturers.

PART 3 – EXECUTION

3.01 EXAMINATION: Examine all surfaces to be finished under this Section and verify satisfactory condition. Report to Architect in writing all those conditions that prevent or interfere with correct preparation and application of Work of this Section. Do not proceed with painting and finishing on involved surfaces until all reported conditions are corrected. Application of the first coat of any finishing system constitutes acceptance of the surface by Painting Subcontractor. This does not relieve the Contractor from proper preparation of surfaces.

3.02 WORKMANSHIP: Apply paint materials in accordance with the manufacturer's instructions by brush or roller; spray painting is not allowed without specific approval in each case. Apply each coat at the proper consistency, free of brush or roller marks, sags, runs, or other evidence of poor workmanship. Do not lap paint on glass, hardware, and other surfaces not to be painted; apply masking as required. Sand between enamel coats.

3.03 PREPARATION: Properly prepare surfaces to receive finishes.

A. Concrete: Fill all cracks, holes and other blemishes with portland cement patching plaster or a stiff paste mixed of finish paint and fine sand, finished to match adjoining surfaces. Remove surface glaze by sanding, wire brushing, or light brush-off sandblasting. Neutralize all alkali conditions according to the paint manufacturer's directions. Dry surfaces to receive a breathing type latex paint at least two weeks, free of visible moisture, and dry surfaces to receive oil, alkyd, or epoxy based paint until the moisture content does not exceed 8% when tested with an electronic moisture-measuring instrument.

B. Interior Plaster: Fill small non-moving cracks with a spackling compound and sand patches smooth. Test plaster to receive an oil or alkyd base paint and verify plaster is adequately dry.

C. Gypsum Wallboard: Touch-up minor defects with spackle and sand smooth and flush. Report other defects for correction by the Contractor as specified.

D. Shop Coated Metal: Degrease and clean of foreign matter. Clean and spot paint field connections, welds, soldered joints, burns, or abraded portions with same material used in the shop coat. After complete hardening, sand entire surfaces for coat to follow.

E. Uncoated Ferrous Metal: Degrease and clean of dirt, rust, mill scale, and all other foreign matter using rotary brushes, solvent, or sandblasting. Remove pits and welding slag, and clean surfaces to bright metal before priming. Apply metal primer not more than three hours after preparation.

F. Galvanized Metal: Degrease and clean of foreign matter. Apply the specified pretreatment and immediately apply primer paint as soon as pretreatment is dry.

G. Fixtures, Equipment, and Hardware Items: Cooperate with other trades and coordinate removal of fixtures, equipment, and hardware as required to perform the painting. Items to be removed include, without limitation: signs and graphics; switch and receptacle plates; escutcheons and like plates; all surface-mounted equipment; free-standing equipment blocking access; grilles and louvers at ducts opening into finished spaces; and other items as required and directed.

H. Clean and prepare steel as recommended by the paint manufacturer.

I. Surfaces Not Mentioned: Prepare surfaces according to recommendations of the paint manufacturer and as approved.

J. Primers, paint coatings, clear sealers, clear finishes, and industrial coatings must be applied to manufactures recommendations. Refer to manufactures technical data sheets.

3.04 COATS AND COLORS: The number of paint coats specified to be applied are the minimum. Ensure acceptable paint finishes of uniform color, free from cloudy or mottled areas and evident thinness on arris. "Spot" or undercoat surfaces as necessary to produce such results. Tint each coat a slightly different shade of finish color to permit identification. Conform to the approved Samples. Obtain approval of each coat before applying the next coat; otherwise, apply an additional coat over the entire surface involved at no additional cost to the Owner.

3.05 EXTERIOR PAINTING:

A. Cement Plaster - 100% Acrylic Flat (New)

1st Coat:	EFF- STOP Masonry Primer (ESPR00)
2nd Coat:	EVSH10 Evershield Exterior Flat Paint
3rd Coat:	EVSH10 Evershield Exterior Flat Paint

B. Metal - Galvanized: Sheet Metal (New and Existing), Doors and Door Frames:

Pretreatment:	Supreme Chemical Metal Etch and Cleaner (SC ME-01) New Metal
1st Coat:	Ultrashield Galvanized Metal Primer (ULGM00)
2nd Coat:	Evershield Semi Gloss Enamel (EVSH50)
3rd Coat:	Evershield Semi Gloss Enamel (EVSH50)

1. Exception: On roof and wall flashings, wall louvers, and other sheet metal flashings to be painted and visible on building exterior surfaces, apply two coats of EVSH10 Evershield in lieu of the 2nd and 3rd Coat above (total of four coats in addition to vinyl wash primer).

3.06 INTERIOR PAINTING: Provide paint finishes as scheduled on the Drawings or directed, gloss of finishes as scheduled or, where not scheduled, as designated by the Design-Build Architect.

A. Enamel Finishes: Of following glosses:
1. Gloss 100% Acrylic Enamel (non-blocking for doors and trim).....Evershield Gloss EVSH60
2. Semigloss 100% Acrylic Enamel (non-blocking for doors and trim).....Evershield Semi Gloss EVSH50
3. Semi Gloss Acrylic Co-Polymer Enamel (for walls).....Everest Eggshell EVER30
4. Eggshell Acrylic Co-Polymer Enamel (for walls).....Everest Flat EVER10

B. Enamel - Drywall: (New and Existing)

1st Coat:	Ultra-Grip Select Primer Zero VOC (UGSL00)
2nd Coat:	Enamel, gloss as scheduled or designated
3rd Coat:	Enamel, gloss as scheduled or designated

C. Enamel - Concrete and Plaster: (New and Existing)

1st Coat:	EFF-STOP Masonry Primer (ESPR00)
2nd Coat:	Enamel, gloss as scheduled or designated
3rd Coat:	Enamel, gloss as scheduled or designated

D. Enamel - Wood:

1st Coat:	Ultra-Grip Select Primer Zero VOC (UGSL00)
2nd Coat:	Enamel, gloss as scheduled or designated
3rd Coat:	Enamel, gloss as scheduled or designated

E. Enamel Metal Galvanized: Doors and door Frames (New and Existing)

Pretreatment:	Supreme Chemical Metal Etch and Cleaner (SC ME-01) New Metal
1st Coat:	Ultrashield Galvanized Metal Primer (ULGM00)
2nd Coat:	Evershield Semi Gloss Enamel (EVSH50)
3rd Coat:	Evershield Semi Gloss Enamel (EVSH50)

3.07 MISCELLANEOUS PAINTING:

A. Color Coding: In mechanical and electrical equipment rooms, paint ducts, piping, conduit, equipment, and machinery, except such items having a complete factory finish, as specified for interior metal, colors as directed. Not more than 8 colors will be required.

B. Mechanical and Electrical Work: Carefully review Divisions 13, 15, and 16 of this Project Manual regarding painting performed under those Divisions and other painting required to be performed under this Section. Perform painting of mechanical and electrical equipment and materials not expressly specified to be painted as part of Work of Divisions 15, or 16, including required identification and color code painting, stenciling, and paint banding.

C. Miscellaneous: For any items not specifically indicated or specified that require a paint finish, apply 3 coats of paint as directed.

3.08 CLEANING AND TOUCH-UP WORK: Conform to Section 01700. Make a detailed inspection of paint finishes after all painting is completed, remove spatterings of paint from the adjoining surfaces, and make good all damage caused by cleaning. Carefully touch-up all abraded, stained, or otherwise disfigured painting, as approved, and leave entire painting in first-class acceptable condition.

END OF SECTION

SECTION 10 44 16

PORTABLE FIRE EXTINGUISHERS

1.00 GENERAL

1.01 SUMMARY

A. Provide hand-portable fire extinguishers where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
   1. Documents affecting Work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.02 SUBMITTALS

A. Comply with pertinent provisions of Sections in Division 1 of these Specifications.

B. Product data: Within 60 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
   1. Materials list of items proposed to be provided under this Section.
   2. Manufacturer's specifications, catalog cuts, and other data needed to demonstrate compliance with the specified requirements;
   3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.03 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

1.04 DELIVERY, STORAGE AND HANDLING

A. Comply with pertinent provisions of Section 01635.

2.00 PRODUCTS

2.01 FIRE EXTINGUISHERS

A. At each location where shown on the Drawings, provide one multi-purpose chemical fire extinguisher with UL rating of 2A-10 B;C, "Potter-Roemer Model 3005," or equal approved in advance by the Architect.

B. Except where indicated, to be mounted, within cabinets, provide the manufacturer's standard wall-mounting bracket for each fire extinguisher.

C. Service, charge, and tag each fire extinguisher not more than five calendar days, prior to the Date of Substantial Completion of the Work as that Date is established by the Architect.

3.00 EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Install the Work of this Section in strict accordance with the manufacturer's recommendation as approved by the Architect, anchoring all components firmly into position for long life under hard use.

END OF SECTION

SECTION 260500
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 GENERAL

1.1 DESCRIPTION

A. Principal Work Items are: Provide all labor, material and equipment necessary to complete and test the electrical work as shown on the drawings and as specified herein. Work will include, but not limited to the following:

1. Underground duct banks and pre-cast concrete pull-boxes/manholes, including furnishing hardware and accessories (pulling eyes, drainage, necking, traffic cover, ladder, cable racks, perimeter grounding bus and ground rods) in each pull-box/manhole of the Power and Low Voltage Communication system (for telephone data copper, fiber-optic, low voltage control and Fire Alarm network systems).

2. A complete electrical grounding system for the building, including electrical service grounding (Ground Rods in ground well, Ufer-ground and cold-water pipe) and Low Voltage Communication system reference ground with a single point of ground connection at the Main Ground Bus.

3. Supports, duct spacers, clamps, hangers, fastening devices, sleeves, slots, concrete bases, physical protection, caulking, weatherproofing, sealing, closing, etc.

4. Relocation of utility services (power, fire alarm, fiber optic, tel/data, PV connections and etc.) services which are in the foot-print of the new building in this scope of work. The utility relocation works shall be done prior to grading works starting date.

5. Complete installation and supply of 480/277 Volt and 208/120Volt, 3-Phase, 4-Wire Switchboard, Distribution Switchboards, Integrated Power Center Switchboard, feeders, pull-boxes, distribution transformers, control transformers, motor starters, disconnect switches, panel boards, branch circuit conduit and wiring and all other electrical devices.

6. A complete grounding system for the 480/277 Volt and 208/120Volt separately derived systems and all the electrical equipment.

7. All Luminaires (lighting fixtures), including LED driver, electronic ballasts, lamps, occupancy/day light sensor, day light control, classroom lighting control system, corridor & lobby & exterior lighting control system and other control complete. Including the daylight dimming control system for the specified Tubular Daylight System as applicable.

8. All exterior lighting fixtures including concrete bases for poles /low level area lights, walkway/bollard, step lights and planter lights.

9. All electrical work for the mechanical system, except as specified to be furnished or installed as part of other Sections in the Specifications.

10. All distribution materials and connection of the following listed equipment by the specific equipment furnished so that a complete and operable system results:

    a. Building power, communication and fire alarm system connections to Campus systems.

    b. Electrical operated roll down doors, gates and other type of door operator.

    c. Electrical operated shades system as applicable.

    d. Irrigation power connections.

    e. Audio/Video equipment for classroom.

    f. Hearing Assistance system.

11. Furnish and install all hangers, anchors, sleeves, chases, access panels and supports required for electrical works.

12. Electrical conduit system rough-in.

13. Complete system of empty conduit, outlets, back-boxes, cabinets and/or terminal backboards for the security distribution system or other low voltage /signal systems.

14. Complete system of conduit with voice/data cables, outlets with devices, back-boxes, cabinets and/or terminal backboards with terminating blocks or patch panels for voice/data distribution system.

15. Excavation, backfill and concrete works required to complete items of this section.

16. Closing of all openings resulting from coring, sleeving, removal of conduit and/or equipment.

17. Cleaning, patching, fire stopping/proofing seal, repairing and painting.

18. Permits and Code Inspection fees.

19. Prime coat painting of all electrical equipment exposed to view in public area where required and deemed necessary by Architect.

20. Identified and instruction plates, tags, labels, magnetic yellow tapes, underground warning tapes etc.

21. Shop drawings and technical data; operating instruction and maintenance manual.

22. Test of all equipment and system installed.

23. As-built drawings, including but not limited to record of actual routing of duct banks, location of Power Pull-boxes/Manholes and Communication Pull-boxes, lighting and power/communication plan as-built condition.

24. Incidental items not indicated on the drawings nor mentioned in the specifications that belong to the work described, or are required to provide complete systems, as though called out here in every detail.

B. Work in Cooperation with Other Trades:

1. Examine the Drawings and Specifications and determine the work to be performed by the electrical, and other trades. Provide the type and number of electrical materials and equipment necessary to place this work in proper operation, completely wired, tested, and ready for use. This shall include all conduits, conductor, and all other devices for the required operation and control sequences of all electrical, and other existing systems or equipment.

1.2 SUBSTITUTIONS

A. General: Only written approval of Architect will permit substitutions for materials specified.

1.3 QUALITY ASSURANCE

A. Standards:

1. Comply with standards listed in the following:

a. Underwriters' Laboratories Inc. (UL).

b. The 2022 California Electrical Code, National Electric Code (NEC) 2020 edition, with California Amendments.

c. The USA National Fire Code (NFPA).

d. The National Electrical Manufacturers' Association (NEMA).

e. Institute of Electrical and Electronic Engineers (IEEE).

f. American National Standards Institute (ANSI).

g. 2022 California Code of regulations, Title 24, Part 1, 2 and 3.

2. Off-Site Work: Conform to Governing Agencies requirements.

3. Earthquake Provisions: All electrical components shall be anchored and braced to meet the force and displacement requirements prescribed in the 2022 CBC, Sections 1615A.1.12 through 1615a.1.22 and ASCE 7-22 Chapter 6 and 13.

4. In case of conflict among the reference standards, the more stringent provisions, better grades or quality shall govern and shall be resolved before installation at Contractor's expense. Prepare and secure approval for any clarifying details required by inspection authorities.

5. Nothing in the Contract Documents shall be construed as authority to permit work not conforming to codes, ordinances, standard or regulations.

B. Qualification Of Installers:

1. Throughout the progress of installation of the work of each Section, provide where required as indicated in respective Sections, at least one manufacturer's authorized representative who shall be thoroughly familiar with the specified requirements, completely trained and experienced in the necessary skills, who shall be present at the job site and shall direct all work performed under that Section.

2. Cutting and patching finish work shall be performed by workmen of the proper trade.

C. Qualification Of Manufacturers:

1. Manufacturers of the products supplied for this project shall have been in the business of manufacturing the product for at least five years and be able to prove a history of successful production acceptable to the Architect. As a condition for approval and when directed by the Architect, submit a list of past projects showing a minimum of five projects of similar scope to the Architect for approval.

2. Provide together with the Shop Drawing submittal, where called for in these Specifications, a list of five projects which shall have been in satisfactory operation for the past five years.

1.4 SUBMITTALS

A. General: Refer to Division 1.

B. Project Drawings:

1. The drawings are diagrammatic and indicate the general layout of the equipment.

2. The exact location shall be field determined, after shop drawing review for the installation in available space at the job site.

C. Manufacturers Data:

1. Within 30 calendar days after award of Contract, submit:

a. Complete materials list of all items proposed to be furnished and installed.

b. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.

c. Unless specifically call for otherwise, provide bound copies of catalog cuts for standard products, not requiring specifically prepared Shop Drawings, for the following:

1) Wire and cable

2) Conduit and raceways

3) Outlet Boxes

4) Convenience outlets

5) Switches for lighting control.

6) Disconnect switches for power control.

7) Time clocks, photo controls.

8) Contactors.

9) Relays.

10) Circuit breakers.

11) Fuses.

12) Motor starters.

13) Dimmers for lighting systems.

14) Standard lighting fixtures.

15) Face plates for convenience outlets and light switches.

d. Where more than one item, size, rating or other variations appear on a catalog cut sheet, clearly identify all items to be provided and properly indexed and referenced to Architect's identification numbers, designations and/or details.

e. Provide specially prepared Shop Drawings, including but not necessarily limited to:

1) Custom designed lighting fixtures.

2) Special electronic lighting control system.

3) Distribution switchgear and transformers.

4) Panelboards.

5) Fire alarm system and wiring diagrams.

6) Engraved switch-plates.

7) Grounding system.

8) Emergency power distribution system.

f. No work shall be initiated, or fabrication of any equipment started prior to Architect's return of reviewed submittals.

D. Operating Instructions and Maintenance Manuals:

1. Thoroughly instruct operating personnel designated by the Owner in the operation and maintenance of the equipment and systems installed.

2. Following approval of Shop Drawings of electrical equipment and prior to acceptance of electrical work, prepare 2 copies of operating and maintenance manuals in accordance with Division 1, describing operating, servicing, and maintenance requirements of electrical equipment installed under Division 16 with particular emphasis on safety devices. Operation and Maintenance Manuals shall cover all electrical equipment and systems including but not limited to the following:

a. Distribution switchgear and metering.

b. Panelboards.

c. Fire alarm and Detection system.

d. Transformers.

e. Motor starters.

f. Contactors.

g. Time clocks.

h. Relays.

i. Fuses.

j. Circuit breakers.

k. Any special electrical equipment.

E. Information contained in the manual for the above equipment shall include the following:

1. Manufacturer's catalog cuts and printed descriptive bulletins.

2. Manufacturer's installation, operating, and maintenance instruction booklets.

3. Parts list and costs.

4. List of recommended spare parts for 12 months'' operation.

5. Name, address, and phone number for the closest source of spare parts.

6. Wiring and schematic diagrams.

1.5 PRODUCT HANDLING

A. Protection: Protect materials before, during, and after installation and protect installed work and materials of all other trades.

B. Replacement: In the event of damage, immediately make all repairs and replacements necessary for the approval of the Owner's Representative and/or Architect and at no additional cost to the Owner.

C. Delivery and Storage: Deliver all materials to the job site in their original unopened containers, where applicable, with all labels intact and legible at time of use. Store in strict accordance with the manufacturers' recommendations as approved by the Owner's Representative.

1.6 PERMITS

A. General: Secure permits and pay all required fees for the installation of the electrical work.

1.7 RECORD DRAWINGS

A. General: Refer to Specification Division 1, Contract Close-Out, "Project Record Documents", for requirements.

B. Record Drawings and Operating and Maintenance Books

1. Record Drawings (Refer to Division 1): On completion of work, furnish the Owner through the Architect, with a complete set electronic record drawings and shop drawings which properly reflect the locations of all equipment, fixtures, wiring junction box, pull box, feeder routing, underground feeder routing etc., as actually installed. Where necessary to locate concealed equipment, dimensions, shall be included on these drawings. Maintain a separate set of drawing prints at the job site for such marking of As-Built locations. This set shall be updated as the

installation work progresses and shall be available to the Architect at job visits. The Contractor shall indicate on the As-Built Drawings all deletions in green. All additions, relocations, rerouting, and modifications shall be indicated in red.

2. The format shall be AutoCAD or Revit release 2016 or later. A USB Drive with the electronic model will be supplied to the successful bidder for this purpose. Monthly changes shall be made to the drawings on a layer named record and the color shall be green. A copy of the model on diskette with any as-built changes shall be submitted to the Architect along with all payment applications.

3. At the end of the project, the Contractor shall take as-built drawings modifying the electronic drawing files to show all changes, modification or additions made during construction. These drawings will become Record Drawings to be delivered to the Architect.

4. Final Record Drawings shall include legends, schedules, plans, sections and details.

5. All Record Drawings shall be marked on the lower right corner with the following:

   a. Name of Contractor
   b. Record Drawings
   c. Date
   d. Building Permit Number

   Letter shall be bold and print 1/4 inches high minimum.

6. Contractor shall submit to the Architect; Record Drawings as follows:

   a. Four (4) USB Drives (AutoCAD or Revit 2016 or later)
   b. Four (4) hard copy prints

7. The Architect will distribute the final Record Drawings as follows:

	OWNER	ARCHITECT	ENGINEER
USB Drive	1	1	1
Prints	1	1	1

8. Delivery of complete set of Record Drawings is one condition for the release of Contractor's final payment under the Contract.

C. Operating and Maintenance Books

1. Operating and Maintenance Books (Refer to Division 1): Provide the Owner through the Architect, operating instructions and maintenance data books for all equipment and materials furnished under this Division.

2. Submit five (3) copies of operating and maintenance data books to the Architect for review two weeks before final inspection of the project. Assemble all data in a single complete indexed volume and identify the size, model and features indicated for each item, including copy of all guarantees and warranties issued on the installation showing all dates of expiration on separate Tab.

1.8 CERTIFICATES

A. General: Refer to Specification Division 1, Contract Close-Out, for requirements.

1.9 GUARANTEE

A. Conform to applicable provisions of Division 1 of the General Requirements of these specifications.

B. Manufacturers Guaranties: Submit guarantees for all applicable equipment and devices.

PART 2 PRODUCTS

2.1 MATERIALS

A. General: See General Conditions, Article titled "Materials".

1. Architect shall be the sole judge of material conformance to Contract Documents. Equal products shall be as selected by the Architect.

2. All materials and products shall be new and in perfect condition, and of the manufacturer's latest type and model. Unless otherwise noted, each material or product type shall be from one manufacturer only.

3. All exterior mounted electrical boxes, devices and miscellaneous items shall be tamper-proof assemblies. Where not a standard feature, shop modify assembly to meet this requirement.

4. Where any devices or equipment is referred to or indicated in these documents or on the Drawings in the singular number, such reference shall be deemed to apply to as many such devices as are required to complete the intended installation as specified and/or as shown on the Drawings.

5. In case of conflicts among Drawings and Specifications, the more stringent requirement, larger quantities, better qualities and/or more proper application and installation for the situation shall govern.

6. Wherever "finishes" are indicated to be selected by the Architect, such "finishes" shall include all standard as well as optional finishes offered by the Manufacturers.

7. All materials shall be U.L. listed where applicable.

B. Manufacturer and Catalog Numbers:

1. Where manufacturer and catalog numbers are indicated, the published data on the product by the manufacturer are deemed to be part of this specification.

2. Numbers used indicate basic minimum design and appearance required and must be modified to meet all specific requirements of Contract Documents.

3. Before submitting bid, verify availability of such modification. Where manufacturers cannot meet these modifications, notify Architect 10 days prior to bid date and deem these products removed from approved list of equipment.

4. Act of submitting bid is certification that all equipment specified, with required modifications, is available from at least one manufacturer listed.

2.2 CONDUIT

A. General: Provide only new conduit with UL listing or label and deliver to the site in standard lengths.

B. Types:

1. Rigid Steel Conduit and Couplings: Hot-dipped galvanized or sherardized inside and out, with galvanized threads. Electro-galvanizing is not acceptable. Provide insulated throat metallic bushings.

2. Rigid Plastic Conduit: Extrude from virgin polyvinyl chloride compound, Schedule 40 heavy wall, in 10'-0" (3 m) lengths with couplings. Where threaded connection is required or for allowed exposed application where subject to physical damage provide Schedule 80 conduit.

3. Electric Metallic Steel Tubing: Hot-dipped galvanized or sherardized inside and out, with galvanized threads. Electro-galvanizing is not acceptable. Provide insulated and bushed tap-on type connectors and couplings as made by Tomic or T&B, or wrench-tightened compression type couplings. Set-screw type couplings or connectors are not acceptable.

4. Flexible Conduit: Manufacture from single strip steel, hot dip galvanized on all four sides prior to conduit fabrication. Provide insulated die-cast connectors with ridges that thread into the inside of the conduit to ensure a force fit as made by T&B or approved equal. Binding-screw type connectors are not acceptable.

5. Liquid-Tight Flexible Conduit: Identical to flexible steel conduit but with overall polyvinyl chloride plastic jacket. Provide insulating connectors, Appleton STN series, or approved equal.

2.3 WIRE AND CABLE – 600 VOLTS AND LESS

A. General:

1. All wire and cable shall be soft-drawn annealed copper with 98-percent conductivity; 600-volt insulation, unless otherwise noted. All wire and cable shall be new and manufactured not more than 12 months prior to installation. Each coil or reel shall bear the UL label and shall be marked with AWG or circular wire size, voltage rating, insulation type, type of stranding, (and shielding, where applicable), manufacturer's name, trade name, month and year when manufactured. Wire shall be marked continuously with at least insulation type, wire size and voltage rating.
2. All conductors used for power and lighting operation at 600-volt and below shall have a minimum insulation rating of 600-volt.
3. Minimum wire size used shall be #12 AWG except for control circuits which may be #14 AWG.
4. Conductors for all other auxiliary and signal systems shall be as indicated or as required or recommended by the system equipment manufacturer.

B. Types:

1. Conductors shall be "THWN-THHN"; #10 AWG and smaller shall be solid type; #8 AWG and larger shall be stranded.
2. Conductors installed in areas subjected to temperatures exceeding 140°F; terminating in incandescent lighting fixtures and installed through or into housing containing ballasts shall be type AVA.
3. Aluminum Conductors: No aluminum conductors are allowed.

2.4 FLUSH FLOOR COUPLINGS

A. General: Provide flush floor couplings, whether shown on the Drawings or not, for exposed conduit stubbing up through finished floors.

B. Types: For sizes 3/4-inch through 2-inch, provide brass type complete with slotted brass plug, Russell and Stoll No. 1920 inclusive. For conduit larger than 2-inch, use regular coupling with plumber's type brass plug.

2.5 OUTLET BOXES

A. General:

1. Provide all boxes necessary for proper installation of electrical work in compliance with applicable codes and regulations whether required box is specifically indicated on the Contract Documents or not.
2. Boxes shall be 1-piece galvanized pressed steel knockout type, minimum size 4-inch square by 1-1/2-inch, in all wall and ceiling locations unless otherwise indicated or required.
3. Cast boxes shall be ferrous or aluminum with threaded-hubs and dipped in rust inhibitor.

2.6 PULL BOXES

A. General:

1. Where pull boxes are indicated as required in wall, ceiling and in dry locations, provide boxes constructed of code-gauge sheet steel finished with one coat of metal primer and one coat of primer sealer.

2. All pull boxes in wall or in ceiling shall be recessed or concealed unless otherwise noted.

3. Provide pull boxes with screw-on type covers. Provide a minimum 1-inch all around flange for recess mounted type.

B. Where located outdoors, in wet locations or indicated as weatherproof, provide pull boxes constructed in code-gauge steel, hot-dipped galvanized after fabrication and finish with one coat of metal primer and sealer. Install cover with stainless steel tamper-proof captive screws and neoprene gaskets. Seal around conduit entries with silicone sealant.

C. In precast concrete walls or concrete masonry unit walls, provide surface mounted die cast copper free aluminum alloy A360 FS/FD device box and covers.

2.7 FLOOR BOXES

A. General:

1. Where floor boxes are used for power outlets, signal outlets, or as junction boxes, provide boxes of completely gasketed, watertight, adjustable cast-iron construction or non-metallic floor box, with threaded openings for conduit entry and brushed-nickel cover plates. Boxes shall have un-detachable hinged covers to accommodate single or duplex outlets as required. Provide Hubbell corrosion resistant CFB SystemOne series floor box for Round Cover Style, Cat No CFBS1R4SFBCR with CFBS1R4CVR cover. Where multiple or group devices are indicated, provide required multi-gang capacity floor box with similar Round Cover Style.

2. Provide in floor box, bushed telephone plate, signal fittings, or power outlets as specified elsewhere in this Section and one rubber molded bell nozzle protection with threaded sleeve for each outlet or fitting.

3. Where pedestal type outlet is indicated, provide floor box as specified above with the required outlets mounted in an above-floor type cast aluminum fitting with a satin aluminum finish. Provide Hubbell No. SC-3090 or No. SC-3091 series as required.

4. Provide flush floor combination power and data outlets in poke-thru assembly, Hubbell System One with similar Round Cover Style specified above, unless otherwise specified on the drawings.

5. Provide Hubbell SystemOne FRPT flush poke-thru assembly for power and communication feed to electrified modular furniture system if shown on the drawings.

2.8 CAST-IRON PULL BOXES

A. General: Provide cast-iron pull boxes as indicated on Drawings or as required for the particular purpose. Exact locations of each box shall be determined after careful consideration has been given to coordination with other utilities, grading, paving and shall be approved by the Architect prior to installation.

B. Pull Boxes: Conform to all Code requirements as to size for conduit entry and thickness of metal used in fabrication or casting.

C. Enclosure: Provide watertight type with mounting lugs when required for surface mounting. For recess mounting, provide same type except with integral flange or trim and mount flush with the finish grade.

D. Conduit Entry: Provide bossed, drilled, and tapped holes with a minimum of five full threads for each conduit entry.

E. Covers: Provide neoprene gasketed plain or checkered type cover with letter designation as indicated on the Drawings cast in the cover. Submit shop drawings to Architect for approval prior to casting. Cover shall have captive-type stainless steel screws. Provide traffic-type cover where subject to vehicular loads, including lift trucks.

F. Acceptable Manufacturers: Provide units as manufactured by Alhambra Foundry Company, Spring City Electrical Manufacture Company, Russel and Stoll, or O.Z./Gedney Co.

2.9 STAINLESS STEEL

A. General: Where stainless steel is indicated or used for any portion of the electrical work, provide ANSI Type 302 or 304, with a satin finish. Provide the finished material free of all burrs. Exposed screws shall be of the same alloy.

2.10 GROUND WELL AND GROUND ELECTRODE

A. Ground Well

1. Ground well shall be of the pre-cast concrete type with armored body and cast-iron lid. Inside dimensions shall be 10" (254 mm) diameter by 12" (305 mm) deep.
2. Provide permanent marking on top of lid identifying as GROUND WELL .

B. Ground Electrode:

1. Install a grounding electrode constructed of 3/4" (20 mm) diameter by 10 feet (3 m) long copper-weld rod driven vertically full length into the ground through the ground well.
2. Fill the inside of the ground well with a layer of fine sand and layer of crushed rock on top with the ground rod protruding approximately 3" (76 mm) above the two layers.

C. Acceptable Manufacturers: Provide Brooks Product No. 3RT or approved equal by Quick set for the Ground Well and J.A. Weaver W-3410 for the grounding electrode

PART 3 EXECUTION

3.1 MATERIALS AND WORKMANSHIP

A. General:

1. Materials and equipment shall be installed in accordance with approved recommendations of the manufacturer and conforming to the Contract Documents. Devices and equipment are laid out per requirements of one manufacturer. Modify work and arrangements to suit actual equipment installed and pay for all additional cost incurred, if any. The installation shall conform to the applicable codes, rules, and regulations. The Drawings indicate, in diagrammatic form, the work to be done rather than exact routing, location and arrangement of equipment, conduit, and wiring. Make use of data in Contract Documents, verify against developed field conditions, install work in an orderly arrangement in a manner to overcome structural and other interference.

2. Study all Drawings and properly locate the outlets and equipment so that they are readily accessible. Locate equipment and outlets to avoid interference with mechanical or structural features. Do not support any electrical material, equipment or device from sheet metal roof decks or ductworks. If any conflicts occur necessitating departures from the Drawings, details of such departures and reasons therefore shall be submitted as soon as practicable for written approval.

3. Where developed conditions make revisions necessary to indicated locations and arrangements, Contractor shall make changes, at no additional cost, provided:

   a. Change is ordered prior to time conduit is installed.

   b. Length of conduit run is not changed more than 10%.

4. Architectural and structural drawings take precedence over electrical drawings in representation of general construction work, and drawings of various trades take precedence in representation of work of these trades. Refer to all Contract Documents and coordinate electrical work with other work.

5. Where discrepancies arise among the various Contract Documents, stop work in affected areas. Promptly notify Inspector of conditions.

6. Galvanic and chemical corrosion shall be prevented by isolating dissimilar metals and preventing contact of aluminum with concrete, plaster, mortar or earth.

7. All equipment shall be braced and/or anchored to meet the force and displacement requirements prescribed in the 2022 CBC.

8. The Structural Engineer of Record shall verify the adequacy of the structure to support the hanger and brace loads.

3.2 WIRE AND WIRING METHODS

A. General:

1. Wiring and cable for all systems including low voltage, control circuits, and communication systems shall be installed in conduit or raceway unless otherwise noted.

2. Before installing conductors, remove debris and moisture from conduit and equipment enclosures. Use linseed soap, minerallac or other specifically approved wire pulling compound to facilitate the installation of conductors. Oil, grease or similar substances shall not be used as pulling compound.

3. Each circuit shall correspond to the branch circuit number or control circuit number as indicated. All control wiring shall conform to the wiring diagrams on the Drawings when indicated or as directed by Owner's Representative, and the manufacturer's wiring diagrams; and shall control the equipment in the manner specified under this and other Sections.

B. Splices:

1. Make joints, splices, taps and connections for 600-Volt conductors with solderless connections. Use only plated copper alloy connectors or lugs; aluminum connectors or lugs are not acceptable.

2. For copper conductors, the following connections are acceptable:

a. For #10 AWG and smaller: Use 3M "Scotchlok" or Ideal "Super Nut".

b. For #8 AWG and larger: Use T & B "Lock-Tie" connectors, Burndy Versitaps and heavy-duty connectors, or O.Z. solderless connectors.

3. Re-tighten all bolt type connectors 24 to 48 hours after initial installation and before taping.

4. Tape all connections made with non-insulated type connectors with rubber-type tape, 1-1/2 times the thickness of the conductor insulation, then cover with Scotch No. 33 tape.

C. Color Coding: Color code all feeders by means of factory color coded conductors. Each phase shall be the same color throughout the system and shall be a different color from other phases and other systems. The identified grounded neutral conductor shall be white, ground shall be green. Color coding for branch circuit wiring shall be per applicable codes and shall match those existing.

D. Tagging:

1. Neatly arrange and lace conductors in switchboards, panelboards, gutters and terminal cabinets by means of nylon twine, Scotch No. 33 tape, or T & B "Ty-Rap" ties.

2. Main and feeder cables shall be tagged in all boxes, panels, wireways, gutters and at terminal blocks. Tags shall identify where power source originates from, wire or cable number and equipment served and shall be made of flame-resistant material.

3. Tag wires for future use and tape exposed ends in same manner as required for non-insulated connectors.

E. Voltage Drop: All branch circuits shall be limited to a maximum voltage drop of 3%. Increase branch circuit wire sizes where required to comply with this requirement. All feeders shall be limited to a maximum voltage drop of 2%.

3.3 CONDUIT AND TUBING

A. Provide the type of conduit permitted in these Specifications or required for each location or condition per applicable codes and jurisdictions whichever is more stringent.

B. Where conduit penetrates fire-rated walls or floors, provide pipe sleeve two sizes larger than conduit; pack void around conduit with oakum and fill ends of sleeve with fire-resistive compound. Provide mechanical fire-stop fittings with UL listed fire rating equal to wall or floor rating. Seal opening around conduit with UL listed foamed silicone elastomer compound.

C. Conduit Usage:

1. Concrete or masonry in contact with earth and concrete block walls are not considered as dry locations.

2. Rigid plastic conduit, PVC Schedule 40, may be used only underground and below slabs on earth.

3. Use rigid metal conduit where Code required; where indicated as hazardous area; where exposed to the weather; where exposed at less than 7'-6" above the floor in areas accessible to anyone other than authorized operating or maintenance personnel; where underground; and where other types of conduits are not allowed in this Specification.

4. Electrical metallic tubing (EMT) may be installed only within buildings above grade, in dry locations, and were allowed to be surface mounted or exposed at not less than 7'-6" above floor or otherwise prohibited. EMT may be used only for sizes 2-inch or smaller.

5. Rigid plastic conduit, PVC Schedule 40, may be used only underground and below slabs on earth.

D. Supports:

1. Support conduit at Code required intervals as a minimum. Provide additional supports where required or as directed by the Architect.

2. Suspended conduit: Use malleable iron factory-made split-hinged pipe rings with threaded suspension rods sized for the weight to be carried (minimum 3/8-inch diameter), Kindorf or equal. For grouped conduits, construct racks with threaded rods and tiered angle-iron or unistrut cross members. Clamp each conduit individually to a cross member. Where rods are more than 12-inch long, provide rigid sway bracing.

3. Wherever conduit may be affected by movements of the supporting structures or medium and were secured on both sides of building control joints, provide suitable flexible or expansion devices.

4. Conduits or pipe shall not be welded to steel structures.

E. Locations:

1. Route conduit to avoid drains equipment hatch, other gravity lines and all obstructions. Where conflicts occur, relocate conduit as required.

2. Keep conduit at least 6-inch from the coverings on hot water pipes; at least 18-inch from the covering on exhaust flues and breechings; and at least 24-inch from radiant heaters.

3. Where exposed conduit runs are permitted, run conduit parallel with or at right angles to structural members, walls, or lines of the building. Route exposed conduit to preserve headroom, access space and workspace.

4. Changes in direction of runs shall be made with symmetrical bends or cast metal fitting. Field-made bends and offsets shall be made with an approved hickey or conduit-bending machine. Bending radius shall not be less than those allowed in the NEC. Crushed or deformed raceways shall not be installed or when installed, shall be changed as directed by the Architect.

5. Conduit may be run in concrete members or slabs only with previous written permission of the Architect. Individual written permission shall be obtained for each conduit run or for conduits within each definitive area or for each condition.

F. Joints, Bends and Fittings:

1. Where conduit is underground, under slabs or grade, exposed to the weather, or in wet locations, make joints liquid tight and gas tight. Seal conduit entries with silicone sealant.

2. Threaded Conduit: Use red lead and oil applied to the male threads only and tighten joints securely. For underground or under slab conduits, apply a heavy coat of Pabco P & B No. 2 paint after installation to surfaces within 6" (150 mm) on both sides of fittings and to areas where wrenches or other tools have been applied. On exposed conduits, repair scratches and other defects with galvanizing repair stick, Enterprise Galvanizing "Galvabar", or equal.

3. Plastic Conduits: Use approved solvent-weld cement specifically manufactured for the purpose.

4. Bushings shall be installed on ends of all conduits and shall be of the insulating type where required by applicable codes.

5. Cut threads on rigid conduit to standard taper and to length such that bare metal exposed by the threading operation will be completely covered by the couplings or fittings used. In addition, cut the lengths of the thread such that joints will become secure and wrench tight before conduit ends butt together in couplings and before conduit ends butt into the ends or shoulders of other fittings. Securely tighten threaded connections.

6. Keep bends and offsets in conduit runs to an absolute minimum. For the serving utilities, make large radius bends to meet their requirements. Replace deformed, flattened or kinked conduit.

7. Rigid metal conduit of 1-1/4-inch trade size or larger: Provide large radius factory-made bends or field bend the conduit with a power bender designed for the purpose and utilizing bend forms sized for the conduit being bent.

8. Plastic Conduit: Apply heat for bends so that conduit does not distort or discolor. Use a spring mandrel as required ensuring full inside diameter at bends.

9. Bend conduit to radius no less than Code required minimum.

10. For conduits entering or leaving hazardous areas, provide each conduit at point of entry and exit from such areas with sealing inlets whether indicated on Drawings or not. Fill each inlet with approved sealing compound.

G. Underground Conduits and Duct Banks: Make installation in accordance with Section 26 05 45.

H. Conduit Stub-outs:

1. Unless otherwise indicated, all conduit stub-outs shall be minimum 4 or 5-inch as indicated in diameter and underground.

2. Extend underground conduit stub-outs a minimum of 5-foot clear beyond building foundations, concrete walks, paving, other utilities and the like. Keep underground conduits a minimum of 10-foot clear of future building locations where indicated.

3. Leave ends of underground stub-outs 6-inch clear of concrete envelope. Cap ends of steel conduit and wrap entire exposed portions with Scotchrap No. 50. Plug ends of nonmetallic conduit with Duxseal and cover with gravel and redwood planks for mechanical protection.

4. Exact locations of stub-outs shall be indicated by a brass marker at finished grade and on Record Drawings.

I. Conduit Stub-ups:

1. Use rigid steel conduit for stub-ups, 90-degree bends and risers to grade from other conduits. Stub-ups designated for future use shall be capped.

2. Conduits stubbed up through concrete floors for connections to freestanding equipment shall be provided with a short elbow and an adjustable brass top or flush floor coupling set flush with the finished floor. Wiring shall be extended in rigid threaded conduit to the equipment,

except that where required, flexible conduit to the equipment, except that where required, flexible conduit may be used 6-inch above the floor. Screwdriver-operated threaded flush plugs shall be installed in conduits from which no equipment connections are made. Use oil or grease on top of coupling and in threads on plug to prevent sticking.

3. In utility rooms, electrical rooms, mechanical rooms, and other unfinished areas not accessible to the public, terminate stub-ups to a minimum of 8-inch above floor unless otherwise indicated.

J. Empty Conduits:

1. Provide a nylon or polyethylene rope rated 250-lb tensile strength in each conduit more than 10-foot in length and left empty for future use. Not less than 10-inch of slack shall be left at end of the conduits.

2. Tag empty conduit at each accessible end identifying the purpose of the conduit and the location of the other end.

3. In wet, corrosive, outdoor or underground location, use brass, bronze or copper No. 16 gauge tags or lead tags secured to conduit ends with No. 16 or larger galvanized wire. Inscribe on the tags with steel punch dies clear and complete identifying information.

4. In dry interior locations use metal-rimmed paper tags securely affixed with nylon twine. Inscribe on the tags with India ink, clear and complete identifying information.

5. Unused conduit openings shall be plugged or capped with a suitable device designed for the purpose. Caulking compound shall not be used for plugging empty conduits.

3.4 PENETRATIONS

A. General: Penetrations in walls, floors or ceilings requiring protected openings shall be fire-stopped. Fire-stopping shall be of an approved material, securely installed and capable of maintaining its integrity when subjected to the time-temperature curve of State Fire Marshal Standard 12-43-3 and Standard 12-43-1. Manufacturer's instructions shall be made available to the inspection authority and kept at the job site.

3.5 MEMBRANE PENETRATION

A. General: Where penetration through membrane cannot be avoided, cut and re-seal membrane at point of penetration as required.

3.6 PAINTING AND FINISHING

A. General: Paint all electrical equipment exposed to view in public areas with one coat of primer. Finish coat painting will be provided under Section 09900. For equipment inside electrical room, mechanical room, and utility closets accessible only to authorized maintenance personnel, standard manufacturer's finishes are acceptable.

3.7 GROUNDING AND BONDING

A. General:

1. Grounding systems use the following elements as grounding electrodes:

   a. Underground metal cold water pipe

   b. Structural metal building frame

   c. Concrete encased electrode (Uffer)

   d. Ground rod (ground electrode)

2. Ground the neutral of each isolated AC or DC system having a neutral conductor with a system ground connection sized as indicated on the Drawings or per appropriate code requirement when not indicated. Ground clamps shall be readily accessible.

3. Connection shall be made with exothermic connection or UL listed irreversible compression type grounding connector.

4. Grounding System Resistance to ground shall be tested and shall not exceed 5-Ohm.

B. Installation:

1. Install grounding and bonding conductors concealed from view.

2. Install grounding well with cover at each ground rod location. Install ground well top cover flush with finished grade.

3. Install 4/0 AWG bare copper wire in foundation footing. The Uffer ground grounding electrode shall consist of a 50-foot length of bare #4/0 copper wire extended its full length below ground level and embedded along the bottom of the concrete foundation footing which is in direct contact with the foundation earth and supported in such a manner that it cannot be less than 3 inches from the bottom or side of the concrete when the foundation concrete is poured.

4. Install grounding electrode conductor and connect to reinforcing steel in foundation footing.

5. Bond together metal siding not attached to grounded structure, bond to ground.

6. Equipment Grounding Conductor: Install separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.

7. Permanently ground entire light and power system in accordance with NEC, including service equipment, distribution panels, lighting panelboards, branch circuit panelboards, switch box and starter enclosures, motor frames, receptacles, and other exposed non-current carrying metal parts of electrical equipment.

C. Ground Electrode / Ground Well:

1. In the event that a metallic cold water pipe system is not available or should the grounding system to the cold-water line not provide the proper ground resistance as specified, install single or multiple ground wells to obtain the proper resistance.

2. Locate ground rods a minimum of 6-foot apart or as indicated. Connect rods with minimum #3/0 AWG stranded, medium-hard drawn bare copper ground wires. Install ground wires 6-inch below slabs or 18-inch below finished grade, laid slack and in contact with earth throughout. Make buried tapes or splices by an exothermic welding process, "Cadweld" (by Erico) or Burndy "Thermoweld", and connect to the rods with Burndy type GK connectors.

3. Longer ground rods driven to a greater depth may be used in lieu of additional ground wells or in conjunction with other ground wells to attain the specified ground resistance.

4. Provide a white colored insulated copper conductor in a rigid steel conduit from the system grounding points to the grounding electrode in the ground well. Connect the conductor to the electrode with a 2 bolt "Evedur" clamp.

D. Equipment Ground:

1. Use the conduit system for equipment and enclosure grounding is not adequate, a separate ground wire of Code size is required.

2. Where nonmetallic conduits are used, provide a green color insulated copper ground conductor, of legal size, within the conduit and terminate properly to the equipment enclosures at each end. Enlarge size of conduit as required per applicable code(s).

3. Provide bonding devices, fittings, or jumpers at expansion fittings or wherever continuity of grounding is not certain or where required by authorities having jurisdiction.

4. Provide, whether indicated on Drawings or not, each power feeder, single and multi-wire branch circuits (except those serving lights) with a separate green insulated ground wire, size as required by NEC, together in the circuit conduits and connect to the devices. Enlarge conduits where necessary to accommodate the ground wire. Conductor shield approved by conductor manufacturer may be used in lieu of a separate ground wire.

3.8 TESTS

A. General: In addition to tests required by other sections, perform or cause to be performed in the presence of the Architect, all tests specified for electrical work when the work is substantially complete.

B. Ground Resistance Test:

1. Employ a firm, qualified in such work, to measure resistance to grounding electrodes. Firm shall be approved by the Architect. Make tests before

concrete is placed in affected areas in order that corrective measures, if required, may be taken.

2. Test to demonstrate that the insulation resistance between phase conductors and ground to be not less than requirements of Title 24. All circuits shall be tested for neural connections.

3. Test to demonstrate that the entire raceway, boxes, and metallic enclosure system maintain electrical continuity and that the maximum resistance measured from any point on the system to a grounded point of reference does not exceed 5-Ohm.

4. Submit to the Architect, a report showing the results of these measurements.

5. If the resistances do not comply with the requirements of these Specifications, perform all corrective measures as directed by the Architect.

C. Test of each duct for blockage or deformation after concrete has cured for 24 hours. Use a flexible mandrel/scrapper not less than 12-inch long with a diameter approximately 1/4-inch less than the inside diameter of the duct, pull a mandrel behind a stiff bristles brush.

1. Replace any duct section found blocked. Notify District Inspector 10 days before duct tests; submit written reports of tests to District Inspector.

D. Service Voltage Test:

1. Measure the service voltages under no load and under maximum load conditions.

2. Submit to the Architect, a report showing the results of these measurements.

3. If, in the opinion of the Architect, the voltages regulation are not within acceptable limits make and complete arrangements with the utility company and/or other concerned agencies for proper electrical service.

E. Operating Test: Upon completion of the work and adjustment of equipment, conduct an operating test and submit for approval at such time as the Architect directs. Conduct the test in the presence of the Architect and the District Inspector. Demonstrate systems and equipment to:

1. Operate in accordance with requirements of the Contract Documents.

2. Be free from electrical and mechanical defects.

F. Other Tests: Conduct all other and additional tests to assure the Architect that the electrical work is free from short circuits, grounds (ground faults) other than intentional grounds, and defective or damaged insulation. In additional, perform all tests that are required by authorities having jurisdiction or are requested by the Architect.

G. Cost: All cost incurred, including required instruments and personnel for the tests shall be included on the bid price and paid for by the Contractor.

3.9 CLEANING

A. General: Periodically remove waste and rubbish and maintain order. Clean and polish finished metal surfaces. Exposed materials, equipment and apparatus shall be thoroughly cleaned of dirt, rust, cement, plaster, etc., and have cracks and corners scraped out clean, and surfaces carefully cleaned of grease and oil spots and be left smooth and clean, with unfinished surfaces ready for painting. Clean grease, oil and other foreign substances from floors, walls, ceilings, and fixtures, and leave premises clean and free from debris and unused construction materials, where caused by work under this Section. Completely clean insides of lighting fixtures removing dirt, bugs and other foreign substances.

3.10 COORDINATION

A. General: Coordinate with each trade involved in the construction project. Work shall be fully laid out in advance, coordinating all features of construction, including control wiring between different systems.

3.11 QUALITY CONTROL

A. General: Establish and maintain quality control for operations under this Section to ensure compliance with Contract requirements, and maintain records of quality control for all materials, equipment, and construction operations.

3.12 INSPECTION

A. Preparatory inspection shall be conducted prior to commencing work, as follows:

1. Check to see that required shop drawings and other submittals have been made, are complete, and approved. Where exceptions have been taken to submittals, but approved subject to correction, check to verify that proper corrections have been made.
2. Check materials and equipment upon delivery at job site for compliance with approved submittal. Verify for proper storage.
3. Check layout drawings and details of interfaces with existing work, with interfaces and interrelations with work under other Divisions of the Specifications, and with interfaces with work performed.
4. Check the actual conditions on the site for conformance with the above. Verify that conditions are ready for new work.
5. Review installation procedures and code requirements with each person involved in inspecting and performing the work.
6. Review requirements of Drawings, Specifications, and the manufacturer's requirements and recommendations. In the event clarification or the Architect's decisions are required, such shall be obtained before proceeding with the work.
7. Quiz personnel doing work to ensure their understanding of Contract requirements including workmanship and techniques.

8. This inspection and the results thereof shall be recorded. Inspection records shall be made available for review by the Architect and the District Inspector at any time upon request.

B. Initial inspection shall be conducted when a representative sample of the work is complete, as follows:

1. Review the representative sample of the work against the Specification and code requirements previously discussed at preparatory inspection. Review shall include, but is not to be limited to:

a. Layout and sub-grade work.

b. Conduit/raceway installation.

c. Equipment installation.

d. Grounding.

e. Manholes, hand holes, junction boxes, enclosures, etc.

2. Note and discuss deficiencies observed and corrective action to be taken. If corrective action is to be taken, an additional inspection shall be conducted for compliance.

3. This inspection and the results thereof shall be recorded. Inspection records shall be made available for review by the Architect or the District Inspector at any time upon request.

a. Follow-up inspections shall be conducted daily to ensure compliance with corrections required by initial inspection, as follows:

b. Check completed work against corrected representative sample of work.

c. Perform tests required by Contract to ensure compliance.

4. This inspection and the results thereof shall be recorded. Inspection records shall be made available for review by the Architect or the District Inspector at any time upon request.

C. Copies: Furnish the Architect a copy of these records and tests, as well as records of corrective action taken.

END OF SECTION

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SECTION 26 05 45
UNDERGROUND DUCTS AND RACEWAY FOR ELECTRICAL AND COMMUNICATION SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Provide all labor, material, equipment, necessary testing, and complete the power and service distribution system as shown on the Drawings and as specified herein.

B. This Section includes the following:

1. Conduit, ducts, and duct accessories for concrete-encased duct banks.

2. Handholes and pull-boxes.

3. Manholes.

1.2 SUBMITTALS

A. Product Data: For the following:

1. Duct-bank materials, including separators and miscellaneous components.
2. Ducts and conduits and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
3. Accessories for manholes, handholes, pull-boxes.
4. Warning tape.
5. Warning planks.

B. Shop Drawings for Precast or Factory-Fabricated Underground Utility Structures: Include plans, elevations, sections, details, attachments to other work, and accessories, including the following:

1. Duct entry provisions, including locations and duct sizes.
2. Reinforcement details.
3. Frame and cover design and manhole frame support rings.
4. Ladder details.
5. Grounding details.
6. Dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.

7. Joint details.

C. Shop Drawings for Factory-Fabricated Handholes and Boxes Other Than Precast Concrete: Include dimensioned plans, sections, and elevations, and fabrication and installation details, including the following:

1. Duct entry provisions, including locations and duct sizes.
2. Cover design.
3. Grounding details.
4. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

D. Product Certificates: For concrete and steel used in precast concrete manholes, as required by ASTM C 858.

E. Qualification Data: For professional engineer and testing agency.

F. Source quality-control test reports.

G. Field quality-control test reports. QUALITY ASSURANCE

1. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.
2. Comply with ANSI C2.
3. Comply with NFPA 70.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver ducts to Project site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.

B. Store precast concrete underground utility structures at Project site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.

C. Lift and support precast concrete units only at designated lifting or supporting points.

1.4 PROJECT CONDITIONS

C. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Construction Manager no fewer than seven days in advance of proposed interruption of electrical service.

2. Do not proceed with interruption of electrical service without Construction Manager's written permission.

1.5 COORDINATION

A. Coordinate layout and installation of ducts, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field.

B. Coordinate elevations of ducts and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of ducts and duct banks as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations from those indicated as required to suit field conditions and to ensure that duct runs drain to manholes and handholes, and as approved by Architect.

PART 2 - PRODUCTS

2.1 CONCRETE PULL BOXES/MANHOLES

D. General:

1. Provide pre-cast concrete pull boxes where pull boxes are indicated complete with cover, drain hole, removable steel ladder, four pull irons, ground bus and ground rods. Pull box/manhole size shall be as indicated.

2. Pre-cast concrete manholes shall conform to the requirements of ASTM C478 – Standard Specification for Pre-cast Reinforced Concrete Manhole

3. Pull box/manhole shall meet all legal requirements as to size for conduits terminating therein.

4. Reinforced concrete shall be Class A, 20,684 kPa (3,000 psi) type. Minimum design loading shall be 300 lb. Per sq. ft.

5. Comply with ASTM C 858 and with interlocking mating sections, complete with accessories, hardware, and features.

Duct Entrances in Manhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.

a. Type and size shall match fittings to duct or conduit to be terminated.

b. Fittings shall align with elevations of approaching ducts and be located near interior corners of manholes to facilitate racking of cable.

6. Concrete Knockout Panels: 1-1/2 to 2 inches thick, for future conduit entrance and sleeve for ground rod.

7. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at the installation location with the ground-water level at grade.

E. Covers:

1. Covers shall be concrete with a cast-iron lid and frame. Minimum clear opening through the frame shall be 36 inches in diameter.

2. Cast-iron lid shall have lid lettering designation; "ELECTRIC", "HIGH-VOLTAGE", for Power Manhole/Pull box and "SIGNALS" for Communication pull boxes. Submit to the Architect for review.

3. Provide traffic-type construction with traffic covers in areas involving vehicular traffic suitable for AASHTO HS-20 wheel loads.

F. Accessories:

1. Provide hooked manhole ladder that complies with OSHA 29 CFR 1910.27 and ANSI A14.36 – Safety Code for Fixed Ladders. Ladder shall be coated with non-corrosive finish.

2. Provide heavy duty cable racks and arms by Hubbell Power Systems/Chance Group for each manhole.

3. Duct-Sealing Compound: Non-hardening, safe for contact with human skin, not deleterious to cable insulation, and workable at temperatures as low as 35 deg F. Capable of withstanding temperature of 300 deg F without slump and adhering to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and common metals.

G. Acceptable Manufacturers: Pre-cast concrete pull boxes shall be Quikset EPB-2100 Series or equal by Oldcastle Pre-cast Group or Brooks Jensen Pre-cast.

2.2 UNDERGROUND CONDUIT SYSTEM

H. Underground Conduit System: Provide as shown on the Drawings and as specified.

I. Excavation: Provide excavation for underground conduit system and manholes as shown on the Drawings and as specified hereinbefore.

J. Conduit for the underground conduit system shall be as shown on the Drawings, and as specified in Section 260500 and in Part Three of this Section.

K. The conduit length for each size shall be the length that is standard with the manufacturer with a permissible tolerance of 1/4" (0.6 cm) in a 10'-0" (3.1 m) length.

L. Conduit fittings shall be UL approved and shall conform to applicable standards, except that where NEMA Standards for conduit fittings do not exist, fittings shall be as recommended by the conduit manufacturer.

M. Conduit fittings shall be of a type especially made for use with the conduit for electrical service. Plastic conduit and fittings shall be capable of being joined, by means of a solvent welding cement, so as to provide a watertight root-proof joint.

PART 3 – EXECUTION

3.1 UNDERGROUND DUCT APPLICATION

A. Ducts for Electrical Cables Over 600 V: RNC, NEMA Type -PVC, HDPE Schedule 40 in concrete-encased duct bank, unless otherwise indicated.

B. Underground Ducts Crossing Roadways: RNC, NEMA Type EPC-40-PVC, encased in reinforced concrete.

C. All individual conduit and/or conduits that are grouped together to form a duct bank shall conform to all standards and to the requirements specified herein.

D. Encase all underground conduits in concrete envelopes except for those allowed in this Specification.

E. Duct bank or conduit shall have a minimum slope of 3" (7.6 cm) in each 100' (30.5 m) away from buildings and toward manholes and other necessary drainage points, and shall run in straight lines except where a change of direction is necessary.

F. Changes in direction of runs exceeding a total of 10 degrees, either vertical of horizontal, shall be accomplished by long sweep bends having a minimum radius of curvature of 25' (7.6 m), except that manufactured bends may be used at ends of short runs of 100' (30.5 m) or less, and then only at or close to the end of the run. The long sweep bends may be made up of one or more curved or straight sections or combinations thereof. Manufactured bends shall have a minimum radius of 18" (46 cm) for use with ducts of less than 3" (7.6 cm) in diameter and a minimum radius of 36" (91 cm) for ducts of 3" (7.6 cm) in diameter and larger.

G. Conduits shall terminate in end-bells where duct lines enter pull box/manholes.

H. Separators used in duct banks shall be of pre-cast concrete, high impact polystyrene steel, or any combination of these and shall be placed not less than 4' (1.2 m) apart.

I. Joints of the conduit runs shall be staggered not less than 6" (15 cm) in rows and tiers (layers) so as to provide a duct line having the maximum strength.

J. During construction, partially completed duct lines shall be protected from the entrance of debris such as mud, sand, and dirt by means of suitable conduit plugs. As each section of a duct line is complete from manhole (hand hole) to manhole (hand hole), a testing mandrel not less than 12" (30.5 cm) long with a diameter 1/4" (0.6 cm) less than the size of the conduit shall be drawn through each conduit, after which a brush with stiff bristles shall be drawn through until the conduit is clear of all particles of earth, sand, or gravel; conduit plugs shall then be immediately installed.

K. Underground duct banks encased in concrete shall comply with all applicable requirements of the specifications and the following:

1. Underground duct banks shall be of individual conduits encased in concrete. Except where rigid metallic conduit is indicated or specified, the conduit shall be PVC Schedule 40.

2. Unless indicated or specified otherwise, the kind of conduit used shall not be mixed in any one duct bank and shall not be smaller than 4" (10 cm) inside diameter, unless specified otherwise.

3. The top of the concrete envelope shall not be less than 24" (61 cm) below grade, except that under railroad tracks not less than 36" (91 cm) below grade.

4. Duct banks shall be rectangular in cross-section. The concrete encasement surrounding the ducts shall have a minimum concrete thickness of 3" (76.2 mm). Conduits shall be separated by a minimum concrete thickness of 3" (7.6 cm), except that light and power conduits shall be separated from control, signal, and telephone conduits by a minimum concrete thickness of 6" (15 cm).

5. The concrete shall be as herein specified and have a compressive strength of not less than 211 kg/sq. cm (20,684 kPa) (3,000 psi). Concrete used in the construction of the duct banks shall be in accordance with Division 3.

L. Underground conduit without concrete encasement shall comply with all applicable requirements of the Specifications and the following:

1. Concrete encasement may be omitted for conduits located below slabs on grade within buildings or where indicated in landscaped areas or in unpaved areas not subject to vehicular traffic or where specifically indicated as not required.

2. Conduits without concrete encasement shall be galvanized rigid steel or rigid plastic, minimum 4" (10 cm) inside diameter unless otherwise indicated.

3. The top of conduits shall not be less than 24" (61 cm) below grade. Separation of conduits shall comply with requirements as specified for underground duct lines encased in concrete.

4. There shall be not less than 3" (7.6 cm) clearance from the conduit to each side of the trench. The bottom of trenches shall be graded carefully and shall be smooth; where rock, soft spots, and/or sharp edged materials are encountered, the bottom shall be excavated for an additional 3" (7.6 cm) and filled and tamped level with the original bottom with sand or earth free from particles that would be retained on a 1/2" (1 cm) sieve.

5. Under roads, paved areas, areas subject to vehicular traffic and railroad tracks, conduits shall be encased in concrete and installed as specified

for underground duct lines encased in concrete. The concrete encasement shall extend not less that 5' (1.5 m) beyond the edge of paved areas and roads, and 12' (3.5 m) beyond the outer rails of railroad tracks.

6. When specified, conduits to be installed under existing paved areas, roads, areas subject to vehicular traffic and railroad tracks which are not to be disturbed shall be zinc-coated, rigid steel, jacked into place. Identification slabs (markers), back filling, and reconditioning of surface shall be as herein specified. The kind of conduit used shall not be mixed in any one duct bank.

M. Where corrosive soils are indicated on Drawings or encountered in field, rigid steel conduits, if used, shall be wrapped with Scotchwrap No. 50 tapes with a 30-percent tape overlap or encased in a minimum 3" concrete encasement using Type I or II cement. If concrete encasement is used, then other requirements for concrete duct banks shall apply.

N. An AWG No. 4/0 bare stranded copper ground wire shall be laid on top of each underground duct bank (applicable for MV Feeders) and extended into each manhole and clamped to the ground rod with a cast type grounding lug designed for the purpose, or bound with exothermic weld.

O. Duct-bank markers shall be located at the ends of all duct banks except at manholes, at approximately every 200' (61 m) along the duct run, and at each change in direction of the duct run. Markers shall be placed approximately 2' (61 cm) to the right of the duct bank when facing the longitudinal axis of the run and in the direction of the electrical load. Markers shall be made of class B concrete, 6" (15 cm) square or round section by 3' (91 cm) long. The top edges of the marker shall have a 1/2" (1 cm) chamfer all around. The letter "D" with two arrows shall be impressed or cast on the top of the marker. One arrow shall be located below the letter and shall point toward the duct bank. The second arrow shall be located adjacent to the letter and shall point in a direction parallel to the duct bank.

P. A pull line such as "Poly Rope" shall be provided in each empty duct.

Q. All utility conduit runs outside of building, including stub-outs on the site, shall be marked on the Record Drawings, identified and dimensioned exactly from a referenced building signed by the Contractor and countersigned by the Owner’s Representative.

3.2 CONCRETE PULL BOX INSTALLATION

A. Install pull boxes in paved areas wherever possible but keep each box a minimum of 1' (30.5 cm) clear of edge of paving. Tops of boxes shall align exactly with top surfaces of paving. In other locations, install boxes where runoff water will not drain to the box and set top of box 2" (5 cm) above finished grade of surrounding earth.

B. Except where indicated or where absolutely necessary, make no splices in concrete pull boxes. Where conductors of 600 volt rating or below must be spliced, use in-line or straight-through type with a heat shrinkable plastic sleeve placed over the splice. Coat the splice thoroughly with Skotchkote Electric Coating.

C. Where different systems share the same pull box, provide transite barriers or other means to provide legal separations. Junction boxes inside concrete pull boxes shall be cast type with threaded hubs and gasketed covers.

D. Immediately below the drain hole in the pull box, install a 12" (30.5 cm) diameter by 4' (1.22 m) long clay pipe, or concrete pipe, and fill with 1/2" (1 cm) size crushed rock.

E. Coat entire below-grade exterior surfaces with an approved waterproofing compound.

F. Verify and provide per local utility companies' requirements, where pull boxes, manholes and transformer pads indicated on Drawings are intended for local utility companies' usage.

3.3 EARTHWORK

A. Excavation and Backfill: Comply with Division 31 Section "Earthwork," but do not use heavy-duty, hydraulic-operated, compaction equipment.

G. Restore surface features at areas disturbed by excavation and reestablish original grades, unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

H. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary top-soiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Comply with Division 2 Sections "Landscape Planting" and "Plant Maintenance."

I. Cut and patch existing pavement in the path of underground ducts and utility structures according to Division 2 Section "Selective Site Demolition."

3.4 DUCT INSTALLATION

A. Slope: Pitch ducts a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope ducts from a high point in runs between two manholes to drain in both directions.

B. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches, both horizontally and vertically, at other locations, unless otherwise indicated.

C. Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.

D. Duct Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches on center for 5-inch ducts, and vary proportionately for other duct sizes

1 Begin change from regular spacing to end-bell spacing 10 feet from the end bell without reducing duct line slope and without forming a trap in the line.

2 Direct-Buried Duct Banks: Install an expansion and deflection fitting in each conduit in the area of disturbed earth adjacent to manhole or handhole. Grout end bells into structure walls from both sides to provide watertight entrances.

E. Building Wall Penetrations: Make a transition from underground duct to rigid steel conduit at least 10 feet outside the building wall without reducing duct line slope away from the building, and without forming a trap in the line. Use fittings manufactured for duct-to-conduit transition. Install conduit penetrations of building walls as specified in Division 26 Section "Common Work Result for Electrical."

F. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.

G. Pulling Cord: Install 100-lbf-test nylon cord in ducts, including spares.

H. Concrete-Encased Ducts: Support ducts on duct separators.

1. Separator Installation: Space separators close enough to prevent sagging and deforming of ducts, with not less than 4 spacers per 20 feet of duct. Secure separators to earth and to ducts to prevent floating during concreting. Stagger separators approximately 6 inches between tiers. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.

2. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.

a. Start at one end and finish at the other, allowing for expansion and contraction of ducts as their temperature changes during and after the pour. Use expansion fittings installed according to manufacturer's written recommendations, or use other specific measures to prevent expansion-contraction damage.

b. If more than one pour is necessary, terminate each pour in a vertical plane and install 3/4-inch reinforcing rod dowels extending 18 inches into concrete on both sides of joint near corners of envelope.

3. Pouring Concrete: Spade concrete carefully during pours to prevent voids under and between conduits and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Use a plank to direct concrete down sides of bank assembly to trench bottom. Allow concrete to flow to center of bank and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-bank application.

4. Reinforcement: Reinforce concrete-encased duct banks where they cross disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.

5. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.

6. Depth: Install top of duct bank at least 24 inches below finished grade in areas not subject to deliberate traffic, and at least 30 inches below finished grade in deliberate traffic paths for vehicles, unless otherwise indicated.

7. Stub-Ups: Use manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Extend concrete encasement throughout the length of the elbow.

8. Warning Tape: Bury warning tape approximately 12 inches above all concrete-encased ducts and duct banks. Align tape parallel to and within 3 inches of the centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

3.5 INSTALLATION OF CONCRETE MANHOLES, HANDHOLES, AND BOXES

A. Precast Concrete Handhole and Manhole Installation:

1. Comply with ASTM C 891, unless otherwise indicated.

2. Install units level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances.

3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 sieve and compacted to

same density as adjacent undisturbed earth.

B. Elevations:

1. Manhole Roof: Install with rooftop at least 15 inches below finished grade.

2. Manhole Frame: In paved areas and traffic ways, set frames flush with finished grade. Set other manhole frames 1 inch above finished grade.

3. Install handholes with bottom below the frost line, below grade.

4. Handhole Covers: In paved areas and traffic ways, set surface flush with finished grade. Set covers of other handholes 1 inch above finished grade.

5. Where indicated, cast handhole cover frame integrally with handhole structure.

C. Drainage: Install drains in bottom of manholes where indicated. Coordinate with drainage provisions indicated.

D. Manhole Access: Circular opening in manhole roof; sized to match cover size.

1. Manholes with Fixed Ladders: Offset access opening from manhole centerlines to align with ladder.

2. Install chimney, constructed of precast concrete collars and rings to support frame and cover and to connect cover with manhole roof opening. Provide moisture-tight masonry joints and waterproof grouting for cast-iron frame to chimney.

E. Waterproofing: Apply waterproofing to exterior surfaces of manholes after concrete has cured at least three days. Waterproofing materials and installation are specified in Division 7 Section "Elastomeric Sheet Waterproofing." After ducts have been connected and grouted, and before backfilling, waterproof joints and connections and touch up abrasions and scars. Waterproof exterior of manhole chimneys after mortar has cured at least three days.

F. Damp-proofing: Apply damp-proofing to exterior surfaces of manholes after concrete has cured at least three days. Damp-proofing materials and installation are specified in Division 7 Section "Bituminous Damp-proofing." After ducts have been connected and grouted, and before backfilling, damp-proof joints and connections and touch up abrasions and scars. Damp-proof exterior of manhole chimneys after mortar has cured at least three days.

G. Hardware: Install removable hardware, including pulling eyes, cable stanchions, and cable arms, and insulators, as required for installation and support of cables and conductors and as indicated.

H. Fixed Manhole Ladders: Arrange to provide for safe entry with maximum clearance from cables and other items in manholes.

I. Field-Installed Bolting Anchors in Manholes and Concrete Handholes: Do not drill deeper than 3-7/8 inches for manholes and 2 inches for handholes, for anchor bolts installed in the field. Use a minimum of two anchors for each cable stanchion.

J. Warning Sign: Install "Confined Space Hazard" warning sign on the inside surface of each manhole cover.

3.5 GROUNDING

A. Ground underground ducts and utility structures according to Section 26 05 00 under Part 3.7 - Grounding and Bonding.

3.6 FIELD QUALITY CONTROL

J. Perform the following tests and inspections and prepare test reports:

1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.

2. Pull aluminum or wood test mandrel through duct to prove joint integrity and test for out of-round duct. Provide mandrel equal to 80 percent fill of duct. If obstructions are indicated, remove obstructions and retest.

3. Test manhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Division 26 Section "Grounding and Bonding."

B. Correct deficiencies and retest as specified above to demonstrate compliance.

3.7 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

B. Clean internal surfaces of manholes, including sump. Remove foreign material.

END OF SECTION

SECTION 26 05 53
IDENTIFICATION OF ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Identification for conductors and communication and control cable.
2. Warning labels and signs.
3. Equipment identification labels.

1.2 RELATED SECTIONS:

1. Section 26 05 73 OPD Coordination Study/Arc Flash Analysis

PART 2 - PRODUCTS

2.1 CONDUCTOR AND COMMUNICATION- AND CONTROL-CABLE IDENTIFICATION MATERIALS

A. Marker Tape: Vinyl or vinyl -cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.2 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-adhesive General Safety Labels: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.

C. Baked-Enamel Warning Signs: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 7 by 10 inches. Metal-Backed, Butyrate Warning Signs: Weather-resistant, non-fading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 10 by 14 inches.

D. Fasteners for Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

E. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."

2. Dimension in first subparagraph below is clear space prescribed in NFPA 70 (2020 Edition), Table 110-26(A)(1), for equipment with nominal voltage to ground of 151 to 600 V, and with grounded parts, including concrete, brick, or tile walls, opposite the equipment. Additional clear space is required at this voltage if there are unguarded exposed live parts on both sides of the workspace. Retain below and revise to suit Project conditions or requirements of authorities having jurisdiction, or indicate varying clearance requirements on Drawings.

3. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES WIDE (PARALEL TO EQUIPMENT) AND CLEAR DEPTH REQUIRED IN ACCORDACE WITH NEC ARTICLE 110.32

4. Equipment containing or operating circuits more than 240Volts nominal: Provide laminated plastic warning signs engraved in high by 3/8 wide white letters on red background to read: CAUTION HIGH VOLTAGE- XXX' VOLT , XXX' indicating actual voltage.

5. Provide Arc Flash Information Label with PPE category information on each electrical equipment, which are likely require examination, adjustment, servicing, or maintenance while energized, including but not limited to Switchgear, Switchboards, Transformers, Industrial Control Panels, Motor Control Centers, Disconnect Switches and Panels. PPE level shall be in accordance with the Arc Flash Hazard Analysis report done on the Short Circuit and Over-current Protective Device Coordination study

6. Arc Flash Information Label must contain the following important elements:

    a. Arc Flash Information banner on top of Label.

    b. Location / Equipment Designation.

    c. Nominal System Voltage

    d. Arc Flash Boundary Distance

    e. Incident Energy cal/cm2 and Working Distance

    f. Shock hazard when cover is open

    g. Limited approach distance

    h. Arc Flash PPE Hazard Category and Arc Rated of Clothing

    i. Arc Flash Analysis Study number

    j. Registered Professional Engineer performing the studies and date.

7. Arc Flash Label shall be supplied by Switchgear Factory, samples shall be included in the scope of Short-circuit and Protective Device Coordination and Arc Flash Hazard Analysis Studies.

2.3 EQUIPMENT IDENTIFICATION LABELS

A. Provide laminated plastic warning signs engraved in 1/2 high by 3/8 wide white letters on red background to Provide laminated plastic warning signs engraved in 1/2 high by 3/8 wide white letters on red background to Provide laminated plastic warning signs engraved in 1/2 high by 3/8 wide white letters on red background to Retain one of two paragraphs below to specify type of labels Contractor must use to comply with NFPA 70, Article 110-22, "Identification of Disconnecting Means." Note that, unless otherwise indicated, the labeling products selected below will also be used for labeling that is not required by NFPA 70 but may be specified in Part 3 "Application" Article to identify equipment other than disconnect devices. See Evaluations.

B. Provide three layers laminated plastic (micarta) nameplates engraved in 1/4 (minimum) high white letters on black background to correspond with the designations on the Drawings, electrical equipment nameplate shall be as follows:

C. The main nameplate shall give the equipment designation in 1/2 high letters, the second line in 1/4 high letters shall indicate the Amperage, Voltage-Phase, and Wire. The third line of same dimensions as the second line shall indicate where the equipment fed from. Following is an example of Panelboard nameplate:

PANEL 1HA

100A MAIN, 480Y/277-VOLT, 3-PH, 4W

FED FM 1MS – 100A CB

D. Provide white letters on red background for emergency equipment.

PART 3 - EXECUTION

3.1 APPLICATION

A. Auxiliary Electrical Systems Conductor and Cable Identification: Use marker tape to identify field-installed alarm, control, signal, sound, intercommunications, voice, and data wiring connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and cable pull points. Identify by system and circuit designation.

2. Use system of designations that is uniform and consistent with system used by manufacturer for factory-installed connections.

B. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply metal-backed, butyrate warning signs. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access.

1. Equipment with Multiple Power or Control Sources: Apply to door or cover of equipment including, but not limited to, the following:

    a. Power transfer switches.

    b. Controls with external control power connections.

2. Equipment Requiring Workspace Clearance According to NFPA 70: Unless otherwise indicated, apply to door or cover of equipment but not on flush panelboards and similar equipment in finished spaces.

C. Equipment Identification Labels (name plates): On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

    a. Indoor Equipment: Provide laminated plastic nameplates engraved in white letters on black background (for emergency power equipment, provide white letters on red background), attached with rivets or self taping screws or with nuts and flat and lock washers.

    b. Outdoor Equipment: Engraved, laminated acrylic or melamine label, drilled for screw attachment.

    c. Elevated Components: Increase sizes of labels and legend to those appropriate for viewing from the floor.

    d. Provide engraved branch circuit breaker numbering strip, screw or riveted on branch circuit and lighting panelboard internal trim. Permanent engraved numbering on internal trim is acceptable, sticker numbering system is not permitted.

    e. Provide load schedules for all branch circuit and lighting panelboards, identifying type, size and location of load. Schedules shall be typewritten and protected by transparent plastic cover.

2. Equipment to be Labeled:

    a. Identification labeling of some items listed below may be required by individual Sections or by NFPA 70.

    b. Panelboards, electrical cabinets, and enclosures.

    c. Electrical switchgear and switchboards.

    d. Transformers.

    e. Substations.

    f. Generators.

    g. Motor-control centers.

    h. Disconnect switches.

i. Enclosed circuit breakers.

j. Motor starters.

k. Push-button stations.

l. Power transfer equipment/MV Switches.

m. Contactors.

n. Pull boxes.

o. Terminal Cabinet

END OF SECTION 26 05 53

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SECTION 26 24 00
BUILDING SERVICE & DISTRIBUTION

PART 1 - STANDARDS

1.1 DESCRIPTION

A. Work Included: Provide all labor, material, equipment, necessary testing, and complete the building service and distribution system as shown on the Drawings and as specified herein.

PART 2 - MATERIALS

2.1 CONCRETE PULL BOXES

A. General:

1. Provide precast concrete pull boxes where pull boxes are indicated complete with cover, drain hole and two pull irons. Unless otherwise indicated, inside dimensions for pull boxes shall be 2'-6" (0.762 m) wide by 4' (1.22 m) long by 4' (1.22 m) deep.

2. Pull boxes shall meet all legal requirements as to size for conduits terminating therein.

3. Reinforced concrete shall be Class A, 20,684 kPa (3,000 psi) type.

B. Covers:

1. Covers shall be concrete with a cast-iron lid and frame.

2. Cast-iron lid shall have bead weld designation; ELECTRICAL", "HIGH-VOLTAGE", "COMMUNICATIONS , FIBER-OPTIC and etc., as required. Submit to the Architect for review.

3. Provide traffic-type construction with traffic covers in areas involving vehicular traffic.

C. Acceptable Manufacturers: Pre-cast concrete pull boxes shall be Quikset EPB-2100 Series or equal by Brooks Products, Jensen or Oldcastle.

2.2 UNDERGROUND CONDUIT SYSTEM

A. Underground Conduit System: Provide as shown on the Drawings and as specified.

B. Excavation: Provide excavation for underground conduit system and manholes as shown on the Drawings and as specified hereinbefore.

C. Conduit for the underground conduit system shall be as shown on the Drawings, and as specified in Section 26 05 00 and 26 05 45.

D. The conduit length for each size shall be the length that is standard with the manufacturer with a permissible tolerance of 1/4" (0.6 cm) in a 10'-0" (3.1 m) length.

E. Conduit fittings shall be UL approved and shall conform to applicable standards, except that where NEMA Standards for conduit fittings do not exist, fittings shall be as recommended by the conduit manufacturer.

F. Conduit fittings shall be of a type especially made for use with the conduit for electrical service. Plastic conduit and fittings shall be capable of being joined, by means of a solvent welding cement, so as to provide a watertight root-proof joint.

2.3 CABLES

A. General: Provide all cables as indicated and specified.

B. 600-Volt Class and Under: Provide conductors of the 600-Volt class and under as specified under paragraph, "Wire and Cable", in Section 26 05 00.

C. Auxiliary Systems: Provide clock, voice/data, security, fire alarm or other auxiliary type system cables as specified under the respective sections.

2.4 INTEGRATED POWER CENTER

A. General

1. Integrated power center (IPC) combine power distribution and controls into one integrated package.

2. The IPC structure is 84 inches high x10-9/32 inches deep load conductors exit the top or bottom of the IPC.

3. The IPC consist combination of 480Y/277V, 3phase, 4 wire main circuit breaker panelboard, three-phase 480 Delta – 208Y/120V, 3 phase distribution transformer assembly and 208Y/120V-3phase, 4 wire panelboard.

4. The integrated power center equipment rating are indicated in the single line diagram.

B. Standard

1. The integrated power center shall be manufactured and tested to meet the following standards: U.L. 50, U.L. 67, U.L. 98, U.L. 489, U.L. 891, NEMA AB1, NEMA PB1, NEMA PB2, NEMA 250, NEC Art 384, NFPA 70.

2. The integrated power center and the devices within shall be manufactured and tested to meet the following federal specifications: W-C 375B/Gen, W-C 865C, WP 115B Type 1, Class 1.

C. Enclosure

1. The IPC enclosure shall be NEMA3R floor standing in 4 concrete pad grounded in accordance with NEC for system and equipment ground.
2. Enclosure shall be steel construction in accordance to applicable U.L. standards.

D. Main circuit breakers
1. Main circuit breakers rating and short circuit duty are as indicated.
2. Refer to standard for compliance.

E. Transformer
1. Three phase, 480 Delta – 208Y/120V. KVA as indicated.
2. H-220C insulation system with 150°C rise above 40°C ambient.
3. Provision for close coupling to integrated power center line-up.
4. Copper winding.
5. Green premium (RoHS/Reach Compliance product environmental profile)
6. Electrostatic shield.
7. UL listed to UL1561 under file E6868.
8. Complying with DOE 10 CFR 431 (78 FR 2335 – April 18, 2016)

F. Power Panelboard
1. 208Y/120V. 3-phase 4-wire, with main circuit breaker.
2. Refer to single line diagram for trip and frame size.
3. Refer to standard Panelboards Section below for compliance.

G. Integrated System
1. Power panelboards shall be installed in common-depth and front-accessible switchboard enclosures.
2. Factory installed power cables shall electrically connect main breaker, transformer and panelboard in the line-up.

H. Fronts
1. Trim front shall meet strength and rigidity requirements or applicable U.L. standards.
2. Each section shall have a hinged door with a three-point latch with locking provisions.
3. A clear plastic directory card holder shall be mounted on the inside of the door.
4. Locks shall be cylindrical tumbler type. All lock assemblies shall be keyed alike. One (1) key shall be provided with each lock.

I. Acceptable manufacturers: Integrated power center shall be Square D, Eaton or General Electric.

2.5 TRANSFORMERS (600-VOLT CLASS AND BELOW)

A. General: Provide transformers for use on 60-Hertz system with the following characteristics:

1. Type: Dry, ventilated, self-cooled type with provisions for future cooling fans where indicated.

2. Complying with DOE 10 CFR 431 (78 FR 2335 – April 18, 2016)

3. Ratings: Phase, voltage and connection arrangement as indicated.

4. Capacities: The kVA capacities as indicated with capability of carrying a continuous 10-percent overload at rated voltage without exceeding NEMA average and hot spot temperature ratings of the insulation at 104-degree F (40-degree C) ambient air temperature.

5. Windings: Constructed of copper and shall be of the fire-resistant type, designed for natural convection cooling through normal air circulation.

6. Insulation Class H (Class 220 Insulation Rating) 150-degree C average winding temperature rise.

7. Dimensions: Within the limitations indicated or the space available for installing the transformers.

8. Taps: Four 2-1/2 percent primary taps, 2 above and 2 below rated voltage.

9. Terminals: Locate terminals at the bottom of the transformer or other area where the temperature, when operating at 10-percent overload and in an ambient of 104-degree F (40-degree C) will not exceed 140-degree F (60-degree C).

10. Mounting: Floor, wall or ceiling mounted, as indicated. Transformers shall be furnished complete with mounting channels and mounting bolts. Enclosures shall be provided with lifting lugs and jacking plates as required.

11. Vibration Dampening: Constructed with built in vibration dampeners which completely isolate the cores and coils from all supports and enclosures.

12. Sound Ratings: In the installed condition, the sound levels shall not exceed:

    a. 45 dB for 0 to 45 kVA.

    b. 50 dB for 46 to 150 kVA.

    c. 55 dB for 151 to 300 kVA.

    d. 60 dB for 301 to 500 kVA.

13. Enclosure: Cover plates shall be Code-gauge sheet steel, captive type, bolted to the enclosure framework. Enclosure shall have suitable

ventilating openings with rodent-proof screens. Provide weatherproof type when located outdoors.

14. Finish: Metal parts excepting cores or core mounting frames shall be cleaned, rust-proofed, and be given a heavy coating of an inert primer. Cover plates and external metal parts shall be finished with two full-bodied coatings of oil-resistant industrial gray enamel.

15. Nameplates: Provide nameplates, identifying the characteristics, as specified in Section 26 05 00.

B. Acceptable Manufacturers: Transformers shall be manufactured by Square D; Eaton or General Electric.

2.6 PANELBOARDS

A. General:

1. Provide flush or surface mounted panelboards with main breakers or lugs, sub-fed lugs, bus size and circuit breakers of a rating as shown on the Drawings.

2. Each branch circuit breaker shall be identified by permanent number identification as to circuit numbers. Adhesive sticker numbering identification system is not acceptable.

3. Panelboard shall have field marked to warn qualified persons of the potential for arc-flash hazards.

4. Top of panelboard shall not be higher than 78" (198 cm) above finished floor.

5. Space for controls such as time clocks, time controlled relays and air-conditioning controls shall be located in a separate compartment with hinged doors within respective panelboards. Where limited by the height of the panels, locate controls in a separate cabinet adjacent to the respective panelboard.

B. Bus bars shall be rectangular in cross-section constructed of copper with silver-plated joints and interconnections. Unless otherwise indicated, neutral buses shall be full size. Bus bars shall be isolated from wiring troughs and working spaces and be braced to withstand a minimum short circuit fault of 25,000 amperes rms symmetrical or larger as indicated. Provide split bus where indicated on the Drawings.

C. Circuit Breakers:

1. Circuit breakers shall have interrupting capacities as indicated on the Drawings. Minimum interrupting capacities for 120/208 and 277/480-volt circuit breakers shall be 10,000 amperes and 14,000 amperes rms symmetrical respectively. Provide breakers of the bolt-on molded case type. Plug-in types are not acceptable.

2. Single-pole breakers shall be full module size; two poles shall not be installed in a single module. Multi-pole circuit breakers shall be of the common-trip type having a single operating handle and for sizes of 50 amperes or less, may consist of single-pole circuit breakers permanently assembled at the factory into a multi-pole unit.

3. Circuit breakers used for motor-circuit disconnects and not within sight of the motor controller shall be capable of being locked in the open position.

4. All circuit breakers shall have provisions for lock out clips which shall be provided for breakers serving motors, signal systems and air-conditioning controls, and as indicated on the schedules on the Drawings.

5. Provide approved "Lock-Off" devices for all circuit breakers serving lighting circuits without local switching.

6. Circuit breakers shall be arranged in the panels to correspond exactly with the schedules on the Drawings. Circuit numbers shall be black-on-white plastic tabs or other such permanent type which cannot be changed readily from the front of the panel.

7. Breakers serving loads comprised of large wattage incandescent lamps shall be equipped with desensitized magnetic trip mechanisms which prevent tripping by in-rush currents.

8. Provide approved handle ties for individual circuit breakers protecting each ungrounded branch circuit conductor of multi-wire branch circuits.

9. Provide ground fault circuit-interrupter for all Code required lighting or receptacle circuits rated at 15, 20, 25 or 30 amperes at 120 volts or above. The bolt-on molded-case type circuit breaker, similar to General Electric Type THQB-GF, shall be of the quick-make, quick-break operating mechanism with construction as described above and with the following additional features:

    a. Amperes line-to-line, ground fault conditions: 0.005.

    b. Amperes, symmetrical rms at 120 volts: 10,000.

    c. Push-to-test circuit.

    d. Trip-free handle to allow breaker to trip even if handle is held or blocked in the "ON" position.

    e. If the above requirements cannot be met, the following shall be provided:

        1) Provide ground fault circuit-interrupter for all Code required circuits. Ground-fault protection shall consist of a ground-sensor encircling all phase conductors, connected to a solid-state ground relay which initiates tripping of the circuit breaker.

        2) Ground protection shall be adjustable from 5 to 50 amperes. Circuit-interrupter shunt-trip and relay shall operate from a 120-volt control source. Time-current

characteristic shall provide 0.1-second operation at about 10 times pickup. Relay shall be surface mounted in a separate barriered space.

D. Control Devices: Contactors, relays, time switches and related equipment shall be as specified in Section 260500 and shall be mounted in a separate barriered space. Refer to the paragraph, "Cabinets", herein.

E. Cabinets:

1. Back boxes shall be flush or surface mounted as shown on the Drawings. Construction shall be of Code gauge zinc-coated sheet steel bearing the UL label where required. Back boxes shall be galvanized when recess mounted. Refer to "Painting" section for finish requirement of galvanized surfaces.

2. Panelboards shall be minimum 20" (51 cm) wide and shall be of types as required by the schedules and these Specifications. Where specifically indicated on the Drawings, provide UL listed column-type panelboards. All other requirements of the column-type panelboard shall comply with those specified in this section.

3. Panelboard doors shall be hinged and have pin tumbler cylinder locks operated by paracentric type keys. All panelboard locks shall be common keyed. Furnish two keys for each panelboard.

4. Where more than one door is mounted on a panelboard, arrange the trim so that a minimum 2" (5.1 cm) solid metal trim space is maintained between doors. Doors and trims shall be minimum 12 gauge steel.

5. Provide 12" (30.5 cm) high gutter where double lugs are required or where cable size exceeds bus size.

6. Wiring gutters on panelboards having through feeders shall be 5" (12.7 cm) minimum. Gutters shall be an integral part of the panelboard.

7. Provide barriered space for mounting contactors and control devices with a hinged door and lock, where shown or required.

F. Finish: Doors, trims and surface mounted back boxes located in areas exposed to public view shall be painted with one coat zinc chromate and one coat of primer sealer. Finish painting shall be in accordance with section, "Painting". Provide doors, trims and surface mounted back boxes located in custodian's rooms, mechanical rooms, electrical rooms and other areas not exposed to public view with one coat zinc chromate and a hammertone or light gray baked enamel finish.

G. Identification:

1. Provide neatly typed circuit index cards, clearly and correctly identifying all circuits, mounted in card holders, behind glass or heavy plastic on the inside of the panelboard doors. Indexes shall accurately record room numbers and load of each circuit.

2. Provide nameplates as specified under paragraph, "Nameplates", in Section 26 05 00. Designate the identifying nomenclature, voltage and phase of the panel as shown on the Drawings, for example:

PANEL 1LB
100 A MAIN – 208Y/120 V, 3 PH, 4W
FED FM 1DSL – 100A CB

H. Acceptable Manufacturers: Panelboard assembly, devices and major components shall be of the same manufacturer. Acceptable manufacturers are Square D, Eaton or General Electric.

2.7 DISTRIBUTION SWITCHBOARDS

A. General:

1. Provide distribution switchboards with ratings, components and features as indicated on the Drawings.

2. Switchboards shall consist of molded case thermal magnetic circuit breakers or externally operable quick-make, quick-break fused switch as indicated on the Drawings, in floor-standing, dead front, totally metal enclosed sections requiring front access only.

3. All sections shall be nominal 90" (22.9 cm) high, 15" (38.1 cm) deep and 38" (0.965 m) or 42" (1.067 m) wide and shall not exceed the physical spaces allowed for on the Drawings. Switchboards shall be constructed of Code gauge sheet steel.

4. In outdoor locations or where indicated, provide weatherproof enclosure having doors with padlocking facilities.

B. Bus bars:

1. Bus bars shall be rectangular in cross-section, constructed of copper with silver-plated joints and full-height in each vertical section with horizontal cross bus bars between sections. Short circuit bracing capabilities shall be in accordance with the minimum requirement as indicated for the circuit breakers.

2. Provide all lugs for sizes No. 6 AWG or larger suitable for copper conductors. Shop drawings must show lug sizes based on the actual conductors to be provided.

3. Neutral bar shall have terminals for all active, spare or inactive circuits.

C. Disconnect Devices:

1. Circuit breakers shall be of the bolted-on molded case type, with thermal magnetic trips and shall be rated at the voltage with frame sizes, number of poles, and trip settings as shown on the Drawings. Multi-pole circuit breakers shall have a common operating handle.

2. Provide circuit breakers with interrupting capacity as indicated on plans, minimum interrupting capacity shall be 14,000 symmetrical rms amperes at 480/277 volts and 10,000 amperes at 208/120 volts.

3. Fusible switches shall be of the quick-made, quick-break, visible blade type and shall be UL listed and horsepower rated. Phase sequence and circuit numbering shall be uniform. Temperature rise and current carrying capacity of busses and parts shall be in accordance with NEMA Standards and NEC requirements. Provide fuses as specified under paragraph, "Fuses", in Section 26 05 00.

4. When indicated, provide circuit breakers and switches with shunt-trips, motor operators or other features as required for the application.

5. All circuit breakers shall be pad-lockable in the "OFF" position. All switches shall be pad-lockable in either the "OPEN" or "CLOSE" position.

D. Identification:

1. Nameplates: Provide nameplates and warning signs as specified, in Section 26 05 53.

2. Provide a nameplate for each circuit breaker or fusible switch with wording to indicate load served.

3. The main nameplate shall give the switchboard designation in 1/2" (1.3 cm) high letters. A second line in 1/4" (0.6 cm) high letters shall indicate the Ampere, Voltage –Phase and Wire. The third line of same dimensions as the second line shall indicate where the equipment fed from.

E. Finish: Supporting framework, cover plates and other metal surface shall first be given a phosphate coating for superior paint adhesion and corrosion resistance. Alkyd amine standard gray enamel shall be electrostatically applied and baked thoroughly in a convection-type oven to ensure a long lasting, mark resistant finish.

F. Acceptable Manufacturers: Switchboard assembly, switches, circuit breakers, devices and major components shall be of the same manufacturer. Acceptable manufacturers are Square D, Eaton or General Electric.

2.8 DISTRIBUTION PANELBOARDS

A. General: Distribution panelboards in general shall comply with the requirements of the distribution switchboards except that distribution panelboards shall be suitable for wall mounting instead of free floor standing.

END OF SECTION 26 24 00

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SECTION 26 32 13
ENGINE GENERATORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes complete factory assembled engine generator set with weather-proof sound attenuation enclosure, engine jacket heater, radiator, exhaust silencer, fuel pipe fittings, digital (microprocessor-based) electronic generator set controls, digital governor, digital voltage regulator, remote control panel, battery, and charger.

B. Provide factory test, startup by a supplier authorized by the equipment manufacturer(s), and on-site testing of the system.

C. The generator set manufacturer shall warrant all equipment provided under this section, whether or not is manufactured by the generator set manufacturer, so that there is one source for warranty and product service. Technicians specifically trained and certified by the manufacturer to support the product and employed by the generator set supplier shall service the generator sets.

D. The generator set supplier shall be responsible for complete compliance to all specification requirements for both the generator set and the Automatic Transfer Switch equipment, as applicable to the project.

E. Prototype testing, factory testing, site testing.

F. South Coast Air Quality Management District permit for operation of the natural gas fuel emergency generator.

G. Section Includes:

1. Engine-generator assembly.
2. Diesel engine.
3. Diesel fuel-oil system.
4. Control and monitoring.
5. Generator overcurrent and fault protection.
6. Generator Paralleling.
7. Alternator, exciter, and voltage regulator.
8. Load bank.
9. Outdoor engine generator enclosure.
10. Vibration isolation devices.
11. Finishes.

1.2 RELATED DOCUMENTS

A. For an understanding of the complete contract, reference is made to a statement of the Contract Documents in Division 01.

B. Related Sections: The following sections contain requirements that relate to this section:
   1. Section 26 05 00 – Common Work Results for Electrical

1.3 CODES AND STANDARDS

A. The generator set installation and on-site testing shall conform to the requirements of the following codes and standards, as applicable. The generator set shall include necessary features to meet the requirements of these standards:
   1. ANSI S1.13 – Measurement of Sound Pressure Levels in Air.
   2. CSA 282, Emergency Electrical Power Supply for Buildings
   3. IEEE446 – Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
   4. NFPA30 – Flammable and Combustible Liquid.
   5. NFPA37 – Standard for the installation and use of Stationary Combustion Engines and Gas Turbines.
   6. NFPA70 – National Electrical Code. Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702.
   7. NFPA99 – Essential Electrical Systems for Health Care Facilities
   8. NFPA110 – Emergency and Standby Power Systems. The generator set shall meet all requirements for Level 1 systems. Level 1 prototype tests required by this standard shall have been performed on a complete and functional unit, component level type tests will not substitute for this requirement.

B. The generator set and supplied accessories shall meet the requirements of the following standards:
   1. NEMA MG1-1998 part 32. Alternator shall comply with the requirements of the current version this standard as they apply to AC alternators.
   2. UL142 – Sub-base Tanks
   3. UL1236 – Battery Chargers
   4. UL2200. The generator set shall be listed to UL2200 or submit to an independent third-party certification process to verify compliance as installed.

C. The control system for the generator set shall comply with the following requirements.
   1. CSA C22.2, No. 14 – M91 Industrial Control Equipment.
   2. EN50082-2, Electromagnetic Compatibility – Generic Immunity Requirements, Part 2: Industrial.
   3. EN55011, Limits and Methods of Measurement of Radio Interference Characteristics of Industrial, Scientific and Medical Equipment.
   4. FCC Part 15, Subpart B.
   5. IEC8528 part 4. Control Systems for Generator Sets
   6. IEC Std 801.2, 801.3, and 801.5 for susceptibility, conducted, and radiated electromagnetic emissions.
   7. UL508. The entire control system of the generator set shall be UL508 listed and labeled.

D. The generator set manufacturer shall be certified to ISO 9001 International Quality Standard and shall have third party certification verifying quality assurance in design/development, production, installation, and service, in accordance with ISO 9001.

1.4 ACCEPTABLE MANUFACTURER

A. Equipment specifications for this project are based on generator sets manufactured by Kohler with microprocessor-based controls. Equipment by other suppliers (Cummins, Caterpillar, etc..) that meets the requirement of this specification are acceptable, proposals must include a line-by-line compliance statement based on this specification. Approval shall be obtained not less than 2 weeks before the scheduled bid date.

1.5 SUBSTITUTIONS

A. General: Only written approval of Architect will support substitution of materials specified; See Division 01, Supplementary Conditions for procedure

1.6 SUBMITTAL

A. Conform to applicable provisions of Section 01330 and Section 26 05 00, and as herein specified.

B. Shop Drawings: Outline drawings of assembly, one-line diagrams for assembly and components, interconnection wiring diagrams. Include plan and elevation views with overall dimensions, weights, fuel consumption rate curves at various loads, ventilation and combustion air requirements, electrical diagrams including schematic and interconnection diagrams.

C. Product Data: Submit technical data on all major components. Technical data must include an alternator thermal damage curve, description and operating characteristic of alternator protection device, and an alternator reactive capability curve. Include battery charger, control panel, remote monitor panel, battery, battery rack, battery charger, exhaust silencer, vibration isolators, radiator and noise db level at 23 feet (7 m).

D. Test Report: Provide certified factory test report and indicate factory test procedures and results of performance testing.

E. ISO 9001 Certification: Third party certification, verifying quality assurance in design/development, production, installation, and service.

F. Manufacturer Certification: Certification of emission performance of the generator set engine by the engine manufacturer.

G. Operation Permit: Engine above 50BHP shall be equipped with catalytic converter and air fuel ratio controller to meet required emissions levels of the SCAQMD for installation in California. Provide required application SCAQMD Permit to Operate package.

H. Certified vibration isolation calculation for Seismic Zone of the project (California, Seismic Zone D). Unit seismic certification as required.

I. Manufacturer's Field Reports: Indicate inspections, findings, and recommendations.

J. Maintenance and Operating Instruction Manuals.

K. Manufacturer written warranty; submittal received without warranty will not be reviewed until written warranty submitted.

L. Location of available parts and service, including name of technicians, experience level and training certifications that will be responsible for servicing equipment at this site.

M. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Include thermal damage curve for generator.
3. Include time-current characteristic curves for generator protective device.
4. Include fuel consumption in gallons per hour (liters per hour) at 0.8 power factor at 50, 75, and 100 percent of generator capacity.
5. Include generator efficiency at 0.8 power factor at 0.5, 0.75, and 1.0 times generator capacity.
6. Include airflow requirements for cooling and combustion air in cubic feet per minute (cubic meters per minute) at 0.8 power factor at 104 deg F (40 deg C) cooling system rating. Provide radiator air flow restriction data for ambient rating.
7. Include generator characteristics, including, but not limited to, kilowatt rating, efficiency, reactances, and short-circuit current capability.

N. Shop Drawings:

1. Include plans and elevations for engine generator and other components specified. Indicate access requirements affected by height of subbase fuel tank.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Identify fluid drain ports.
4. Vibration Isolation Base Details: Detail including anchorages and attachments to structure and to supported equipment. Include base weights.
5. Include diagrams for power, signal, and control wiring. Complete schematic, wiring, and interconnection diagrams showing terminal markings for engine generators and functional relationship between all electrical components.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and testing agency.

B. Seismic Qualification Data: Certificates, for engine generator, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: With engine and generator mounted on rails, identify center of gravity and total weight, including supplied enclosure, silencer, subbase-mounted fuel tank, and each piece of equipment

not integral to the engine generator, and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Source Quality-Control Reports: Including, but not limited to, the following:

1. Certified Summary of prototype-unit test report.
2. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
3. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
4. Report of sound generation.
5. Report of exhaust emissions showing compliance with applicable regulations.
6. Certified Torsional Vibration Compatibility: Comply with NFPA 110.

1.8 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Operation and Maintenance Data: Submit instructions and service manuals for normal operation, routine maintenance, oil sampling and analysis for engine wear, and emergency maintenance procedures.

B. For packaged engine generators to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in other specifications, include the following:

a. List of tools and replacement items recommended to be stored at Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.
b. Training plan.

1.9 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: One for every 10 of each type and rating, but no fewer than one of each.
2. Replaceable Indicator Lamps: Two for every six of each type used, but no fewer than two of each.
3. Filters: One set each of lubricating oil, fuel, and combustion-air filters.
4. Tools: Each tool listed by part number in operations and maintenance manual.

1.10 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. ISO 9001 certified for design, development, production and service complete product line.
2. Produced this type of equipment for a period of at least 10 years.
3. Actively maintaining a 24-hour parts and service organization regularly engaged in maintenance contract programs to perform preventive maintenance and service on equipment similar to that specified.
4. Furnish a service agreement that includes system operation under simulated operating conditions; adjustment to the generator set, transfer switch, and switchgear controls as required, and certification in the owner's maintenance log of repairs made and functional tests performed on all systems.
5. Engine-driven generator assembly furnished by a single manufacturer, responsible for design, coordination, and testing of the complete system.

B. Supplier: Authorized distributor of specified manufacturer with minimum five years documented experience with complete spare parts in stock, and twenty-four-hour parts and service will be available within 150 miles of the project site.

C. Testing Agency Qualifications: Accredited by NETA.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.11 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 5 years from date of registered startup or commissioning.
2. The generator set to include an extended warranty covering Stationary Standby five (5) years or 3000 hours comprehensive Standby, whichever occurs first (hours or years), to warrant against defective material and workmanship in accordance with the manufacturer's published warranty from the date of initial startup.
    a. Coordinate with manufacturer for extended warranty of (20) years as required by Owner.

B. The warranty shall be comprehensive. No deductibles shall be allowed for travel time, service hours, repair parts cost, etc. during the warranty period described in paragraph A above.

1.12 MAINTENANCE SERVICE

A. Furnish service and maintenance of engine generator for one year from Date of Final Field Acceptance. Provide complete systematic inspection and maintenance for the first three months, including trained experts and equipment to check, adjust, lubricate and otherwise maintain the generator set in operation without defects or deterioration. Replace or repair materials and parts which become defective or deteriorated for any reasons.

1.13 MAINTENANCE MATERIAL

A. Furnish one set of tools required for preventative maintenance of engine generator system. Package tools in adequately sized metal toolbox.

B. Furnish to the Owner two of each fuel, oil and air filter element.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Kohler (Rehlko) Power Systems; KDI Series engine generator offerings or comparable product by one of the following:

1. Caterpillar, Inc.; Electric Power Division.
2. Cummins Power Generation.

B. Source Limitations: Obtain packaged engine generators and auxiliary components from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. B11 Compliance: Comply with B11.19.

B. NFPA Compliance:

1. Comply with NFPA 30.
2. Comply with NFPA 37.
3. Comply with NFPA 70.
4. Comply with NFPA 99.
5. Comply with NFPA 110 requirements for Level [1] [2] EPSS.

C. UL Compliance: Comply with UL 2200 "Stationary Engine Generator Assemblies."

D. CSA Compliance: Comply with CSA.

E. Engine Exhaust Emissions: Comply with EPA Tier 4 requirements and applicable state and local government requirements.

F. Noise Emission:
1. Maximum sound pressure emitted by engine generator within sound-attenuating enclosure of 68 dB(A) at a distance of 23 ft. (7 m) while operating at 100 percent load and including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

G. Environmental Conditions: Engine generator system to withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:

1. Ambient Temperature: 5 deg F (Minus 15 deg C) to 120 deg F (40 deg C).
2. Altitude: Sea level to 1,089 ft. (332 m).

2.3 ENGINE GENERATOR ASSEMBLY DESCRIPTION

A. Factory-assembled and -tested, liquid-cooled engine, with brushless generator and accessories.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

C. Power Rating: Standby.

D. Overload Capacity: 110 percent of service load for 1 hour in 12 consecutive hours.

E. EPSS Class: Engine generator to be classified as a Class 24 in accordance with NFPA 110.

F. Onboard Tank Capacity Run Hours: 24 hours.

G. Nameplate Rating: 150 kW.

H. Power Factor: 0.8, lagging.

I. Frequency: 60 Hz.

J. Voltage: 480V ac.

K. Phase: Three-phase, three-wire, delta.

L. Governor: Adjustable isochronous, with speed sensing.

M. Mounting Frame: Structural steel framework to maintain alignment of mounted components without depending on concrete foundation. Provide lifting attachments sized and spaced to prevent deflection of base during lifting and moving.

N. Capacities and Characteristics:

1. Power Output Ratings: Nominal ratings as indicated at 0.8 power factor excluding power required for the continued and repeated operation of the unit and auxiliaries
2. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.

O. Engine Generator Performance:

1. Steady-State Voltage Operational Bandwidth: 0.5 percent of rated output voltage from no load to full load.
2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease and meets ISO8528-5, Class G2 for standard loads. Voltage to recover and remain within the steady-state operating band within six seconds.
3. Steady-State Frequency Operational Bandwidth: 0.25 percent of rated frequency from no load to full load.
4. Transient Frequency Performance: Less than 10 percent variation for 50 percent step-load increase or decrease and meets ISO8528-5, Class G2 for standard loads. Frequency to recover and remain within the steady-state operating band within five seconds.
5. Output Waveform: At no load, harmonic content measured line to line or line to neutral may not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined in accordance with NEMA MG 1, may not exceed 50.
6. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, system to supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.
7. Start Time:

    a. Comply with NFPA 110, Type 10 system requirements.

P. Engine Generator Performance for Sensitive Loads:

1. Oversizing generator compared with the rated power output of the engine is permissible to meet specified performance.

    a. Nameplate Data for Oversized Generator: Show ratings required by the Contract Documents rather than ratings that would normally be applied to generator size installed.

2. Steady-State Voltage Operational Bandwidth: 0.5 percent of rated output voltage from no load to full load.
3. Transient Voltage Performance: Not more than 15 percent variation for 50 percent step-load increase or decrease and meets ISO8528-5, Class G3 for sensitive loads. Voltage to recover and remain within the steady-state operating band within four seconds.
4. Steady-State Frequency Operational Bandwidth: Plus or minus 0.25 percent of rated frequency from no load to full load.
5. Transient Frequency Performance: Less than 7 percent variation for 50 percent step-load increase or decrease and meets ISO8528-5, Class G3 for sensitive loads. Frequency to recover and remain within the steady-state operating band within three seconds.
6. Output Waveform: At no load, harmonic content measured line to line and line to neutral may not exceed 5 percent total or 3 percent for a single harmonic. Telephone influence factor, determined in accordance with NEMA MG 1, may not exceed 50.
7. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, system to supply a minimum of 300 percent of rated full-load

current for not less than 10 seconds and then clear the fault automatically, without damage to winding insulation or other generator system components.

8. Excitation System: Performance to be unaffected by voltage distortion caused by nonlinear load.
9. Start Time:

    a. Comply with NFPA 110, Type 10 system requirements.

2.4 DIESEL ENGINE

A. Fuel: ASTM D975, diesel fuel oil, Grade 2-D S15.

B. Rated Engine Speed: 1800 rpm.

C. Minimum Standby Load Factor Rating: 90 percent.

D. Lubrication System: Engine or skid-mounted.

1. Filter and Strainer: Rated to particles that may damage engine per manufacturer's written instructions while passing full flow.
2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit to be capable of full flow and is designed to be fail-safe.
3. Closed Crankcase Ventilation: System: Prevents crankcase oil vapor from draining or escaping the engine.
4. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.

E. Jacket Coolant Heater: Electric-tank type, factory installed in coolant jacket system. Comply with UL 499.

F. Integral Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine generator set mounting frame and integral engine-driven coolant pump.

1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
2. Size of Radiator: Adequate to contain expansion of total system coolant to 110 percent of capacity.
3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock.
4. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
5. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, UV-, and abrasion-resistant material.

    a. Rating: 50-psig (345-kPa) maximum working pressure with coolant at 215 deg F (102 deg C), and noncollapsible under vacuum.

G. Muffler/Silencer/ Exhaust Aftertreatment:
   1. Exhaust Gas Recirculation (EGR) and Diesel Oxidation Catalyst (DOC) only for low maintenance. A Diesel Particulate Filter (DPF) is not allowed.

H. Air-Intake Filter: Heavy-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.

I. Starting System: 12-V dc electric, with negative ground.

   1. Battery: Lead acid with capacity within ambient temperature range specified in "Performance Requirements" Article to provide specified cranking cycle at least three times without recharging.

   2. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.

   3. Battery Heater: Thermostatically controlled heater to be arranged to maintain battery above 50 deg F (10 deg C) regardless of external ambient temperature within range specified in "Performance Requirements" Article. Include accessories required to support and fasten batteries in place. Provide ventilation to exhaust battery gases.
   4. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and continuous rating per manufacturer's standard.

J. Battery Charger:

   1. Source Limitations: Obtain battery charger from engine-driven generator manufacturer.
   2. UL Compliance: Comply with UL 1236 for Category BBHH.
   3. CE Certified.
   4. NFPA Compliance: Comply with NFPA 110.
   5. Environmental Conditions: Battery charger to withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:

      a. Ambient Temperature: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C) with full charger output available up to 122 deg F (50 deg C).
      b. Relative Humidity: 0 to 95 percent.
      c. Altitude: Meets full performance requirements from sea level to 5000 ft. (1600 m). Chargers installed at higher altitudes may automatically derate output power to prevent overheating of internal components but remain operable.

   6. Charger Operation: Current-limited, constant-voltage, automatic-boost-type charger designed for lead-acid batteries, with the following features:

      a. Automatic three-stage charge cycle for up to three independent batteries simultaneously per charger.

b. Output Voltage Regulation: Charger regulates output to within plus or minus 0.5 percent of manufacturer-provided voltage settings despite variations of input voltage, input frequency, and output current.
c. Battery Thermal Compensation: Battery temperature compensation with adjustable slope, factory set at minus 0.18 percent per degree C, and equipped for sensing battery temperature. Include battery temperature sensor mounted on battery negative terminal.
d. AC Input: Charger operates from any 45- to 65-Hz ac source with voltage ranging from 105- to 264-V rms.

7. LCD Digital Display: AC input voltmeter, DC output voltmeter, and ammeter (1 percent accuracy).
8. LED Lamp Indicators: Current limit, AC ON, and charger fail.
9. Charger Fail Alarm Contact: Voltage-free (dry type) form "C" output.
10. Filtered output for type VRLA AGM batteries.
11. Charger Enclosure: NEMA 250, Type 1 (IP20), wall mounted and rated for generator duty with charger enclosure vibration resistance.

2.5 DIESEL FUEL-OIL SYSTEM

A. Piping: Fuel-oil piping to be Schedule 40 black steel. Cast iron, aluminum, copper, and galvanized steel may not be used in the fuel-oil system.

B. Main Fuel Pump: Mounted on engine to provide primary fuel flow under starting and load conditions.

C. Fuel Filtering: Remove water and contaminants larger than 1 micron.

D. Relief-Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.

E. Subbase-Mounted, Double-Wall, Fuel-Oil Tank: Complying with UL 142 and including the following features:

1. Steel Channel Support System: Reinforced steel box channel for generator support. Full height gussets at either end of channel and at generator mounting locations.
2. Fuel Level Gauge: Direct-reading, UL-listed, magnetic fuel level gauge with a hermetically sealed, vacuum-tested dial.
3. Low-Fuel Alarm Contact: Float-type switch for remote or local annunciation of a low-fuel-level condition.
4. Fill Tube: 2-inch (25-mm) NPT opening with lockable cap.
5. Leak detection in interstitial space.
6. Vandal-resistant fill cap.
7. Two-way valve for connection to external fuel supply.
8. Emergency inner- and outer-tank UL-listed relief vents sized in accordance with American Petroleum Institute Standard No 2000 with an opening pressure of 0.5 psig (3.5 kPa) and full opening pressure of 2.5 psig (17 kPa).

9. Containment Provisions: 125% environmental basin for oil and coolant on top of tank. 110% secondary containment for fuel. Comply with requirements of authorities having jurisdiction.

F. Day Tank: Comply with UL 142, freestanding, factory-fabricated fuel tank assembly, with integral, float-controlled transfer pump and the following features:

1. Containment: Integral rupture basin with a capacity of 150 percent of nominal capacity of day tank.

   a. Leak Detector: Locate in rupture basin and connect to provide audible and visual alarm in the event of day-tank leak.

2. Tank Capacity: As recommended by engine manufacturer for an uninterrupted period of 24 hours' operation at 100 percent of rated power output of engine generator system without being refilled 316 gallons (1198 liters).
3. Pump Capacity: Exceeds maximum flow of fuel drawn by engine-mounted fuel supply pump at rated capacity, including fuel returned from engine.
4. Low-Level Alarm Sensor: Liquid-level device operates alarm contacts at 85 percent of normal fuel level.
5. High-Level Alarm Sensor: Liquid-level device operates alarm and redundant fuel shutoff contacts at midpoint between overflow level and 100 percent of normal fuel level.
6. Piping Connections: Factory-installed fuel supply and return lines from tank to engine; local fuel fill, vent line, overflow line; and tank drain line with shutoff valve.
7. Redundant High-Level Fuel Shutoff: Actuated by high-level alarm sensor in day tank to operate a separate motor-control device that disconnects day-tank pump motor. Sensor signals solenoid valve, located in fuel suction line between fuel storage tank and day tank, to close. Both actions remain in shutoff state until manually reset. Shutoff action initiates an alarm signal to control panel but does not shut down engine generator.

2.6 CONTROL AND MONITORING

A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of engine generator. When mode-selector switch is switched to the on position, engine generator starts. The off position of the same switch initiates generator-set shutdown. When the engine generator is running, specified system or equipment failures or derangements automatically shut down engine generator and initiate alarms.

B. Comply with UL 508.

C. Configuration:
1. Operating and safety indications, protective devices, basic system controls, and engine gauges will be grouped in a common control and monitoring panel mounted on the engine generator. The mounting method will isolate the control

panel from generator-set vibration. Panel will be powered from the engine generator battery.

D. Control and Monitoring Panel:
1. Digital engine generator controller with integrated LCD graphical display. The display has back lighting for ease of operator use in high- and low-light conditions. Capable of local and remote control, monitoring, and programming.
2. Operating Temperature: Minus 40 to plus 158 deg F (Minus 40 to plus 70 deg C).
3. Maximum Operating Humidity: 95 percent noncondensing.
4. Corrosion Resistant: Tested in accordance with ASTM B117 (salt spray test).
5. Controller Features:
   a. Mode Selector: Allowing selection of one of the following modes:
      1) Off/Reset: Prohibits the generator from starting and resets shutdowns. In this mode, the controller does not respond to remote start and stop commands.
      2) Manual: Allows user to locally start and stop to operate the generator. In this mode, the controller does not respond to remote start and stop commands.
      3) Auto: Allows generator to start and stop based on remote commands. In this mode, the generator does not respond to manual start and stop commands.
   b. Emergency Stop Switch: Latch-type remote stop switch, red in color with mushroom-type head. Depressing the stop button will immediately stop the generator set and lock out any automatic remote starting.
   c. Audible Alarm: Horn sounds for specific warning and shutdown conditions.
   d. Alarm Silence/Lamp Test Pushbutton: Silences audible alarm when depressed. All controller-indicating lights are simultaneously illuminated while actuated.
   e. Fault Light: LED indicating abnormal conditions:
      1) Yellow: Active warning condition or mode selector switch not in automatic.
      2) Red: Active shutdown condition.
   f. Load Management:
      1) Programmable outputs to command the connect and disconnect of loads based on system state:
         a) Loads connected based on available capacity.
         b) Loads disconnected at system startup.
         c) Loads disconnected based on a maximum kW setting or underfrequency setting.
      2) Support up to 6 load steps.
   g. Engine Control Features:
      1) Programmable engine start delay.
      2) Programmable engine cool-down delay.
      3) Programmable warm-up delay based on time or engine temperature.

4) Programmable idle speed.
5) Programmable cyclic cranking with adjustable on time, off time, and number of cycles.

h. Event Logging:

1) Maintain record of a minimum of 1,000 events with date and time locally for warning and shutdown faults.

6. Monitoring Instruments: Accessible through the digital engine generator controller and viewable during operation.
   a. Engine-coolant temperature.
   b. Battery voltage.
   c. Running-time meter.
   d. Engine speed.
   e. Oil pressure.
   f. Fuel level (with optional sensor)
   g. Fuel pressure.
   h. AC output voltage for each phase, 0.5 percent accuracy.
   i. AC output current for each phase, 0.5 percent accuracy.
   j. AC frequency meter, 0.5 percent accuracy.
   k. kW total and per phase, 1.0 percent accuracy.
   l. kVARS total and per phase, 1.0 percent accuracy.
   m. kVA total and per phase, 1.0 percent accuracy.
   n. kW hours.
7. Service Data: Stored in the controller and available for display.
   a. Generator model number and serial number.
   b. Alternator part number.
   c. Engine model number and serial number.
   d. Controller serial number and firmware version.
8. Operational Records: Stored in controller beginning at system startup.
   a. Total run-time hours.
   b. Total loaded hours.
   c. Total kW hours.
   d. Controller run-time hours.
   e. Number of starts.
   f. Total unloaded hours.
   g. Controller hours.
   h. ECM run-time hours.
   i. Last start runtime duration.
   j. Last start date and time.
9. Maintenance Records: Stored in controller beginning at system startup, user resettable to zero.
   a. Total run-time hours since last maintenance.
   b. Total loaded hours since last maintenance.
   c. Total unloaded hours since last maintenance.
   d. Total kW hours since last maintenance.
10. Controls and Protective Devices: Controls, shutdown devices, and common visual alarm indication, including the following:
    a. Mode selector switch not in automatic position.
    b. Overcrank shutdown.
    c. Low lubricating-oil pressure warning.

d. Low lubricating-oil pressure shutdown.
e. Low coolant temperature warning.
f. High engine temperature warning.
g. High engine temperature shutdown.
h. Overspeed shutdown.
i. Low fuel pressure shutdown.
j. Low fuel main tank.

1) Low-fuel-level alarm to be initiated when the level falls below that required for operation for duration required.
2) Critically low-fuel-level warning.

k. Coolant low-level shutdown device.
l. Coolant high-temperature warning.
m. Coolant high-temperature shutdown.
n. ECM Digital Trouble Codes warnings.
o. ECM Digital Trouble Codes shutdown.
p. Loss of ECM Communications shutdown.
q. ECM mismatch shutdown.
r. Battery high-voltage warning.
s. Battery-charger malfunction warning.
t. Battery low-voltage warning.
u. Remote manual stop shutdown.
v. Local manual stop shutdown.
w. Alternator protection shutdown.
x. Overcurrent shutdown.
y. Under frequency shutdown.
z. Over frequency shutdown.
aa. Over power warning.
bb. Over power shutdown.
cc. Under voltage warning.
dd. Under voltage shutdown.
ee. Over voltage shutdown.
ff. User-defined input warning.
gg. User-defined input shutdown.
hh. No oil pressure signal shutdown.
ii. No speed sensor signal warning.
jj. Fail-to-start shutdown.

E. Connection to Datalink:
1. Provide connections for datalink transmission of indications to remote data terminals via ModBus RTU.

F. Supporting Items: Sensors, transducers, terminals, relays, and other devices located on engine or generator unless otherwise indicated.

G. Remote Emergency-Stop Switch: Wall mounted unless otherwise indicated. Push button must be permanently labeled and protected from accidental operation.

H. Remote Alarm Annunciator: LED indicator light labeled with proper alarm conditions will identify each alarm event, and a common audible signal will sound for each alarm

condition in accordance with NFPA 110. The silencing switch in face of panel will silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Controls to include "Lamp Test" momentary switch wired to illuminate all LED indicator lights regardless of alarm state while switch is on. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.

I. Start Signal Wiring Integrity Monitor: UL-listed modular system to monitor condition of generator remote start circuit(s), annunciate faults, and start generator in accordance with NFPA 70, Article 700.10(D)(4).
   1. Output Contacts: Two form "C" contacts, one for engine start and one for start circuit alarm.

2.7 GENERATOR OVERCURRENT AND FAULT PROTECTION

A. Overcurrent protective devices to be coordinated to optimize selective tripping when a short circuit occurs.

   1. Overcurrent protective devices for the entire EPSS to be coordinated to optimize selective tripping when a short circuit occurs. Coordination of protective devices considers both utility and EPSS as the voltage source.
   2. Overcurrent protective devices for the EPSS to be accessible only to authorized personnel.

B. Generator Overcurrent Protective Device:

   1. Molded-case circuit breaker, thermal-magnetic type; 80 percent rated; complying with UL 489:

      a. Tripping Characteristic: Designed specifically for generator protection.
      b. Trip Rating: Matched to generator output rating.
      c. Shunt Trip: Connected to trip breaker when engine generator is shut down by other protective devices.
      d. Mounting: Adjacent to, or integrated with, control and monitoring panel.

   2. Molded-case circuit breaker, electronic-trip type; 80 percent rated; complying with UL 489:

      a. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.
      b. Trip Settings: Selected to coordinate with generator thermal damage curve.
      c. Shunt Trip: Connected to trip breaker when engine generator is shut down by other protective devices.
      d. Mounting: Adjacent to, or integrated with, control and monitoring panel.

   3. Insulated-case circuit breaker, electronic-trip type; 80 percent rated; complying with UL 489:

      a. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.

b. Trip Settings: Selected to coordinate with generator thermal damage curve.

4. Under three-phase fault conditions, generator to supply 300 percent of rated full-load current for up to 10 seconds.
   a. Shunt Trip: Connected to trip breaker when engine generator is shut down by other protective devices.
   b. Mounting: Adjacent to, or integrated with, control and monitoring panel.
5. Molded-Case-Type Disconnect Switch:
   a. Trip Rating: Matched to generator output rating.
   b. Shunt Trip: Connected to trip switch when signaled by generator protector or by other protective devices.
6. Initiates a generator overload alarm when generator has operated at an overload equivalent to 110 percent of full-rated load for 60 seconds. Indication for this alarm is integrated with other engine generator malfunction alarms. Contacts to be available for load shed functions.

C. Generator Protective Relay: Multifunctional, microprocessor-based relay systems complying with IEEE C37.90.
   1. Standard generator protective functions for shutdown with user-adjustable limits and time delays:
      a. Over Voltage (ANSI Device 59):
         1) User-Adjustable Pickup: 100 to 130 percent.
         2) User-Adjustable Time Delay: Zero to 120 seconds.
      b. Under Voltage (ANSI Device 27):
         1) User-Adjustable Pickup: 70 to 100 percent.
         2) User-Adjustable Time Delay: Zero to 120 seconds.
      c. Over Frequency (ANSI Device 81O):
         1) User-Adjustable Pickup: 100 to 140 percent.
         2) User-Adjustable Time Delay: Zero to 120 seconds.
      d. Reverse Power (ANSI Device 32R):
         1) User-Adjustable Pickup: Zero to 50 percent.
         2) User-Adjustable Time Delay: Zero to 120 seconds.
      e. Over Power (ANSI Device 32O):
         1) User-Adjustable Pickup: 90 to 150 percent.
         2) User-Adjustable Time Delay: Zero to 120 seconds.
      f. Loss of Field (ANSI Device 40 Reverse VARS):
         1) User-Adjustable Pickup: 10 to 100 percent.
         2) User-Adjustable Time Delay: Zero to 120 seconds.
      g. Overcurrent with Voltage Range:
         1) User-Adjustable Range: 100 to 200 percent.
         2) User-Adjustable Time Delay: Zero to 120 seconds.

D. Ground-Fault Indication: Comply with NFPA 70, "Emergency System" signals for ground fault.

1. Indicate ground fault with other engine generator alarm indications.
2. Trip generator protective device on ground fault.

2.8 ALTERNATOR, EXCITER, AND VOLTAGE REGULATOR

A. Comply with NEMA MG 1.

B. Maximum Temperature Rise: 130 deg C at full load over 40C ambient.

C. Drive: Alternator shaft to be directly connected to engine shaft. Exciter to be rotated integrally with alternator rotor.

D. Electrical Insulation: Class H.

E. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.

F. Construction to prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation.

G. Enclosure: Dripproof.

H. Voltage Regulator: Microprocessor-based, high-speed digital voltage regulator, separate from exciter, with three-phase, true RMS sensing, providing performance as specified and as required by NFPA 110.
1. Maintain steady-state voltage within 0.5 percent from no load to full load.
2. Adjusting Feature on Control and Monitoring Panel: Provide plus or minus 10 percent adjustment of output-voltage operating band.

I. Alternator Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.

J. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.

2.9 LOAD BANK

A. Description:
1. Permanent, outdoor, weatherproof, remote-controlled, forced-air-cooled, resistive unit capable of providing a balanced three-phase, delta-connected load to engine generator at 100 percent rated-system capacity, at 80 percent power factor, lagging. Unit to be capable of selective control of load in 25 percent steps and with minimum step changes of approximately 5 and 10 percent available.
2. Permanent, radiator-mounted, resistive unit capable of providing a balanced three-phase, delta-connected load to engine generator at 80 percent rated-system capacity. Unit to be capable of selective control of load in 25 percent steps of load-bank rating and with minimum step changes of approximately 5 and 10 percent available.

B. Regulatory Requirements:

1. Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction and marked for intended location and application.

C. General Characteristics:
   1. Reference Standards: UL CCN NMTR and UL 508.

D. Resistive Load Elements: Corrosion-resistant chromium alloy with ceramic and stainless-steel supports. Elements to be double insulated and designed for repetitive on-off cycling. Elements to be mounted in removable aluminized-steel heater cases. Galvanized steel is prohibited. The element's maximum resistance to be between 100 and 105 percent of rated resistance.

E. Reactive Load Elements: Epoxy-encapsulated reactor coils.

F. Load-Bank Heat Dissipation: Integral fan with totally enclosed motor provides uniform cooling airflow through load elements. Airflow and coil operating current to be such that, at maximum load, with ambient temperature at the upper end of specified range, load-bank elements operate at not more than 50 percent of maximum continuous temperature rating of resistance elements.

G. Load-Element Switching: Remote-controlled contactors switch groups of load elements. Contactor coils are rated 120 V. Contactors to be located in a separate NEMA 250, Type 3R enclosure within load-bank enclosure, accessible from exterior through hinged doors with tumbler locks.

H. Contactor Enclosures: Heated by thermostatically controlled strip heaters to prevent condensation.

I. Load-Bank Enclosures: NEMA 250, Type 3R, aluminized steel complying with NEMA ICS 6. Louvers at cooling-air intake and discharge openings prevent entry of rain and snow. Openings for airflow to be screened with 1/2-inch- (13-mm-) square, galvanized-steel mesh. Reactive load bank includes automatic shutters at air intake and discharge. Components other than resistive elements to receive exterior epoxy coating with compatible primer.

J. Protective Devices: Power input circuits to load banks to be fused, and fuses selected to coordinate with generator circuit breaker. Fuse blocks to be located in contactor enclosure. Cooling airflow and overtemperature sensors automatically shut down and lock out load bank until manually reset. Safety interlocks on access panels and doors disconnect load power, control, and heater circuits. Fan motor to be separately protected by overload and short-circuit devices. Short-circuit devices to be noninterchangeable fuses with 200,000-A interrupting capacity.

K. Load-Bank Remote-Control Panel: Separate from load bank in NEMA 250, Type 1 enclosure with a control power switch and pilot light, and switches controlling groups of load elements.

L. Control Sequence: Control panel may be preset for adjustable single-step loading of generator during automatic exercising.

2.10 OUTDOOR ENGINE GENERATOR ENCLOSURE

A. Description:
   1. Vandal-resistant, sound-attenuating, weatherproof steel enclosure, wind resistant. Multiple panels to be lockable and provide adequate access to components requiring maintenance. Access to controller and main line circuit breaker in accordance with NFPA 70.

B. Source Limitations: Obtain enclosure from engine-driven generator manufacturer.

C. Minimum Snow Load Rating: 70 psf (33.5 kPa).

D. Access doors and panels rubber sealed to prevent water intrusion and minimize noise.

E. Hinged Doors: Lockable; keyed alike with recessed locks.

F. Insulation Flammability Classification: UL 94 HF1.

G. Muffler Location: Complete exhaust system located within enclosure.

H. Engine-Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits.

I. Stainless steel latches, hinges, and hardware on external panels of enclosure.

2.11 FINISHES

A. Outdoor Enclosures and Components: Heavy-duty, high-durability, fade-, scratch- and corrosion-resistant finish:

   1. Pre-cleaning: Enclosure components and skid cleaned to remove grease, grit, and grime from parts.
   2. Finish Coating: Powder baked paint for superior finish, durability, and appearance.
   3. Minimum Enclosure Corrosion Resistance: 1000 hours salt spray test in accordance with ASTM B117.

B. Subbase Tank: Polyurea-texturized rubber coating for corrosion protection and adequate surface grip from the genset manufacturer.

2.12 SOURCE QUALITY CONTROL

A. Prototype Testing: Factory test engine generator using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.

   1. Tests: Comply with IEEE 115 and with NFPA 110, Level 1 Energy Converters.

B. Project-Specific Equipment Tests: Before shipment, factory test engine generator and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:

1. Test generator, exciter, and voltage regulator as a unit.
2. Load Test: 25, 50, 75 and 100 percent rated load.
3. Single-step load pickup.
4. Safety shutdown.
5. Overcrank.
6. Locked rotor.
7. Mechanical Readings: Oil pressure, ambient temperature, and coolant temperature.
8. Test components and accessories furnished with installed unit that are not identical to those on tested prototype to demonstrate compatibility and reliability.
9. Maximum power.
10. Voltage regulation.
11. Transient and steady-state governing.
12. Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.
13. Report factory test results within 10 days of completion of test.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine generator performance.

B. Examine roughing-in for piping systems and electrical connections. Verify actual locations of connections before packaged engine generator installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service in accordance with requirements indicated:

1. Notify Construction Manager and Owner no fewer than 14 working days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Owner's written permission.

3.3 INSTALLATION

A. Comply with NECA 1 and NECA 404.

B. Comply with packaged engine generator manufacturers' written installation and alignment instructions and with NFPA 110.

C. Equipment shall be installed by the contractor in accordance with final approved submittals of the contract documents. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products.

D. Installation of equipment shall include furnishing and installing all interconnecting power cabling and control wiring between all major equipment provided for the on-site power system. The contractor shall also perform interconnecting wiring between equipment sections (when required), under the supervision of the equipment supplier.

E. Equipment shall be installed on concrete housekeeping pads. Equipment shall be permanently fastened to the pad in accordance with manufacturer’s instructions and seismic requirements of the site.

F. Equipment shall be initially started and operated by representatives of the manufacturer.

G. All equipment shall be physically inspected for damage. Scratches and other installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to initial operation and final testing of the system.

H. Install packaged engine generator to provide access, without removing connections or accessories, for periodic maintenance.

I. Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.

J. Contractor to provide fuel as part of startup and testing, and max fuel prior to project completion.

3.4 CONNECTIONS

A. Piping installation requirements. are specified in other Sections. Drawings indicate general arrangement of piping and specialties.

B. Connect fuel, cooling-system, and exhaust-system piping adjacent to packaged engine generator to allow space for service and maintenance.

C. Connect engine exhaust pipe to engine with flexible connector.

D. Connect fuel piping to engines with a gate valve and union and flexible connector.

E. Ground equipment in accordance with NFPA 70.

F. Connect wiring in accordance with NFPA 70. Provide flexible conduit routed to the engine generator from a stationary element.

G. Balance single-phase loads to obtain a maximum of 10 percent unbalance between any two phases.

3.5 IDENTIFICATION

A. Identify system components in accordance with Section 26 05 53 "Identification of Electrical Systems."

3.6 FIELD QUALITY CONTROL

A. Testing Agency:

1. Contractor will engage a qualified testing agency to perform tests and inspections.
2. Engage a qualified testing agency to perform tests and inspections.
3. Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
4. Perform tests and inspections with the assistance of a factory-authorized service representative.

B. Tests and Inspections:

1. Perform tests recommended by manufacturer and each visual and mechanical inspection and electrical and mechanical test listed in first two subparagraphs below, as specified in NETA ATS as applicable. Certify compliance with test parameters.

    a. Visual and Mechanical Inspection:

        1) Compare equipment nameplate data with Drawings and the Specifications.
        2) Inspect physical and mechanical condition.
        3) Inspect anchorage, alignment, and grounding.
        4) Verify that the unit is clean.

    b. Electrical and Mechanical Tests:

        1) Verify phase rotation, phasing, and synchronized operation as required by the application.
        2) Functionally test engine shutdown for low oil pressure, overtemperature, overspeed, and other protection features as applicable.

2. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here, including, but not limited to, single-step full-load pickup test.
3. Battery Tests: Equalize charging of battery cells in accordance with manufacturer's written instructions. Record individual cell voltages.

    a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
    b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
    c. Verify acceptance of charge for each element of the battery after discharge.
    d. Verify that measurements are within manufacturer's specifications.

4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine generator system before and during system operation. Check for air, exhaust, and fluid leaks.
6. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch wc (120 kPa). Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
7. Exhaust Emissions Test: Comply with applicable government test criteria.
8. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 percent step-load increases and decreases and verify that performance is as specified.
9. High fuel alarm sensor level shall be demonstrated to fire inspection prior to substantial completion.

C. Coordinate tests with tests for transfer switches and run them concurrently.

D. Test instruments to have been calibrated within the past 12 months, traceable to NIST Calibration Services, and adequate for making positive observation of test results. Make calibration records available for examination on request.

E. Leak Test: After installation, inspect exhaust, coolant, and fuel systems and test for leaks. Repair leaks and retest until no leaks exist.

F. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation for generator and associated equipment.

G. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

H. Remove and replace malfunctioning units and retest and reinspect as specified above.

I. Retest: Correct deficiencies identified by tests and observations, and retest until specified requirements are met.

J. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.

K. Infrared Scanning: After Substantial Completion, but not more than 60 days after final acceptance, perform an infrared scan of each power wiring termination and each bus connection while running with maximum load.

1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan 11 months after date of Substantial Completion.
2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
3. Record of Infrared Scanning: Prepare a certified report that identifies terminations and connections checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.7 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service to include 12 months' full maintenance by skilled employees of manufacturer's authorized service representative. Include quarterly preventive maintenance and exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Parts to be manufacturer's authorized replacement parts and supplies.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators.

END OF SECTION

SECTION 263600
TRANSFER SWITCHES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes transfer switches rated 600 V and less, including the following:

1. Automatic transfer switches.
2. Bypass/isolation switches.
3. Nonautomatic transfer switches.
4. Remote annunciation systems.
5. Remote annunciation and control systems.

B. Related Sections include the following:
1. Division 26 05 00 Common Work Results for Electrical.
2. Division 26 05 53 Identification of Electrical Systems.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.

B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.

1. Single-Line Diagram: Show connections between transfer switch, bypass/isolation switch, power sources, and load; and show interlocking provisions for each combined transfer switch and bypass/isolation switch.

C. Manufacturer Seismic Qualification Certification: Submit certification that transfer switches accessories, and components will withstand seismic forces. Include the following:

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
b. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Qualification Data: For manufacturer and testing agency.

E. Field quality-control test reports.

F. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

1. Features and operating sequences, both automatic and manual.
2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification.

B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

C. Source Limitations: Obtain automatic transfer switches, remote through one source from a single manufacturer.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

E. Comply with NEMA ICS 1.

F. Comply with NFPA 70.

G. Comply with NFPA 99.

H. Comply with NFPA 110.

I. Comply with UL 1008 unless requirements of these Specifications are stricter.

1.5 SUBMITTALS

A. General: Comply with Section 26 05 00

B. Materials and Equipment List: As specified in Section 26 05 00.

C. Submit all test reports and the following:
1. Operating ampere and voltage ratings.
2. Withstand and fault rating.
3. Underwriters' Laboratories, Inc. (UL) listing and factory test reports.
4. Internal and system wiring diagrams.
5. Dimensions and weight.
6. Finish.
7. Compliance with seismic requirements of California Administrative Code, Title 24.
8. Maintenance and operating instruction manuals: As specified in Section 26 05 00.

1.6 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of packaged components that fail in materials or workmanship within specified warranty period.

B. Furnish to the Department a written guarantee against all defects in materials and workmanship including, without limitations, against Failure To Operate as specified and intended, for five (5) years from date of acceptance of the project by the Owner.
1. Coordinate with manufacturer for user wanted extended warranty of (20) years.

1.7 PROJECT CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service:

1. Notify Construction Manager and Owner no fewer than 7 days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Construction Manager's and Owner's written permission.

1.8 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Contactor Transfer Switches:

    a. Kohler Power Systems; Generator Division.
    b. ASCO Power Technologies, LP.
    c. Caterpillar; Engine Div.
    d. Generac Power Systems, Inc.
    e. Onan/Cummins Power Generation; Industrial Business Group.

2. Transfer Switches Using Molded-Case Switches or Circuit Breakers:

    a. Kohler Power Systems; Generator Division.
    b. ASCO Power Technologies, LP.

    c. AC Data Systems, Inc.
    d. Eaton Electrical Inc.; Cutler-Hammer.
    e. GE Zenith Controls.
    f. Hubbell Industrial Controls, Inc.
    g. Lake Shore Electric Corporation.

2.2 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.

B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.

1. Where transfer switch includes internal fault-current protection, rating of switch and trip unit combination shall exceed indicated fault-current value at installation location.

C. Solid-State Controls: Repetitive accuracy of all settings shall be plus or minus 2 percent or better over an operating temperature range of minus 20 to plus 70 deg C.

D. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.

E. Electrical Operation: Accomplish by a nonfused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.

F. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.

1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
2. Switch Action: Double throw; mechanically held in both directions.
3. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units, rated 225 A and higher, shall have separate arcing contacts.

G. Neutral Switching: Where four-pole switches are indicated, provide neutral pole switched simultaneously with phase poles.

H. Neutral Terminal: Solid and fully rated, unless otherwise indicated.

I. Oversize Neutral: Ampacity and switch rating of neutral path through units indicated for oversize neutral shall be double the nominal rating of circuit in which switch is installed.

J. Heater: Equip switches exposed to outdoor temperatures and humidity, and other units indicated, with an internal heater. Provide thermostat within enclosure to control heater.

K. Battery Charger: For generator starting batteries.

1. Float type rated 10 A.
2. Ammeter to display charging current.
3. Fused ac inputs and dc outputs.

L. Annunciation, Control, and Programming Interface Components: Devices at transfer switches for communicating with remote programming devices, annunciators, or annunciator and control panels shall have communication capability matched with remote device.

M. Factory Wiring: Train and bundle factory wiring and label, consistent with Shop Drawings, either by color-code or by numbered or lettered wire and cable tape markers at terminations. Color-coding and wire and cable tape markers are specified in Division 26 Section "Identification for Electrical Systems."

1. Designated Terminals: Pressure type, suitable for types and sizes of field wiring indicated.
2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.
3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.

N. Enclosures: General-purpose NEMA 250, Type 1, complying with NEMA ICS 6 and UL 508, unless otherwise indicated.

2.3 AUTOMATIC TRANSFER SWITCHES

A. Comply with Level 1 equipment according to NFPA 110.

B. Switching Arrangement: Double-throw type, incapable of pauses or intermediate position stops during normal functioning, unless otherwise indicated.

C. Manual Switch Operation: Under load, with door closed and with either or both sources energized. Transfer time is same as for electrical operation. Control circuit automatically disconnects from electrical operator during manual operation.

D. Manual Switch Operation: Unloaded. Control circuit automatically disconnects from electrical operator during manual operation.

E. Signal-Before-Transfer Contacts: A set of normally open/normally closed dry contacts operates in advance of retransfer to normal source. Interval is adjustable from 1 to 30 seconds.

F. Digital Communication Interface: Matched to capability of remote annunciator or annunciator and control panel.

G. Transfer Switches Based on Molded-Case-Switch Components: Comply with NEMA AB 1, UL 489, and UL 869A.

H. Automatic Closed-Transition Transfer Switches: Include the following functions and characteristics:

1. Fully automatic make-before-break operation.
2. Load transfer without interruption, through momentary interconnection of both power sources not exceeding 100 ms.
3. Initiation of No-Interruption Transfer: Controlled by in-phase monitor and sensors confirming both sources are present and acceptable.

    a. Initiation occurs without active control of generator.
    b. Controls ensure that closed-transition load transfer closure occurs only when the 2 sources are within plus or minus 5 electrical degrees maximum, and plus or minus 5 percent maximum voltage difference.

4. Failure of power source serving load initiates automatic break-before-make transfer.

I. In-Phase Monitor: Factory-wired, internal relay controls transfer so it occurs only when the two sources are synchronized in phase. Relay compares phase relationship and frequency difference between normal and emergency sources and initiates transfer when both sources are within 15 electrical degrees, and only if transfer can be completed within 60 electrical degrees. Transfer is initiated only if both sources are within 2 Hz of nominal frequency and 70 percent or more of nominal voltage.

J. Motor Disconnect and Timing Relay: Controls designate starters so they disconnect motors before transfer and reconnect them selectively at an adjustable time interval after transfer. Control connection to motor starters is through wiring external to automatic transfer switch. Time delay for reconnecting individual motor loads is adjustable between 1 and 60 seconds, and settings are as indicated. Relay contacts handling motor-control circuit inrush and seal currents are rated for actual currents to be encountered.

K. Programmed Neutral Switch Position: Switch operator has a programmed neutral position arranged to provide a midpoint between the two working switch positions, with an intentional, time-controlled pause at midpoint during transfer. Pause is adjustable from 0.5 to 30 seconds minimum and factory set for 0.5 second, unless otherwise indicated. Time delay occurs for both transfer directions. Pause is disabled unless both sources are live.

L. Automatic Transfer-Switch Features:

1. Undervoltage Sensing for Each Phase of Normal Source: Sense low phase-to-ground voltage on each phase. Pickup voltage shall be adjustable from 85 to 100 percent of nominal, and dropout voltage is adjustable from 75 to 98 percent of pickup value. Factory set for pickup at 90 percent and dropout at 85 percent.
2. Adjustable Time Delay: For override of normal-source voltage sensing to delay transfer and engine start signals. Adjustable from zero to six seconds, and factory set for one second.
3. Voltage/Frequency Lockout Relay: Prevent premature transfer to generator. Pickup voltage shall be adjustable from 85 to 100 percent of nominal. Factory set for pickup at 90 percent. Pickup frequency shall be adjustable from 90 to 100 percent of nominal. Factory set for pickup at 95 percent.
4. Time Delay for Retransfer to Normal Source: Adjustable from 0 to 30 minutes, and factory set for 10 minutes to automatically defeat delay on loss of voltage or sustained undervoltage of emergency source, provided normal supply has been restored.
5. Test Switch: Simulate normal-source failure.
6. Switch-Position Pilot Lights: Indicate source to which load is connected.
7. Source-Available Indicating Lights: Supervise sources via transfer-switch normal- and emergency-source sensing circuits.

    a. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
    b. Emergency Power Supervision: Red light with nameplate engraved "Emergency Source Available."

8. Unassigned Auxiliary Contacts: Two normally open, single-pole, double-throw contacts for each switch position, rated 10 A at 240-V ac.

9. Transfer Override Switch: Overrides automatic retransfer control so automatic transfer switch will remain connected to emergency power source regardless of condition of normal source. Pilot light indicates override status.
10. Engine Starting Contacts: One isolated and normally closed, and one isolated and normally open; rated 10 A at 32-V dc minimum.
11. Engine Shutdown Contacts: Instantaneous; shall initiate shutdown sequence at remote engine-generator controls after retransfer of load to normal source.
12. Engine Shutdown Contacts: Time delay adjustable from zero to five minutes, and factory set for five minutes. Contacts shall initiate shutdown at remote engine-generator controls after retransfer of load to normal source.
13. Engine-Generator Exerciser: Solid-state, programmable-time switch starts engine generator and transfers load to it from normal source for a preset time, then retransfers and shuts down engine after a preset cool-down period. Initiates exercise cycle at preset intervals adjustable from 7 to 30 days. Running periods are adjustable from 10 to 30 minutes. Factory settings are for 7-day exercise cycle, 20-minute running period, and 5-minute cool-down period. Exerciser features include the following:

    a. Exerciser Transfer Selector Switch: Permits selection of exercise with and without load transfer.
    b. Push-button programming control with digital display of settings.
    c. Integral battery operation of time switch when normal control power is not available.

2.4 REMOTE ANNUNCIATOR SYSTEM

A. Functional Description: Remote annunciator panel shall annunciate conditions for indicated transfer switches. Annunciation shall include the following:

    1. Sources available, as defined by actual pickup and dropout settings of transfer-switch controls.
    2. Switch position.
    3. Switch in test mode.
    4. Failure of communication link.

B. Annunciator Panel: LED-lamp type with audible signal and silencing switch.

    1. Indicating Lights: Grouped for each transfer switch monitored.
    2. Label each group, indicating transfer switch it monitors, location of switch, and identity of load it serves.
    3. Mounting: Flush, modular, steel cabinet, unless otherwise indicated.
    4. Lamp Test: Push-to-test or lamp-test switch on front panel.

2.5 SOURCE QUALITY CONTROL

A. Factory test and inspect components, assembled switches, and associated equipment. Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Design each fastener and support to carry load indicated by seismic requirements and according to seismic-restraint details. S

B. Floor-Mounting Switch: Anchor to floor by bolting.

1. Concrete Bases: 4 inches (100 mm) high, reinforced, with chamfered edges. Extend base no more than 4 inches (100 mm) in all directions beyond the maximum dimensions of switch, unless otherwise indicated or unless required for seismic support. Construct concrete bases according to Division 26 Section "Hangers and Supports for Electrical Systems."

C. Annunciator and Control Panel Mounting: Flush in wall, unless otherwise indicated.

D. Identify components according to Division 26 05 00.

E. Set field-adjustable intervals and delays, relays, and engine exerciser clock.

3.2 CONNECTIONS

A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.

B. Ground equipment according to Division 26 05 00.

C. Connect wiring according to Division 26 05 00.

3.3 FIELD QUALITY CONTROL

A. Testing Agency: Contractor to engage a qualified independent testing and inspecting agency to perform tests and inspections and prepare test reports.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.

C. Perform tests and inspections and prepare test reports.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installation, including connections, and to assist in testing.
2. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.

3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
4. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.

    a. Check for electrical continuity of circuits and for short circuits.
    b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
    c. Verify that manual transfer warnings are properly placed.
    d. Perform manual transfer operation.

5. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.

    a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
    b. Simulate loss of phase-to-ground voltage for each phase of normal source.
    c. Verify time-delay settings.
    d. Verify pickup and dropout voltages by data readout or inspection of control settings.
    e. Test bypass/isolation unit functional modes and related automatic transfer-switch operations.
    f. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
    g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.

6. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.

    a. Verify grounding connections and locations and ratings of sensors.

D. Testing Agency's Tests and Inspections:

1. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.

    a. Check for electrical continuity of circuits and for short circuits.
    b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
    c. Verify that manual transfer warnings are properly placed.

d. Perform manual transfer operation.

4. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.

    a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
    b. Simulate loss of phase-to-ground voltage for each phase of normal source.
    c. Verify time-delay settings.
    d. Verify pickup and dropout voltages by data readout or inspection of control settings.
    e. Test bypass/isolation unit functional modes and related automatic transfer-switch operations.
    f. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
    g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.

5. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.

    a. Verify grounding connections and locations and ratings of sensors.

E. Coordinate tests with tests of generator and run them concurrently.

F. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.

G. Remove and replace malfunctioning units and retest as specified above.

H. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switch. Remove all access panels so joints and connections are accessible to portable scanner.

1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.
2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
3. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment as specified below. Refer to Division 01 Section "Demonstration and Training."

B. Coordinate this training with that for generator equipment.

END OF SECTION

SECTION 27 00 00

COMMUNICATION SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included in 27 00 00, and Communications Basic Requirements applies to Division 27, Communications work to provide materials, labor, tools, permits, incidentals, and other services to provide and make ready for the Owner's use of communications systems for the proposed project.

B. Contract Documents include, but are not limited to, Specifications including, Procurement and Contracting Requirements and Division 01, General Requirements, Drawings, Addenda, Owner/Architect Agreement, and Owner/Contractor Agreement. Confirm requirements before commencement of work.

C. Definitions:
   1. Provide: To furnish and install, complete and ready for intended use.
   2. Furnish: Supply and deliver to the project site, ready for unpacking, assembly and installation.
   3. Install: Includes unloading, unpacking, assembling, erecting, installation, applying, finishing, protecting, cleaning and similar operations at the project site as required to complete items of work furnished.
   4. Approved or Approved Equivalent: To possess the same performance qualities and characteristics and fulfill the utilitarian function without any decrease in quality, durability or longevity. For equipment/products defined by the Contractor as "equivalent," substitution requests must be submitted to the Engineer for consideration in accordance with Division 01, General Requirements, and approved by the Engineer prior to submitting bids for substituted items.
   5. Authority Having Jurisdiction (AHJ): Indicates reviewing authorities, including local fire marshal, Owner's insurance underwriter, Owner's representative, and other reviewing entities whose approval is required to `
   6. Entrance Facility (EF): Area or location that contains entrance point (demarcation) cable and associated equipment for telecommunication services entering the building.
   7. Equipment Room (IDF): Area or location that contains backbone cabling associated with interbuilding cable or cable that connects buildings together in a campus environment. ERs may contain Main Cross-Connects, Intermediate Cross-Connects, Horizontal Cross-Connects, and Telecommunication Rooms.
   8. Main Cross-Connect (MC): Area or location that contains telecommunications equipment for connecting backbone cable to/from Intermediate Cross-Connects and Horizontal Cross-Connects. Active

telecommunications equipment will often be contained in this area to serve as the telecommunications hub or headend. Backbone cable from the Local Exchange Carrier's point of demarcation will connect to building backbone cable or active telecommunications equipment at this location.

9. Intermediate Cross-Connect (IC): Area or location that contains telecommunications equipment for connecting backbone cable from the MC to backbone cable distributing to one or many Horizontal Cross-Connects. This location may contain active telecommunications equipment.
10. Horizontal Cross-Connect (HC): Area or location that contains telecommunications equipment, cable terminations and cross-connect wiring. HC is the recognized connection point between backbone and horizontal pathway facilities.
11. Telecommunications Room (TR): Area or location containing telecommunications equipment, cable terminations and cross-connect wiring. Three applications serviced by TRs are horizontal cable connections, backbone system interconnection and entrance facilities. The TR provides facilities (space, power, grounding, etc.) for housing telecommunications equipment. TR may contain a MC, IC or HC and a demarcation point or an interbuilding entrance facility.
12. Interbuilding Cable: Backbone cable associated with connecting buildings together in a multibuilding or campus environment.
13. Intrabuilding Cable: Backbone cable associated with connecting Entrance Facility, Equipment Rooms, Main Cross-Connects, Intermediate Cross-Connects, Horizontal Cross-Connects, and Telecommunication Rooms together on a single floor or multi-floor building.

1.2 RELATED SECTIONS

A. Contents of Section applies to Division 27, Communications Contract Documents.

B. Related Work:
   1. Additional conditions apply to this Division including, but not limited to:
      a. Drawings
      b. Addenda
      c. Owner/Architect Agreement
      d. Codes, Standards, Public Ordinances and Permits

C. Related Products/Systems within Division 28, Electronic Safety and Security:
   1. Section 28 20 00, Video Surveillance System
   2. Section 28 30 00, Panic Button System

1.3 REFERENCES AND STANDARDS

A. References and Standards per Procurement and Contracting Requirements and Division 01, General Requirements, individual Division 27, Communications Sections and those listed in this Section.

B. Codes to include latest adopted editions, including current amendments, supplements and local jurisdiction requirements in effect as of the date of the Contract Documents, of/from:
   1. State of California:
      a. CBC - California Building Code
      b. CEC - California Electrical Code
      c. CEC T24 - California Energy Code Title 24
      d. CFC - California Fire Code
      e. CMC - California Mechanical Code
      f. CPC - California Plumbing Code
      g. CSFM - California State Fire Marshal

C. Reference standards and guidelines include but are not limited to the latest adopted editions from:
   1. ABA - Architectural Barriers Act
   2. ADA - Americans with Disabilities Act
   3. ANSI - American National Standards Institute
      a. ANSI/TIA-568-C.0 - Generic Telecommunications Cabling for Customer Premises
      b. ANSI/TIA-568-C.1 - Commercial Building Telecommunications Cabling Standard
      c. ANSI/TIA-568-C.2 - Balanced Twisted-Pair Telecommunications Cabling and
         Components Standard
      d. ANSI/TIA-568-C.3 - Optical Fiber Cabling Components Standard. Commercial
         Building Telecommunicating Cabling Standard
      e. ANSI/TIA-569-B - Commercial Building Standard for Telecommunications Pathways and Spaces
      f. ANSI/TIA-570-B - Residential Telecommunications Infrastructure
      g. ANSI/TIA-942 - Telecommunications Infrastructure Standard for Data Centers
      h. ANSI/TIA/EIA-606-A - Administration Standard for Commercial Telecommunications
         Infrastructure
      i. ANSI-J-STD-607-A - Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
   4. APWA - American Public Works Association
   5. ASCE - American Society of Civil Engineers
   6. ASHRAE Guideline 0, the Commissioning Process
   7. ASTM - ASTM International
   8. BICSI - Building Industry Consulting Service International
      a. BICSI TDMM - Telecommunications Distribution Methods Manual
      b. BICSI ESSDRM - Electronic Safety & Security Design Reference Manual
      c. BICSI AVDRM - AV Design Reference Manual

9. CFR - Code of Federal Regulations
10. EIA - Electronic Industries Association
11. EPA - Environmental Protection Agency
12. ETL - Electrical Testing Laboratories
13. FCC - Federal Communications Division
14. FM - FM Global
15. IBC - International Building Code
16. IEC - International Electrotechnical Commission
17. IEEE - Institute of Electrical and Electronics Engineers
18. ISO - International Organization for Standardization
19. MSS - Manufacturers Standardization Society
20. NEC - National Electric Code
21. NEMA - National Electrical Manufacturers Association
22. OSHA - Occupational Safety and Health Administration 23. TIA - Telecommunications Industry Association
24. UL - Underwriters Laboratories Inc.

D. See Division 27, Communications individual Sections for additional references.

E. Where code requirements are at variance with Contract Documents, meet code requirements as a minimum requirement and include costs necessary to meet these in Contract. Machinery and equipment are to comply with OSHA requirements, as currently revised and interpreted for equipment manufacturer requirements. Install equipment provided per manufacturer recommendations.

1.4 SUBMITTALS

A. Provide SUBMITTALS according to Division 01 and the following.

B. Requirements:

1. Submit paragraph-by-paragraph specification review indicating compliance or deviation with explanation.
2. Submit proof that all system components and cables are U.L. Listed.
3. An equipment list with names of manufacturers, model numbers, and technical information on all equipment proposed. Clearly mark exact model number proposed to be installed.
4. Product technical information sheets for each principal component in the proposed system, including cable, wire, terminal marking, and wire marking material.
5. Certification from the manufacturer stating that the system Contractor is an authorized distributor or installer of the proposed system when such certifications exist.
6. A statement listing every technical and operational parameter wherein the submitted equipment varies from that which was originally specified. If the submitter fails to list a particular variance and his submittal is accepted but is subsequently deemed to be unsatisfactory because of the unlisted variance, the submitter shall replace or modify such equipment at once and without cost to the Owner.

G. Shop Drawings:
   1. Provide coordinated Shop Drawings which include physical characteristics of all systems, device layout plans, and control wiring diagrams. Reference individual Division 27, Communications specification Sections for additional requirements for Shop Drawings outside of these requirements.
   2. Provide Shop Drawings indicating access panel locations, size and elevation for approval prior to installation.

H. Samples: Provide samples when requested by individual Sections.

I. Resubmission Requirements:
   1. Make any corrections or change in submittals when required. Provide submittals as specified. The engineer will not be required to edit and/or interpret the Contractor's submittals. Changes made for the resubmittal will be indicated in a cover letter with reference to page(s) changed and will reference response to comment. Indicate changes for the resubmittal in a cover letter with reference to page(s) changed and reference response to comment. Cloud changes in the submittals.
   2. Resubmit for review until review indicates no exception taken, or "make corrections as noted."
   3. When submitting Drawings for Engineers re-review, clearly indicate changes on Drawings and "cloud" any revisions. Submit a list describing each change.

J. Operation and Maintenance Manuals, Owners Instructions:
   1. Submit, at one time, electronic files (PDF format) on CD/DVD of manufacturer's operation and maintenance instruction manuals and parts lists for equipment or items requiring servicing. Submit data when work is substantially complete and in same order format as submittals. Include name and location of source parts and service for each piece of equipment.
      a. Include copy of approved submittal data along with submittal review letters received from Engineer. Data to clearly indicate installed equipment model numbers. Delete or cross out data pertaining to other equipment not specific to this project.
      b. Include copy of manufacturer's standard Operations and Maintenance for equipment. At front of each tab, provide routine maintenance documentation for scheduled equipment. Include manufacturer's recommended maintenance schedule and highlight maintenance required to maintain warranty. Furnish list of routine maintenance parts, including part numbers, sizes, quantities, relevant to each piece of equipment: batteries, lamp lenses, speakers and filters.
      c. Include Warranty perProcurement and Contracting Requirements and Division 01, General Requirements, Section 27 00 00, Communications Basic Requirements and individual Sections.
      d. Include product certificates of warranties and guarantees.

e. Include copy of complete parts list for equipment. Include available exploded views of assemblies and subassemblies.
f. Include copy of burn-in and test reports specific to each piece of equipment.
g. Include copy of software/appliance programming.
h. Include commissioning reports.
i. Engineer will return incomplete documentation without review. Engineer will provide one set of review comments in Submittal Review format. Contractor must arrange for additional reviews; Contractor to bear costs for additional reviews at Engineer's hourly rates.

K. Record Drawings:
1. Maintain at site at least one set of drawings for recording “as-constructed” conditions. Indicate on Drawings changes to original documents by referencing revision document, and include buried elements, location of conduit, and location of concealed communication items. Include items changed by field orders, supplemental instructions, and constructed conditions.
2. Record Drawings are to include equipment and fixture/connection schedules that accurately reflect "as constructed or installed" for project.
3. At completion of project, input changes to original project on CAD Drawings and make one set of black-line Drawings created from CAD Files in version/release equal to Contract Drawings. Submit CAD disk and Drawings upon substantial completion.
4. Invert elevations and dimensioned locations for incoming utilities and site raceways below grade extending to 5-feet outside building line.
5. See Division 27, Communications individual Sections for additional items to include in Record Drawings.

1.5 QUALITY ASSURANCE

A. Equipment Standards:
1. System and all components shall be brand new stock from manufacturer.
2. System and all components shall bear a UL Label

B. Regulatory Requirements: Work and materials installed to conform with all local, state, federal and other applicable laws and regulation.

C. Drawings are intended to be diagrammatic and reflect the Basis of Design manufacturer's equipment. They are not intended to show every item in its exact dimensions, or details of equipment or proposed systems layout. Verify actual dimensions of systems (i.e., conduit) and equipment proposed to assure that systems and equipment will fit in available space.

D. Contractor is responsible for design and construction costs incurred for equipment other than Basis of Design, including, but not limited to,

architectural, structural, electrical, HVAC, fire sprinkler, and plumbing systems.

E. Manufacturer's Instructions: Follow manufacturer's written instructions. If in conflict with Contract Documents, obtain clarification. Notify Engineer/Architect, in writing, before starting work.

F. Items shown on Drawings are not necessarily included in Specifications or vice versa.

G. Confirm requirements in all Contract Documents.

H. Provide products that are UL listed.

I. Contractor Qualifications:

1. Minimum of five years experience in the design, installation, testing and maintenance of communications systems.
2. Must employ at least one full time BICSI certified Registered Communications Distribution Designer (RCDD) who is involved in reviewing work performed by contractor on this project.
3. Maintain a local service facility which stocks spare devices and/or components for servicing systems.
4. Have performed successful installation and maintenance of at least three projects similar in scope and size. Be able to provide project references for these three projects, including scope of Work, project type, Owner/user contact name and telephone number.
5. The contractor selected for this project must be certified by the manufacturer of the approved products and utilize these components for completion of work.

1.6 WARRANTY

A. Provide written warranty covering the work for a period of one year from date of Substantial Completion in Procurement and Contracting Requirements and Division 01, General Requirements, Section 27 00 00, Communications Basic Requirements and individual Division 27, Communications Sections.

B. Sections under this Division can require additional and/or extended warranties that apply beyond basic warranty under Division 01, General Requirements and the General Conditions. Confirm requirements in all Contract Documents.

1.7 COORDINATION DOCUMENTS

A. Prior to construction, prepare and submit coordinated layout Drawings (composite drawings), to coordinate installation and location of ductwork, grilles, diffusers, piping, fire sprinklers, plumbing, lights, and electrical services. Composite Drawings show services on single sheet. Key Drawings to structural column identification system. Prior to completion of Drawings, coordinate proposed installation with architectural and structural requirements, and other trades (including plumbing, HVAC, fire protection, electrical, ceiling suspension, and ceiling tile systems, etc.), and provide maintenance access requirements. Coordinate with submitted architectural systems (i.e. roofing, ceiling, finishes) and structural systems as submitted, including footings and foundation. Identify

zone of influence from footings and ensure systems are not routed within the zone of influence. Unless otherwise required by Procurement and Contracting Requirements and/or Division 01, General Requirements, Division 27, Communications to combine information furnished by other trades onto master coordination documents.

B. Prepare Drawings as follows:
   1. Drawings in CAD Format. CAD format release equal to design documents. Drawings to be same sheet size and scale as Contract Drawings and indicate location, size and elevation above finished floor of equipment and distribution systems.
   2. Review and revise, as necessary, section cuts in Contract Drawings after verification of field conditions.
   3. Incorporate addenda items and change orders.
   4. Provide additional coordination as requested by other trades.

C. Advise Architect in event conflict occurs in location or connection of equipment. Bear costs resulting from failure to properly coordinate installation or failure to advise Architect of conflict. D. Verify in field exact size, location, invert, and clearances regarding existing material, equipment and apparatus, and advise Architect of discrepancies between that indicated on Drawings and that existing in field prior to installation related thereto.

D. Submit final Coordination Drawings with changes as Record Drawings at completion of project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Provide like items from one manufacturer, including but not limited to jacks, patch panels, equipment connection cords and wall plates.

2.2 MATERIALS

A. Base contract upon furnishing materials as specified. Materials, equipment, and fixtures used for construction are to be new, latest products as listed in the manufacturer's printed catalog data and are to be UL approved or have adequate approval or be acceptable by State, County, and City authorities. The equipment/fixture supplier is responsible for obtaining state, county, and city acceptance on equipment/fixture not UL approved or not listed for installation.

B. Articles, fixtures, and equipment of a kind to be standard product of one manufacturer.

C. Names and manufacturer's names denote character and quality of equipment desired and are not to be construed as limiting competition. D. Hazardous Materials:
   1. Comply with local, State of California, and Federal regulations relating to hazardous materials.

2. Do not use any materials containing a hazardous substance. If hazardous materials are encountered, do not disturb; immediately notify Owner and Architect. Hazardous materials will be removed by Owner under separate contract.

PART 3 - EXECUTION

3.1 ACCESSIBILITY AND INSTALLATION

A. Confirm Accessibility and Installation requirements in Procurement and Contracting Requirements, Division 01, General Requirements, Section 27 00 00,
Communications Basic Requirements and individual Division 27, Communications Sections.

B. Install equipment requiring access (i.e., amplifiers, taps, zone controllers, volume controls, and storage devices) so that they may be serviced, reset, replaced or recalibrated by service people with normal service tools and equipment. Do not install equipment in obvious passageways, doorways, scuttles or crawlspaces which would impede or block intended usage.

C. Install equipment and products complete as directed by manufacturer's installation instructions. Obtain installation instructions from manufacturer prior to rough-in of equipment and examine instructions thoroughly. When requirements of installation instructions conflict with Contract Documents, request clarification from Architect prior to proceeding with installation. This includes proper installation methods, sequencing and coordination with other trades and disciplines.

D. Earthwork:
   1. Confirm Earthwork requirements in Contract Documents. In absence of specific requirements, comply with individual Division 27, Communications Sections and the following:
      a. Perform excavation, dewatering, shoring, bedding, and backfill required for installation of work in this Division in accordance with related earthwork divisions. Contact utilities and locate existing utilities prior to excavation. Repair any work damaged during excavation or backfilling.
      b. Excavation: Do not excavate under footings, foundation bases, or retaining walls.
      c. Provide protection of underground systems. Review the project Geotechnical Report for references to corrosive or deleterious soils which will reduce the performance or service life of underground systems materials.

E. Firestopping:
   1. Confirm Firestopping requirements in Division 07, Thermal and Moisture Protection. In absence of specific requirements, comply with individual Division 27, Communications Sections and the following:
      a. Coordinate location and protection level of fire and/or smoke rated walls, ceilings, and floors. When these assemblies are penetrated, seal

around piping, ductwork and equipment with approved firestopping material. Install firestopping material complete as directed by manufacturer's installation instructions. Meet requirements of ASTM E814, Standard Test Method for Fire Tests of Through-Penetration Fire Stops.

F. Plenums: In plenums, provide plenum rated materials that meet the requirements to be installed in plenums. Immediately notify Architect/Engineer of discrepancy.

3.2 SEISMIC CONTROL

A. Confirm Seismic Control requirements in General Requirements, Structural documents, and individual Division 27 Communications Sections.

B. Earthquake-resistant designs for Communications (Division 27) equipment and distribution, i.e.
cabinets and racks, ceiling assemblies, raceways, ladder racking, etc. to conform to regulations of jurisdiction having authority.

C. Restraints which are used to prevent disruption of function of piece of equipment because of application of horizontal force to be such that forces are carried to frame of structure in such a way that frame will not be deflected when apparatus is attached to a mounting base and equipment pad, or to structure in normal way, utilizing attachments provided. Secure equipment and distribution systems to withstand a force in direction equal to value defined by jurisdiction having authority.

D. Provide stamped Shop Drawings from licensed Structural Engineer of seismic bracing and seismic movement assemblies for cabinets, racks, major equipment and overhead raceways. Engineer to design and provide stamped Shop Drawings cabinets, racks, major equipment and overhead raceway. Submit Shop Drawings along with equipment submittals.

E. Provide stamped Shop Drawings from licensed Structural Engineer of seismic flexible joints for piping and crossing building expansion or seismic joints. Submit Shop Drawings along with seismic bracing details.

F. Provide means to prohibit excessive motion of communications equipment during earthquake.

3.3 REVIEW AND OBSERVATION

A. Confirm Review and Observation requirements in Procurement and Contracting Requirements and Division 01, General Requirements, Section 27 00 00, Communications Basic Requirements and individual Division 27, Communications Sections.

B. Notify Architect, in writing, at following stages of construction so that they may, at their option, visit site for review and construction observation:
   1. Underground conduit installation prior to backfilling.
   2. Prior to ceiling cover/installation.

3. When main systems, or portions of, are being tested and ready for inspection by AHJ.

C. Final Punch: Costs incurred by additional trips required due to incomplete systems will be the responsibility of the Contractor.

3.4 CUTTING AND PATCHING

A. Confirm Cutting and Patching Requirements in Procurement and Contracting Requirements and Division 01, General Requirements. In absence of specific requirements, comply with individual Division 27, Communications Sections and the following:

1. Proposed floor cutting/core drilling/sleeve locations to be approved by Project Structural Engineer. Submit proposed locations to Architect/Project Structural Engineer. Where slabs are of post tension construction, perform x-ray scan of proposed penetration locations and submit scan results including proposed penetration locations to Project Structural Engineer/Architect for approval. Where slabs are of waffle type construction, show column cap extent and cell locations relative to proposed penetration(s).
2. Cutting, patching and repairing for work specified in this Division including plastering, masonry work, concrete work, carpentry work, and painting included under this Section will be performed by skilled craftsmen of each respective trade in conformance with appropriate Division of Work.
3. Additional openings required in building construction to be made by drilling or cutting. Use of jack hammer is specifically prohibited. Patch openings in and through concrete and masonry with grout.
4. Restore new or existing work that is cut and/or damaged to original condition. Patch and repair specifically where existing items have been removed. This includes repairing and painting walls, ceilings, etc. where existing conduit and devices are removed as part of this project. Where alterations disturb lawns, paving, and walks, surfaces to be repaired, refinished and left in condition matching existing prior to commencement of work.
5. Additional work required by lack of proper coordination will be provided at no additional cost to the Owner.

3.5 EQUIPMENT SELECTION AND SERVICEABILITY

A. Replace or reposition equipment which is too large or located incorrectly to permit servicing, at no additional cost to Owner.

3.6 DELIVERY, STORAGE AND HANDLING

A. Confirm requirements in Procurement and Contracting Requirements and Division 01, General Requirements. In absence of specific requirements, comply with individual Division 27, Communications Sections and the following:

1. Handle materials delivered to project site with care to avoid damage. Store materials on site inside building or protected from weather, dirt and

construction dust. Insulation and lining that becomes wet from improper storage and handling to be replaced before installation. Products and/or materials that become damaged due to water, dirt and/or dust as a result of improper storage to be replaced before installation.

2. Protect all equipment and conduit to avoid damage. Close conduit openings with caps or plugs. Keep motors and bearings in watertight and dustproof covers during entire course of installation.

3.7 DEMONSTRATION

A. Confirm Demonstration requirements in Procurement and Contracting Requirements and Division 01, General Requirements, Section 27 00 00, Communications Basic Requirements and individual Division 27, Communications Sections.

B. Upon completion of work and adjustment of equipment and test systems, demonstrate to Owner's Representative, Architect and Engineer that equipment furnished and installed or connected under provisions of these Specifications functions in manner required. Provide field instruction to Owner's Maintenance Staff as specified in Division 01, General Requirements, Section 27 00 00, Communications Basic Requirements and individual Division 27, Communications Sections.

C. Manufacturer's Field Services: Furnish services of a qualified person at time approved by Owner, to instruct maintenance personnel, correct defects or deficiencies, and demonstrate to satisfaction of Owner that entire system is operating in satisfactory manner and complies with requirements of other trades that may be required to complete work. Complete instruction and demonstration prior to final job site observations.

3.8 CLEANING

A. Confirm Cleaning requirements in Procurement and Contracting Requirements, Division 01, General Requirements, Section 27 00 00, Communications Basic Requirements and individual Division 27, Communications Sections.

B. Upon completion of installation, thoroughly clean exposed portions of equipment, removing temporary labels and traces of foreign substances. Throughout work, remove construction debris and surplus materials accumulated during work.

3.9 INSTALLATION

A. Confirm Installation requirements in Procurement and Contracting Requirements and Division 01, General Requirements, Section 27 00 00, Communications Basic Requirements and individual Division 27, Communications Sections.

B. Install equipment and devices in accordance with manufacturer's installation instructions, plumb and level and firmly secure to mounting surfaces. Maintain manufacturer's recommended clearances.

C. Start-up equipment, in accordance with the manufacturer's start-up instructions and in the presence of the manufacturer's representative. Test operation and demonstrate compliance with requirements. Replace damaged or malfunctioning equipment.

D. Provide miscellaneous supports/metals required for installation of equipment.

3.10 ACCEPTANCE

A. Confirm requirements in Procurement and Contracting Requirements and Division 01 , General Requirements. In absence of specific requirements, comply with individual Division 27, Communications Sections and the following:
   1. System cannot be considered for acceptance until work is completed and demonstrated to Architect that installation is in strict compliance with Specifications, Drawings and manufacturer's installation instructions, particularly in reference to following: a. Testing Reports
      b. Cleaning
      c. Operation and Maintenance Manuals
      d. Training of Operating Personnel
      e. Record Drawings
      f. Warranty and Guaranty Certificates, including extended manufacturer's warranties.
      g. Start-up/test Documents and Commissioning Reports

3.11 FIELD QUALITY CONTROL

A. Confirm Field Quality Control requirements in, Procurement and Contracting Requirements and Division 01, General Requirements, Section 27 00 00, Communications Basic Requirements and individual Division 27, Communications Sections.

B. Tests:
   1. Conduct tests of equipment and systems to demonstrate compliance with requirements specified. Reference individual Specification Sections for required tests. Document tests and include in Operation and Maintenance Manuals.
   2. During site evaluations by Architect or Engineer, provide appropriate personnel with tools to remove and replace trims, covers, and devices so that proper evaluation of installation can be performed.

END OF SECTION

SECTION 27 05 00

PATHWAYS FOR COMMUNICATION SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included:
   1. Rigid Metal Conduit and Fittings
   2. Electrical Metallic Tubing and Fittings
   3. Conduit Accessories
   4. Penetration Sealing Systems
   5. Telecommunications Outlet Boxes
   6. Innerduct
   7. Innerduct Fittings
   8. J-Hooks

B. This Section specifies the requirements to provide communications conduit raceways, boxes, innerduct and fittings.

1.2 RELATED SECTIONS

A. Contents of Division 27, Communications and Division 01, General Requirements apply to this Section.

1.3 REFERENCES AND STANDARDS

A. References and Standards as required by Section 27 00 00, Communications Basic Requirements and Division 01, General Requirements.

1.4 SUBMITTALS

A. Submittals as required by Section 27 00 00, Communications Basic Requirements and Division 01, General Requirements.

B. Provide plan drawings showing completions and as-built corrections which indicate type, size, placement, routing and/or length for raceway and cable tray components; e.g., manholes, handholes, conduit, boxes, enclosures, etc.

1.5 QUALITY ASSURANCE

A. Quality assurance as required by Section 27 00 00, Communications Basic Requirements and Division 01, General Requirements.

1.6 WARRANTY

A. Warranty of materials and workmanship as required by Section 27 00 00, Communications Basic Requirements and Division 01, General Requirements.

1.7 DEFINITIONS

A. Cabinet: A freestanding floor-mounted modular enclosure designed to house and protect rack-mounted electronic equipment.
B. Conduit: Round raceway.
C. Conduit Body: Separate portion of a conduit or tubing system that provides access through a removable cover(s) to the interior of the system at a junction of two or more sections of the system or at a terminal point of the system.
D. Pull Box Enclosure: Box with a cover installed in one or more runs of raceway to facilitate pulling conductors through the raceway system. There are no openings in the cover.
E. Raceway: Enclosed channel designed expressly for holding wires or cables. Metal or insulating material and the term includes conduit, tubing, wireways, underfloor raceways and surface raceways; does not include cable tray.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Rigid Metal Conduit and Fittings:
    1. Sealing Fittings:
        a. Crouse-Hinds
        b. Or approved equivalent.
B. Electrical Metallic Tubing and Fittings:
    1. Allied Tube and Conduit
    2. Or approved equivalent.
C. Conduit Accessories:
    1. Duct Spacers:
        a. Carlon
        b. Or approved equivalent.
    2. Expansion/Deflection Fittings:
        a. Appleton
        b. Or approved equivalent.
    3. Pull tape:
        a. George-Ingraham
        b. Or approved equivalent.
    4. Duct Plugs:
        a. Carlon
        b. Or approved equivalent.
D. Penetration Sealing Systems:
    1. SEMCO
    2. Or approved equivalent.
E. Telecommunications Outlet Boxes:
    1. Raco
    2. Or approved equivalent.

F. Innerduct:
   1. Carlon
   2. Or approved equivalent.

G. Innerduct Fittings:
   1. Carlon
   2. Or approved equivalent.

H. J-Hooks:
   1. Stiffy
   2. Or approved equivalent.

2.2 RIGID METAL CONDUIT AND FITTINGS

A. Conduit: Type RGS; rigid galvanized steel.

B. Fittings and Conduit Bodies: In-line straight-through, threaded, galvanized steel fittings and Type C conduit bodies only; do not use bends or tees, e.g., Lbs.
   1. Bonding and Grounding Locknuts and Wedges: Malleable iron with set screws and lug screws.
   2. Insulated Bushing: Malleable iron with integral insulated throat, rated for 150C.
   3. Bonding and Grounding Bushing: Malleable iron with integral insulated throat, rated for 150 C, with solderless lugs or lug screws.
   4. Sealing Fittings: Threaded type conduit seal fittings and sealing compound suitable for hazardous location installations in accordance with NEC:
   5. a. Crouse-Hind retrofit sealing fitting EYSR.
      b. Crouse-Hind CHICO A sealing compound.

2.3 ELECTRICAL METALLIC TUBING AND FITTINGS

A. Type EMT: Electrogalvanized steel tubing.

B. Fittings and Conduit Bodies:
   1. In-line straight-through steel or malleable iron fittings and Type C conduit bodies only; do not use bends or tees, e.g. Lbs.
   2. Wet Areas: Steel compression-type couplings and nipples.
   3. Dry Areas: Set screw-type couplings and nipples.
   4. Bonding Locknuts:
      a. Malleable iron with set screws and lug screws.
      b. Insulated Bushing: Malleable iron with integral insulated throat, rated for 150C.
      c. Bonding and Grounding Bushing: Malleable iron with integral insulated throat, rated for 150C, with solderless lugs or lug screws.

2.4 CONDUIT ACCESSORIES

A. Duct Spacers:

1. Nonmetallic base and intermediate duct spacers with locking keyways designed specifically for use with nonmetallic conduit; e.g., Carlon SNAP-LOC duct spacers for 4- inch diameter conduit with 1-1/2-inch separation.
2. Base Spacer: S288NHN.
3. Intermediate Spacer: S289NHN.

B. Expansion/Deflection Fittings: Similar to Crouse-Hinds XD expansion/deflection coupling or Appleton DF Series deflection and expansion coupling.

C. Pulltape: Measuring and pulling tape constructed of synthetic fiber with plastic jacket, printed with accurate sequential footage marks; e.g., George-Ingraham 1/2-inch tape 9216-JK. D. Duct Plugs:
1. Aboveground Conduit Openings: Tapered PVC plugs with tab for pulltape; e.g., Carlon 4- inch PVC plugs with pull tab, P258NT.
2. Underground or Underslab Conduit Openings: Removable screwtight compression type duct plugs with wing-nut and corrosion resistant hardware; e.g. Vikimatic 4-inch, Part Number 40D402U. Use appropriate part number according to duct size.

2.5 PENETRATION SEALING SYSTEMS

A. Firestopping: Provide fire barrier penetration sealing materials as specified in Division 07, Firestopping Section.

B. Duct Water Seal: Products suitable for closing underground and entrance duct openings, where innerduct or cable is installed, to prevent entry of gases, liquids, or rodents into the structure; e.g., SEMCO PR 851.

2.6 TELECOMMUNICATIONS OUTLET BOXES

A. Sheet Metal Outlet Boxes: Minimum 4-inch square by 2-1/8-inch deep, galvanized steel for use with single-gang plaster rings.

B. Five Square Outlet Boxes: Minimum 5-inch square by 2-7/8-inch deep with built-in cable management for use with single-gang plaster rings. Randl P/N T-55017 approved.

C. Nonmetallic Outlet Boxes: Minimum 4-inch square by 2-1/2-inch-deep. Provide gasketed, watertight single-gang cover.

D. Cast Boxes: 4-inch square by 2-1/8-inch deep cast Feralloy, gasketed single-gang cover, threaded hubs.

E. Floor Boxes for Installation in Cast-In-Place Concrete Floors: Flush mounted and fully adjustable formed steel as shown on the Drawings. Floor boxes provided by Division 26, Electrical.

F. Plaster Rings: Single-gang as shown on the Drawings.

2.7 INNERDUCT

A. Outdoor Innerduct: 1-inch inside diameter corrugated, ribbed, or smooth walled, semi rigid PVC or heavy-wall polyethylene tubing.

B. Indoor Innerduct: 1-inch inside diameter corrugated, ribbed, or smooth walled, semi rigid nonflammable PVC tubing, which meets UL94V-O vertical flame test for general applications.

C. Plenum-Listed Indoor Innerduct: 1-inch inside diameter corrugated walled innerduct for use in plenum air handling spaces.

2.8 INNERDUCT FITTINGS

A. Couplings: Metallic or nonmetallic quick-connect, reverse threaded and Schedule 40 couplings for connecting sections of installed innerduct.

B. Conduit Plugs: Compression-type conduit plugs with locking nuts for sealing and securing the outside walls of one or more innerduct ends to the inside wall of 4-inch inside diameter conduits, e.g.:
   1. Four 1-inch innerduct configuration.
   2. Three 1-1/4-inch innerduct configuration.

C. Innerduct Plugs: 1-inch compression-type innerduct plugs for sealing innerducts, with wing nut for hand tightening and eyebolt for securing pulltape.

2.9 J-HOOKS

A. Constructed of plastic rigid rod, stainless steel or hot dipped zinc.

B. Wires or all-thread supports mounted to structure.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

A. Workmanship:
   1. Provide, condition, apply, install, connect and test manufactured products, materials, equipment and components in accordance with the manufacturer's specifications and printed instructions.
   2. The installation of system components to be carried out under the direction of qualified personnel. Appearance to be considered as important as mechanical and electrical efficiency. Workmanship to meet or exceed industry standards.
   3. Place support for raceways, cable trays, backboards, equipment racks and cabinets.

B. Protection During Construction: Protect products from the effects of moisture, corrosion and physical damage during construction. Except during installation activity in a section, keep openings in conduit, tubing and wireway capped with manufactured seals during construction.

C. Concrete Sleeves: Conduits routed perpendicular through floors, walls, or other concrete structures to pass through cast-in-place conduit sleeve openings wherever possible, or appropriate size holes to be bored to accommodate the

installation of conduit sleeves. The size and location of the holes to not impair the structure's integrity.

1. Concrete Boring: Bore a hole in the concrete with a diameter of 1/2 to 1-inch larger than the conduit sleeve to be installed. Grout around the conduit sleeve and finish to match existing surroundings.
2. Conduits that rise vertically through a slab to be stubbed 6-inches above the floor and capped pending future use.

D. Drywall/Gypsum Board Sleeves: Install insulating throat bushings on both ends of conduit sleeves placed in fire-rated walls using drywall construction.

E. Where conduit enters a structure through a concrete roof or membrane waterproofed wall or floor:
   1. Provide a watertight seal.
   2. With Concrete Encasement: Install watertight entrance seal device on the accessible side.
   3. Securely anchor malleable iron body of watertight entrance seal device into construction with one or more integral flanges.
   4. Secure membrane waterproofing to watertight entrance seal device in a permanent, watertight manner.

F. Provide continuous sleeving through walls, floors and ceilings separating each telecom outlet from its respective MER/TR room, using sleeve conduit size as required per Standards. Restore penetrations through rated assemblies to original fire rating per NFPA and local codes.

G. Locate sleeves as shown on Drawings. Where sleeves are not shown on Drawings, install sleeves above suspended ceilings and locate to minimize length of pathway for future cable from telecom outlet to MER/TR rooms.

H. Where sleeves are routed between rooms with floating ceilings, extend conduits horizontally 2- feet over edge of floating ceiling to avoid exposed cabling from being seen at floor level.

I. Make floor penetrations no more than 4-inches from wall. Install conduit stubs to extend 4- inches from floor base. Cap conduits for protection.

J. Provide removable heat-expanding pillows at fire barrier penetrations as specified in Firestopping section and described as Firestop Material Type 7 (indicated as FSM-7).

K. Grounding: Provide ground connections and bonding continuity between raceway and wire basket runway sections, boxes, enclosures, cabinets and fittings as required per code and industry standard.

L. Provide plenum rated products, components and accessories for installation in plenums.

3.2 RIGID METAL CONDUIT AND FITTINGS

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's written instructions and recommendations.

C. Conduit Type:
   1. Install the following types of circular communications raceway in the locations listed unless otherwise indicated on the Drawings.
      a. Exterior, Exposed Including Roof: Rigid steel conduit.

3.3 ELECTRICAL METALLIC TUBING AND FITTINGS

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's written instructions and recommendations.

C. Conduit Type:
   1. Install the following types of circular communications raceway in the locations listed unless otherwise indicated on the Drawings.
      a. Interior Dry Locations, Exposed: EMT with set screw fittings.
      b. Interior Dry Locations, Concealed (Not Embedded in Concrete): EMT with set screw fittings.
      c. Interior Wet Locations: EMT with compression fittings.

D. Conduit Bends and Sweeps:
   1. Make changes in direction of communications conduit runs with sweeps of the longest possible radius.
   2. Make sweeps in parallel or banked runs of conduits, 2-inches and larger in diameter, from the same center or centerline so that sweeps are parallel and of neat appearance.
   3. Field-Made Bends and Sweeps:
      a. Use an acceptable hickey or conduit-bending machine.
      b. Do not heat metal raceways to facilitate bending.
      c. Before installing 4-inch field-made sweeps in duct banks, pull a 3-1/2-inch diameter by 12-inch long mandrel through duct sections to verify circularity and sweep radius.
   4. The angular sum of the bends between pull points and/or pull boxes to not exceed 180 degrees.
   5. Minimum Inside Bend Radius for Communications Conduit Bends, Sweeps, Boxes and
      Fittings:
      a. One-inch conduit, 11-inches
      b. Two-inch conduit, 21-inches
      c. Three-inch conduit, 36-inches
      d. Four-inch conduit, 48-inches
      e. Other sizes, 10 times the inside diameter of the conduit.
   6. Do not install boxes, bends, elbows, tees, conduit bodies and other conduit fittings, which do not provide for the minimum inside cable bend radius specified in paragraph E above. a. Conduit Bodies: In-line straight-through Type C condulet fittings can be used as pull boxes for conduit up to a maximum of 2-inches ID. Other conduit fittings, which include direction changes such as E, L, LB, LR, LL, LRT, TA, TB and X, are not allowed.

b. Refer design or installation conflicts with these requirements to the Architect.

3.4 CONDUIT ACCESSORIES

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's written instructions and recommendations.

C. Duct Spacers: Install per manufacturer's recommendation.

D. Expansion/Deflection Fittings: Install per manufacturer's recommendation.

E. Pulltape: Install per manufacturer's recommendation.

F. Duct Plugs: Install per manufacturer's recommendation.

3.5 PENETRATION SEALING SYSTEMS

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's written instructions and recommendations.

C. Seal conduit entering structures at the first box or outlet to prevent the entrance of gases, liquids, or rodents into the structure.
   1. Empty Conduits: Removable screwtight duct plugs.
   2. Innerduct Installed: Suitable duct water seal between conduit and innerduct. Manufactured seals in empty innerduct.
   3. Cable Installed: Suitable duct water seal between conduit and cable, or between innerduct and cable.

3.6 TELECOMMUNICATIONS OUTLET BOXES

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's written instructions and recommendations.

C. Provide 4-inch by 4-inch by 2-1/8-inch deep outlet boxes for mounting telecommunications outlets with single-gang plaster rings as required, or as indicated on the Drawings.

D. Do not install outlet boxes back to back in walls. Provide minimum 6-inch separation, except provide minimum 24-inch separation in acoustic-rated walls.

E. Locate outlet boxes in masonry walls to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat openings for outlet boxes. Use boxes with sufficient depth to permit conduit hubs to be located in masonry void spaces.

F. Provide knockout closures for unused openings.

G. Support telecommunications outlet boxes independently of conduit.

H. Use multiple-gang boxes where more than one device is mounted together; do not use sectional outlet boxes.

I. Install outlet boxes in walls without damaging wall insulation.

J. Coordinate mounting heights and locations of outlet boxes mounted above counters, benches and backsplashes.

K. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlet boxes in hollow stud wall.

L. Provide cast outlet boxes in exterior and wet locations.

3.7 INNERDUCT

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's written instructions and recommendations.

C. Innerduct Type:
   1. Underslab and Underground Conduit Installation: Outdoor innerduct.
   2. Aboveground and Interior Conduit Installations: Indoor innerduct.
   3. Interior Exposed Locations Including Cable Tray Installations:
      a. Nonplenum Areas: Indoor innerduct.
      b. Plenum Areas: Plenum-listed innerduct.

D. Provide innerduct for all fiber optic cables for the entire length of the cable run.

E. Pull innerduct through conduit or place innerduct in cable trays using continuous unspliced lengths of innerduct between pull boxes and/or section termination points as indicated on the Drawings.

F. Cut innerduct square. Deburr cut ends.

G. Bring innerduct to the shoulder of fittings and couplings and fasten securely.

H. Wipe innerduct and fittings clean and dry before joining. Apply full, even coat of cement to entire area that will be inserted into fitting. Let joint cure for 20 minutes minimum.

I. Provide suitable innerduct slack in pull boxes and at turns to ensure that there is no kinking or binding of the tubing.

J. Make changes in direction of communications innerduct runs with sweeps of the longest possible radius and at least 10 times the inside diameter of the innerduct.

K. During innerduct pulling, avoid excessive tension which can damage the innerduct. Inspect innerduct following placement and replace damaged sections.

L. Indoor Conduit Installation:
   1. Arrange innerduct neatly, cut to proper length and remove surplus. Provide trained and bundled innerduct pigtails extending at least 18-inches beyond exposed conduit openings.
   2. At locations where the ends of innerduct sections appear in a pull box, join the pulltape and then splice innerduct sections together using couplers which do not reduce the inside diameter of the innerduct.

M. Cable Tray Installation: Tie wrap innerduct to one side of vertical ladder rack every 2-feet minimum and to one side of horizontal ladder-type cable tray every 5-feet minimum.

N. Following installation, visually inspect innerduct, remove burrs at openings and, if necessary, clean innerduct interior.

O. Innerduct Pull Tape and Duct Plug Installation:
   1. Following innerduct installation, install pulltape (muletape) with preprinted foot markers in innerduct sections. Tie the pulltape securely at each end.
   2. Verify lengths at the time of installation and provide as-built documentation.
   3. Following innerduct and pulltape installation, cap or plug innerduct with manufactured seals to prevent moisture or foreign matter from entering until cable installation starts. Seal duct openings in underground or underslab innerduct sections immediately after installation using screwtight, removable, watertight and dust-tight duct plugs.

3.8 INNERDUCT FITTINGS

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's written instructions and recommendations.

C. Wipe fittings clean and dry before joining. Apply full, even coat of cement to entire area that will be inserted into the fitting. Allow joints/assembly to cure for 20 minutes, minimum. D. Install per manufacturer's recommendations.

3.9 J-HOOKS

A. Install J-hooks rated for Category 6 cable for support of cabling in accessible ceiling spaces from the telecom room to the outlet location.

B. J-hooks are to be installed on dedicated wires or all thread rods mounted to the structure. J-hooks are not to attach to ceiling grid wires.

END OF SECTION

SECTION 27 05 26

GROUNDING AND BONDING SYSTEM

PART 1 - GENERAL

1.1 SUMMAR

A. This section provides the minimum requirements for the grounding, bonding and protection for all communication systems included within Division 27 and Division 28.

B. This section includes the minimum requirements for the equipment and cable installations in telecommunications rooms, server rooms, and communications/security equipment rooms.

C. Provide grounding and bonding for all communication system components in accordance with references listed in the “Reference Standards” section of these specifications.

D. Provide all labor, materials, and equipment for the complete installation of work called for in the Contract Documents.

E. This section includes minimum requirements for the following:
1. Telecommunications Grounding Busbar (TGB)
2. Telecommunications Main Grounding Busbar (TMGB)
3. Telecommunications Bonding Backbone (TBB)

F. All cables and related terminations, support, and grounding/earthing hardware shall be furnished, installed, wired, tested, labeled, and documented by the telecommunications contractor as detailed in this document.

G. Product specifications, general design considerations, and installation guidelines are provided in this document. If the bid documents are in conflict, this stricter document shall take precedence. The successful vendor shall meet or exceed all requirements for the cable system described in this document.

1.2 RELATED SECTIONS

A. Communications Systems (27 00 00)
B. Security Systems General Requirements (28 05 00)

1.3 SUBMITTALS

A. Provide product data for the following:

1. Manufacturer’s cut sheets, specifications and installation instructions for all products.

1.4 DEFINITIONS

A. Bonding

1. The permanent joining of metallic parts to form an electrically conductive path that will assure electrical continuity and the capacity to conduct safely any current likely to be imposed.

B. Mesh Common Bonding Network (MCBN)

1. The mesh CBN (MCBN) can be readily utilized for efficient direct bonding of equipment and other apparatus to the grounding system. Such an arrangement provides efficient grounding and inter/intra-unit bonding of metal cabinets, racks and miscellaneous metal objects (especially when they are not powered). Additionally, the MCBN ensures grounding reliability of the equipment in the event the equipment grounding conductor of the serving power circuit is compromised or disconnected during maintenance. Electrostatic charge buildup and dissipation is also greatly aided by the multiple grounding paths of the CBN. See Figure 1.

C. Ground/Earth

1. A conducting connection, whether intentional or incidental, by which an electric circuit or equipment is connected to the earth, or to some conducting body of relatively large extent that serves in place of the earth.

D. Retrofit Rack Grounding/Earthing

1. The application of grounding/earthing products and technology where equipment is already deployed and functioning within the equipment rack.

E. Retrofit Cabinet Grounding/Earthing

1. The application of grounding/earthing products and technology where equipment is already deployed and functioning within the equipment cabinet.

1.5 QUALITY ASSURANCE

A. All cable and equipment shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the contract documents shall be subject to the control and approval of the Owner’s Representative. Equipment and materials shall be of the quality and manufacture indicated. The equipment specified is based on the acceptable manufactures listed. Where “approved equal” is stated, equipment shall be equivalent in every way to that of the equipment specified and subject to approval.

B. Strictly adhere to all Building Industry Consulting Service International (BICSI) and Telecommunications Industry Association (TIA) recommended installation practices when installing communications/data cabling.

C. Material and work specified herein shall comply with the applicable requirements of:

1. ANSI/TIA–568-C Generic Telecommunications Cabling for Customer Premises.
2. ANSI/TIA–569-C Telecommunications Pathways and Spaces.
3. ANSI/TIA– 606-B Administration Standard for Telecommunications Infrastructure.
4. ANSI/TIA-607-C Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.
5. CSA C22.1 – Canadian Electrical Code, 2012 6. BICSI – Telecommunications Distribution Methods Manual, 13th Edition, 2014

PART 2 - GENERAL

2.1 GENERAL

A. All materials shall be UL-listed and new, free from damage or defects. Furnish any associated material needed for proper installation of all materials required to complete the project.

B. All grounding/earthing conductors shall be copper.

C. Lugs, HTAPs, grounding strips, and busbars shall be UL Listed and made of premium quality tin-plated electrolytic copper that provides low electrical resistance while inhibiting corrosion. Antioxidants shall be used when making bonding connections in the field.

D. Two-hole lugs shall be used. All lugs shall be irreversible compression and meet NEBS Level 3 as tested by Telcordia. Lugs with inspection windows shall be used in all noncorrosive environments so that connections may be inspected for full conductor insertion.

E. Die index numbers shall be embossed on all compression connections to allow crimp inspection. F. Cable assemblies shall be UL-listed and CSA Certified. Cables shall be a distinctive green or green/yellow in color, and all jackets shall be UL, VW-1 flame-rated.

G. Telecommunications Main Grounding Busbar (TMGB).

1. The primary starting point for the grounding system is the Telecommunications Main Grounding Bus (TGMB). Where practical, it should be located as close as practical to the telecommunications service

entrance or Minimum Point of Entrance (MPOE). However, it must also be in close proximity to the building's Main Electrical Ground (MEG) point. The TGMB shall be bonded to the MEG with a Building Conductor for Telecommunications (BCT) equal in size to the building's ground conductor or up to a maximum of 4/0 AWG. All mating surfaces shall be coated with anti-oxidant compounds. The TMGB shall be sized to allow for a minimum of 30% additional capacity.

2. Outside plant protector blocks shall be bonded to the TMGB along with any shield isolation gap (building side) conductors. All mating surfaces shall be coated with anti-oxidant compounds.

3. All equipment and metal structures located in the space with the TGMB/TGB shall be bonded to the TGMB with a minimum of a # 6 AWG. This would include: Electrical Panel Board, Building Steel (if in close proximity), HVAC equipment (if present), Ladder Rack and Cable Tray, Equipment Racks and Cabinets, Conduit and Pipes (except for short "sleeves").

H. Telecommunications Grounding Busbar (TGB)

1. All Telecommunication Spaces shall be provided with a Telecommunications Ground Busbar (TGB). The TGB shall be bonded to either the TMGB or the TBB with a conductor sized in accordance with Figure 1 or by engineered calculations. Only irreversible crimp or exothermic welds shall be used. All mating surfaces shall be coated with anti-oxidant compounds. The TGB shall be sized to allow for a minimum of 30% additional capacity.

I. Telecommunication Bonding Backbone (TBB)

1. From the TGMB, a Telecommunication Bonding Backbone (TBB) shall extend to all telecommunications spaces. This conductor shall be sized in accordance with Table 1, or by other engineered calculations. Where possible, the TBB should be a single unbroken conductor. If a splice is required, only irreversible crimps or exothermic welds shall be used. Where possible, the TBB should follow the same pathway as the rest of the telecommunication infrastructure. Where two parallel TBBs are used, they shall be connected at the furthest point by a Grounding Equalizer (GE) conductor, which shall be sized the same as the largest TBB. In addition, a GE shall be installed at every third floor (if applicable).

J. Rack Bonding Conductor

1. Individual sections of the Ladder Rack may be bonded together using a # 6 AWG jumper to minimize the number of connections back to the TMGB/TGB. In normal-sized spaces, all racks and cabinets shall be bonded individually with a Rack Bonding Conductor (RBC) to the TMGB/TGB. No "daisy chaining" is permitted. For larger spaces, a Telecommunication Equipment Bonding Conductor (TEBC) may be used, with individual RBCs connected via irreversible crimp connections. Any

surface that is painted or coated must be scraped or sanded to bare metal to ensure a sound electrical connection. All mating surfaces shall be coated with anti-oxidant compounds.

K. Lugs and Crimps

1. Each lug shall have two (1/4” for #6 - 5/8” centers and 3/8” for #2 lugs – 1” centers)

2.2 WALL MOUNT BUSBARS

A. Telecommunications Grounding Busbar (TGB) – 12”

1. Telecommunications Grounding Busbar (TGB) shall be constructed of .25” (6.4 mm) thick solid copper bar.
2. The busbar shall be 2” (50 mm) high and 12” (300 mm) long and shall have 9 attachment points (one row) for two-hole grounding lugs.
3. The busbar shall be pre-assembled with BICSI/ANSI/TIA-607-C hole spacing.
4. Manufacturer: Panduit, Part/Model No. GB2B0306TPI-1

B. Telecommunications Grounding Busbar (TGB) – 24”

1. Telecommunications Grounding Busbar (TGB) shall be constructed of .25” (6.4 mm) thick solid copper bar.
2. The busbar shall be 2” (50 mm) high and 24” (600 mm) long and shall have 19 attachment points (one row) for two-hole grounding lugs.
3. The hole pattern for attaching grounding lugs shall meet the requirements of ANSI-JSTD – 607-B and shall accept 6 lugs with 5/8” (15.8 mm) hole centers and 3 lugs with 1” (25.4 mm) hole centers.
4. The busbar shall include wall-mount stand-off brackets, assembly screws, and insulators creating a 4” (100 mm) standoff from the wall.
5. The busbar shall be UL Listed as grounding and bonding equipment.
6. The busbar shall be pre-assembled with BICSI/ANSI/TIA-607-C hole spacing.
7. Manufacturer: Panduit, Part/Model No. GB2B0514TPI-1.

C. Busbar Label Kit

1. The wall-mounted busbar label kit shall include a printed tag and one flame-retardant cable tie.
2. Manufacturer: Panduit, Part/Model No. LTYK.

2.3 RACK MOUNT GROUNDING BUS BAR

A. Telecommunications Grounding Busbar (TGB) – 19” Rack Mount

1. Mounts to 19” rack rails.
2. Includes twenty #12-24 x 1/2" hex head screws installed; mounting hole sets have 5/8" (15.9mm) spacing; provided with two cage nut bonding studs and four #12-24 bonding nuts.
3. The busbar shall be UL Listed as grounding and bonding equipment.

4. Manufacturer: Panduit, Part/Model No. RGRB19CN

2.4 BONDING ACCESSORY.

A. Armored Cable Grounding Kit

1. The armored cable grounding shall be #6 AWG (16mm2) jumper for armored cable diameter up to 0.84" (21.3mm).
2. The armored cable grounding shall be 24" (609.6mm) in length.
3. The armored cable grounding shall be factory terminated on one end with LCC6 two-hole copper compression lug and the other end with a grounding terminal.
4. The armored cable grounding shall be provided with two each #12-24 and M6 thread-forming screws and a black polypropylene terminal cover.
5. Manufacturer: Panduit, Part/Model No. ACG24K.

B. Two Mounting Hole Ground Terminal Block

1. Ground terminal block shall be made of electroplated tin aluminum extrusion.
2. Ground terminal block shall accept conductors ranging from #14 AWG through 2/0.
3. The conductors shall be held in place by two stainless steel set screws.
4. Ground terminal block shall have two 1/4” (6.4 mm) holes spaced on 5/8” (15.8 mm) centers to allow secure two-bolt attachment to the rack or cabinet.
5. The ground terminal block shall be UL Listed as a wire connector.

C. Two-Hole Compressing Lugs

1. Compression lugs shall have two holes with spacing per standards.
2. Compression lugs shall be manufactured from electroplated tinned copper.
3. Compression lugs shall have two holes spaced on 5/8” (15.8 mm) or 1” (25.4 mm) centers, as stated below, to allow secure two-bolt connections to busbars.
4. Compression lugs shall be sized to fit a specific size conductor, sizes #6 to 4/0, as stated below.
5. Compression lugs shall be UL Listed as wire connectors.
6. Manufacturer: Panduit, LCC Series

D. HTAPs

1. HTAPs
   a. HTAPs shall be selected according to AWG size of run and tap conductors.
   b. Manufacturer: Panduit, HTCT Series
2. HTAP cover

a. Clear covers for HTAPs shall be selected according to HTAP being covered.
b. Manufacturer: Panduit, CLRCVR series

E. Vertical Grounding Busbar

1. The vertical grounding busbar strip shall be 78.65" (2m) length; .67" (17mm) width; .05" (1.27mm) thickness; provided with .16 oz. (5cc) of antioxidant, one grounding sticker and three each #12-24 x 1/2" and M6 x 12mm thread-forming screws.
2. Manufacturer: Panduit, Part/Model No. RGS134-1Y F.

F. Rack Grounding Jumper Kits

1. Rack Grounding Jumper Kit – 60”
   a. The 60” (1.52m) length jumper kit shall be used for bonding individual racks or cabinets into the grounding backbone.
   b. The jumper shall be #6 AWG (16mm²) jumper; 45° bent lug on grounding strip side; provided with .16 oz. (5cc) of antioxidant, two each #12-24 x 1/2", M6 x 12mm, #10-32 x 1/2" and M5 x 12mm thread forming screws and a copper compression HTAP* for connecting to a #6 to #2 awg sized bonding backbone.
   c. Manufacturer: Panduit, Part/Model No. RGCBNJ660P22
2. Rack Grounding Jumper Kit – 72”
   a. The 72” rack jumper (and cabinet) kits shall be used for smaller TDR (5 bays or less) to bond individual rack or cabinet directly back to wall mounted busbar.
   b. One 72" length #6 AWG green wire with a yellow horizontal stripe.
   c. Jumper is pre-terminated on one end with LCC6-14JAWH-L and the other end with LCC6-14JAW-L.
   d. Manufacturer: Panduit, Part/Model No. GJ672UH

G. ESD Wrist Strap.

1. ESD Wrist Strap
   a. Adjustable fabric ESD wrist strap with 6' coil cord, banana plug, 1 mega-ohm resistor, and 4mm snap.
   b. The ESD wrist strap shall be located within reach of all equipment.
   c. Manufacturer: Panduit, Part/Model No. RGESDWS d. Works with ESD Port Panduit RGESD2-1
2. ESD Port for Wrist Strap
   a. The two-hole ESD port shall have 5/8" hole spacing; provided with an ESD protection sticker, .16 oz. (5cc) of antioxidant, and two each #12-24 x 1/2" and M6 x 12mm thread-forming screws.
   b. The ESD port for wrist strap shall be located within reach of all equipment.
   c. The ESD port for wrist strap works with the wrist strap Panduit RGESDWS.

d. Manufacturer: Panduit, Part/Model No. RGESD2-1

H. Bonding Screws.

1. Bonding screws shall be Green thread-forming bonding screws for use to mount equipment that does not have a built-in grounding pad (terminal).
2. Manufacturer: Panduit, Part/Model No RGTBSG-C.

I. Antioxidant Joint Compound

1. Oxide-inhibiting joint compound shall be utilized for copper-to-copper, aluminum-to-aluminum, or aluminum-to-copper connections.

J. C-Type, Compression Taps.

1. Compression taps shall be manufactured from copper alloy.
2. Compression taps shall be C-shaped connectors that wrap around two conductors forming an irreversible splice around the conductors; installation requires a hydraulic crimping too.
3. Compression taps shall be sized to fit specific size conductors, sizes #2 AWG to 4/0, as stated below.
4. Compression taps shall be UL Listed.

K. Pedestal Clamp with Grounding Connector

1. Pedestal clamp shall be made from electroplated tinned copper or bronze. Installation hardware will be stainless steel.
2. Pedestal clamps shall be sized to fit a specific size conductor, size #6 and/or 2/0, as stated below.
3. Pedestal clamp installation hardware shall be sized to attach to round and/or square raised access floor pedestals that are 1-1/8” to 1-3/4” in diameter, as stated below.
4. Pedestal clamp shall provide straight (in-line) or cross (intersection) support for up to two conductors.
5. Pedestal clamp shall be UL Listed as grounding and bonding equipment.

L. Pipe Clamp with Grounding Connector.

1. Pipe clamp shall be made from electroplated tinned bronze. Installation hardware will be stainless steel.
2. Pipe clamp shall be sized to fit up to two conductors ranging in size from #6 to 250 MCM; conductors must be the same size.
3. Pipe clamp installation hardware shall be sized to attach to pipes, sizes 1” to 6” (.75” to 6.63” in diameter), as stated below.
4. Pipe clamp shall be UL Listed as grounding and bonding equipment.

M. Equipment Grounding Jumper.

1. Equipment Grounding Jumper Kit – 24”

a. The equipment grounding jumper kit shall include one 24" long pre-terminated equipment grounding jumper with #10 AWG (6mm²) jumper, bent lug on grounding strip side to straight lug on equipment.
b. The equipment grounding jumper kit shall provide .16 oz. (5cc) of antioxidant and two each #12-24 x 1/2", M6 x 12mm, #10-32 x 1/2" and M5 x 12mm threadforming screws.
c. Manufacturer: Panduit, Part/Model No. RGEJ1024PHY
d. Jumper will be made with UL Listed components.

2. Equipment Grounding Jumper Kit – 36”
a. The equipment grounding jumper kit shall include one 36" long pre-terminated equipment grounding jumper, with #10 AWG (6mm²) jumper, bent lug on grounding strip side to straight lug on equipment.
b. Provided with .16 oz. (5cc) of antioxidant and two each #12-24 x 1/2", M6 x 12mm, #10-32 x 1/2" and M5 x 12mm thread-forming screws.
c. Manufacturer: Model/Part/Model No. RGEJ1036PFY.
d. Jumper will be made with UL Listed components.

PART 3 - EXECUTION

3.1 GENERAL WORKMANSHIP

A. Provide qualified and skilled workmanship. All installations shall be of the highest quality using proper installation methods and per the manufacturer’s instructions and industry standards.
B. A licensed electrical contractor shall perform the installation and termination of the main bonding conductor to the building service entrance ground.
C. Avoid routing grounding/earthing conductors in metal conduits. If the grounding/earthing conductor must be routed through a metal conduit, bond each end of the conduit to the grounding/earthing conductor.

3.2 INSTALLATION

A. Telecommunication Grounding Busbar (TGB)
1. The TGB will be grounded/earthed to the Telecommunications Main Grounding Busbar (TMGB).
2. Each TGB shall be bonded to building steel and the electrical panel serving equipment in the telecommunications space.

B. Rack Grounding Busbar
1. AWG #6 jumpers shall be routed between the electronic equipment and the vertical busbar from each piece of electronic device. The busbar shall be connected to the room ground busbar through a home run designed AWG #6 stranded conductor, or larger as required.

C. Cable Tray/Equipment Racks/Cabinets

1. Attach #6 AWG cable, stranded ground wire with a crimped two-hole lug to the busbar to the following (where applicable):
2. To the cable tray.
3. To each equipment rack using ground lugs.
4. To each equipment cabinet using ground lugs.
5. To provide electrical continuity between rack elements, paint piercing grounding washers shall be used where rack sections bolt together, on both sides, under the head of the bolt, and between the nut and rack.
6. Patch panels will be bonded to racks using bonding screws.
7. Other components as necessary.

D. Riser Cable

1. Ground all riser cables usinga grounding spade.

E. Wall-Mount Busbars

1. Attach busbars to the wall in an approved location with appropriate hardware according to the manufacturer's installation instructions.
2. Conductor connections to the TMGB or TGB shall be made with two-hole bolt-on compression lugs sized to fit the busbar and the conductors.
3. Each lug shall be attached with stainless steel hardware after preparing the bond according to manufacturer recommendations and treating the bonding surface on the busbar with antioxidants to help prevent corrosion at the bond.
4. The wall-mount busbar shall be bonded to the ground as part of the overall Telecommunications Bonding and Grounding System.

F. Ground Terminal Block

1. Every rack and cabinet shall be bonded to the TMGB or TGB.
2. Minimum bonding connection to racks and cabinets shall be made with a rack-mount two-hole ground terminal block sized to fit the conductor and rack and installed according to manufacturer recommendations.
3. Remove paint between rack/cabinet and terminal block, clean surface and use antioxidants between the rack and the terminal block to help prevent corrosion at the bond.

G. Pedestal Clamp

1. At minimum, bond every sixth raised access floor pedestal with a minimum #6 AWG conductor to the TMGB or TGB using a pedestal clamp sized to fit the pedestal and the conductor and installed according to the manufacturer's recommendations.
2. If pedestal clamps are used to construct a signal reference grid, bond the signal reference grid to the TMGB or TGB and bond each rack and/or cabinet to the signal reference grid using a compression tap or similar non-reversible bonding component sized to fit both conductors.

3. Remove paint between the pedestal and pedestal clamp, clean the surface and use antioxidants between the pedestal and the clamp to help prevent corrosion at the bond.
4. Remove insulation from conductors where wires attach to the pedestal clamp.

H. Pipe Clamp

1. Bond metal pipes located inside the TDR with a minimum #6 AWG conductor to the TMGB or TGB using a pipe clamp sized to fit the pipe and the conductor and installed according to the manufacturer's recommendations.
2. Remove paint between the pipe and pipe clamp, clean the surface, and use antioxidants between the pipe and the clamp to help prevent corrosion at the bond.
3. Remove insulation from conductors where wires attach to the pipe clamp.

I. Fire Penetrations

1. Bond fire penetration systems (STI EZ Path & Hilti Speed Sleeve) entering or located inside the TDR with a minimum #6 AWG conductor to the TMGB or TGB according to the manufacturer’s recommendations.

J. Equipment Ground Jumper Kit

1. Bond the equipment to a vertical rack-mount busbar or ground bar using a ground jumper as per the manufacturer’s recommendations.
2. Clean the surface and use antioxidants between the compression lugs on the jumper and the rack-mount busbar or ground bar to help prevent corrosion at the bond.

END OF SECTION

SECTION 27 13 00

COMMUNICATION BACKBONE CABLING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included:
   1. Fiber Optic Cabling
   2. Fiber Patch Panels
   3. Fiber Optic Misc Components

1.2 RELATED SECTIONS

A. Contents of Division 27, Communications General Requirements apply to this Section.

B. Use this Section in conjunction with other Division 27, Communications specifications and related Contract Documents to establish the total general requirements for the project communications systems and equipment.

1.3 REFERENCES AND STANDARDS

A. References and Standards as required by Section 27 00 00, Communications Basic Requirements General Requirements.

B. Other applicable references and standards include:

   1. ANSI/TIA-598-C-2005: Optical Fiber Cable Color Coding.
   2. TIA/EIA 455-21-A: Mating Durability for Fiber Optic Interconnecting Devices
   3. ANSI/TIA-526-14-B: Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant; IEC 61280-4-1 edition 2, Fiber-Optic Communications Subsystem Test Procedure- Part 4-1: Installed cable plant-Multimode attenuation measurement
   4. ANSI/TIA/EIA-526-7: Optical Power Loss Measurements of Installed Single-mode Fiber Cable Plant
   5. UL 910: UL Standard for Safety Test for Flame-Propagation and Smoke-Density Values for Electrical and Optical-Fiber Cables used in Spaces Transporting Environmental Air
   6. UL 16: Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts

C. Meet requirements of NFPA 780, Standard for the Installation of Lightning Protection Systems.

1.4 SUBMITTALS

A. Submittals as required by Section 27 00 00, Communications Basic Requirements, General Requirements.

B. Shop Drawings

C. In addition, provide:

1. Procedures for cable labeling and identification, long term documentation methods and numbering scheme in accordance with ANSI/TIA/EIA-606A.
2. A copy of certified installer certificates and warranty certificates for products proposed.

1.5 QUALITY ASSURANCE

A. Quality assurance as required by Section 27 00 00, Communications Basic Requirements, General Requirements.

B. Manufacturers to have a recognized certified installer program in place for system components proposed. Cable will be approved with manufacturer system installed.

1.6 WARRANTY

A. Warranty of materials and workmanship as required by Section 27 00 00, Communications Basic Requirements General Requirements.

B. In addition, provide:

1. Labor, materials and documentation according to selected manufacturer requirements necessary to ensure that the Owner will be furnished with an Extended Product Warranty and Application Assurance of a minimum of 25-years in length. The Application Assurance Warranty will cover the failure of the wiring system to support current or future applications that are designed for the link/channel specifications of ANSI/TIA/EIA-568-C.1. These applications include, but are not limited to, 10BASE-T, 100 BASE-T, 1000BASE-T, 10GBASE-T and 155 Mb/s ATM.
2. A warranty on the physical installation.
3. Necessary documentation required by the manufacturer immediately following 100 percent testing of cables.

C. Administer the warranty process with the responsible manufacturer's representative. Provide warranty directly to the Owner from the manufacturer. Ensure that the manufacturer provides the Owner with the appropriate warranty certification within 90 calendar days of the final project completion.

1.7 SYSTEM DESCRIPTION

A. Provide a standards-based cable system to serve horizontal communication systems requirements as specified and as shown on Drawings. Closely follow ANSI/TIA/EIA, IEEE and ISO standards.

B. The horizontal distribution subsystem refers to intrabuilding twisted-pair communications cabling connecting telecommunications rooms (IDFs) to

telecommunications outlets (TOs) located at individual work areas and consists of the following:

1. Category 6 for work area outlets and for wireless access points.
2. The horizontal system includes cables, jacks, patch panels and patch cords, as well as the necessary support systems, such as cable managers and faceplates.
3. Cables are routed through conduit, spaces below raised floors, open ceiling areas, non-ventilated spaces above ceiling tile and through plenum air-handling spaces above ceiling tile.
4. Furnish and install materials necessary for a complete and working system.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Single Mode OS2 Fiber Optic Cable:
   1. The fiber cable shall be a 9/125µm (0S2) single -mode indoor/outdoor loose-tube interlocking armored cable.
   2. The fiber cable shall be six (6) strand.
   3. The fiber cable shall be suitable for indoor/outdoor environments.
   4. The fiber cable shall be Plenum (OFCP)
   5. The fiber cable material shall be PVC.
   6. Acceptable Manufacturers: Panduit, Corning Commscope

B. 1U Rack-Mount Enclosure:
   1. Rack Units
   2. The fiber optic housing shall be 1 -rack (1U) units that holds up to 3 adapter panels.
   3. The patch panel dimensions shall be 1.74" H x 17.00" W x 14.20" D
   4. Manufacturer: Panduit, Part/Model No. FRME1U

C. Fiber Optic Panels
   1. 12-F SM LC fiber adapter panel, 0S1/0S2, filled with six LC duplex single-mode fiber optic adapters, color Blue.
   2. Manufacturer: Panduit, Part/Model No. FAP6WBUDLCZ

2.2 PERFORMANCE

At a minimum, the communications cabling system shall support data network protocols/services at rates up to 10 Gbps. Fiber to 10Gbps. It shall support 10 Mb, 100 Mb, 1 Gb, and 10 Gb Ethernet, ATM (at OC-3 and OC-12) and other network protocols.

2.3 PATCH PANELS

1. Fiber Patch Panels: Patch panels shall be used to terminate the fiber backbone cables and shall be sized (port/fiber count and rack units) as shown on the Drawings. Fiber patch panels shall consist of enclosures pre -assembled with connector panels, blank connector panels (for unused connector slots), strain relief, rack or wall mountable as shown on the Drawings. Enclosures/housings shall be sized to accommodate 100% of fiber strands installed. Fiber patch panels shall be complete with fiber optic receptacle adapters and with all incidental materials necessary for mounting.
2. Cable Support Bar/Strain Relief: Provide per manufacturer recommendations.

2.4 CONNECTORS

1. Fiber Connectors: Fiber connectors shall be LC connectors. Fiber connectors shall meet or exceed the transmission requirements for connecting hardware as specified in the ANSI/TIA 568-C standards.

2.5 BACKBONE CABLE

General: Cable installed home -run from IDF to MDF as shown on the Drawings, shall be Plenum (CMP) rated unless installed in conduit from termination point to termination point Cables shall be manufactured by the selected communications cabling Manufacturer. Provide cable in types, sizes, and quantities as shown on the Drawings.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

A. The Contractor shall pay particular attention to and comply with the applicable portions

B. of the following:

1. TIA/EIA-568-C: Commercial Building Telecommunications Cabling Standard
2. TIA/EIA-606-A: Administration Standard for Commercial Telecommunications Infrastructure
3. J -STD -607-B: Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
4. TIA/EIA-455: Fiber Optic Test Standards
5. TIA/EIA-526: Optical Fiber Systems Test Procedures
6. IEEE 802.3 (series): Local Area Network Ethernet Standard, including the IEEE 802.3z Gigabit and 802.3ae 10 Gigabit Ethernet Standard
7. BICSI: BICSI Telecommunications Cabling Installation Manual

8. Manufacturer Recommendations and Installation Guidelines

C. Testing Procedures:

1. The contractor shall detail proposed test plan for each cable type, including equipment to be used, test frequencies and wavelengths, etc.
2. Test results shall include record of test wavelengths, attenuation measurements, fiber cable type, fiber strand and overall cabling I.D. number, measurement direction, test equipment type, model and serial number, date, reference setup and crew member name(s).
3. Prior to installation:

   Visually inspect reels and packaging for damage.
   Review cable manufacturer's test report for each reel of cable provided to confirm performance. Perform testing at contractor option to verify performance and cable condition.
4. Post-installation testing shall include:

   Attenuation (Insertion Loss) Testing
   OTDR - All cables that contain splices and any cable which fail Attenuation testing.
5. End-to-End Optical Attenuation (aka Insertion Loss)

   Measure Optical Attenuation per TIA/EIA-526-7 (Single-mode)
   Test multimode fibers at 850 ± 30-nm and 1300 ± 20-nm wavelengths.
   Test single-mode fibers at 1310 ± 10-nm and 1550 ± 10-nm wavelength.
   Tests shall be performed in both transmission directions.
   Fiber lengths less than or equal to 300 ft shall test to < 2.0 dB loss.
   Fiber lengths greater than 300 feet shall test to loss value less than link loss budget for number of installed connector mated pairs and optical fiber splices, if applicable.
6. Optical Time Domain Reflectometer (OTDR)

   Test single-mode fibers at 1310 ± 10-nm wavelength.
   Traces shall be examined for continuity and anomalies.
   Launch cord shall be minimum 100 ft long, or as noted by test equipment manufacturer.
7. The OTDR(s) shall incorporate high-resolution optics optimized for viewing of short cable sections.
8. Access Jumpers of adequate length to allow viewing of the entire length of the cable, including the connectors at the launch and receive end, shall be used.
9. OTDR traces revealing a point discontinuity greater than 0.2-dB in a Multimode fiber, or 0.1-dB in a Single-mode fiber (if applicable) at any of the tested wavelengths or any discontinuity showing a reflection at that point shall be a valid basis for rejection of that fiber.

D. Labeling:

1. Label backbone cables using a machine printed label at each end of the cable at approximately 6-inches of the termination point. Do not use handwritten labels.
2. Label patch panel ports and TO ports with the cable identifier.
3. Labels to be Telecom Room number, patch panel number and patch panel port number. Provide the final cable ID matrix to the Architect for approval one week prior to cable installation.

Note labeling information on the record drawings.

E. Commissioning:

Refer to Section C above and execute the full test as outlined. Upon completion, prepare and deliver a comprehensive test report to the client, ensuring that all passing results are documented.

END OF SECTION

SECTION 27 15 00

COMMUNICATION HORIZONTAL CABLING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included:
   1. Station Cabling
   2. Modular Jacks
   3. Work Area Outlets
   4. Patch Panels
   5. Patch Cords

1.2 RELATED SECTIONS

A. Contents of Division 27, Communications General Requirements apply to this Section.

B. Use this Section in conjunction with other Division 27, Communications specifications and related Contract Documents to establish the total general requirements for the project communications systems and equipment.

1.3 REFERENCES AND STANDARDS

A. References and Standards as required by Section 27 00 00, Communications Basic Requirements General Requirements.

B. Meet requirements of NFPA 780, Standard for the Installation of Lightning Protection Systems.

1.4 SUBMITTALS

A. Submittals as required by Section 27 00 00, Communications Basic Requirements, General Requirements.

B. In addition, provide:
   1. Procedures for cable labeling and identification, long-term documentation methods and numbering scheme in accordance with ANSI/TIA/EIA-606A.
   2. A copy of certified installer certificates and warranty certificates for the products proposed.

1.5 QUALITY ASSURANCE

A. Quality assurance is required by Section 27 00 00, Communications Basic Requirements, and General Requirements.

B. Manufacturers are to have a recognized certified installer program in place for the system components proposed. The cable will be approved with the manufacturer's system installed.

1.6 WARRANTY

A. Warranty of materials and workmanship as required by Section 27 00 00, Communications Basic Requirements General Requirements.

B. In addition, provide:
   1. Labor, materials, and documentation according to selected manufacturer requirements are necessary to ensure that the Owner will be furnished with an Extended Product Warranty and Application Assurance of a minimum of 25 years in length. The Application Assurance Warranty will cover the failure of the wiring system to support current or future applications that are designed for the link/channel specifications of ANSI/TIA/EIA-568-C.1. These applications include, but are not limited to, 10BASE-T, 100 BASE-T, 1000BASE-T, 10GBASE-T and 155 Mb/s ATM.
   2. A warranty on the physical installation.
   3. Necessary documentation is required by the manufacturer immediately following 100 percent testing of cables.

C. Administer the warranty process with the responsible manufacturer's representative. Provide warranty directly to the Owner from the manufacturer. Ensure that the manufacturer provides the Owner with the appropriate warranty certification within 90 calendar days of the final project completion.

1.7 SYSTEM DESCRIPTION

A. Provide a standards-based cable system to serve horizontal communication systems requirements as specified and as shown on Drawings. Closely follow ANSI/TIA/EIA, IEEE and ISO standards.

B. The horizontal distribution subsystem refers to intrabuilding twisted-pair communications cabling connecting telecommunications rooms (IDFs) to telecommunications outlets (TOs) located at individual work areas and consists of the following:
   1. Category 6 for work area outlets and for wireless access points.
   2. The horizontal system includes cables, jacks, patch panels and patch cords, as well as the necessary support systems, such as cable managers and faceplates.
   3. Cables are routed through conduit, spaces below raised floors, open ceiling areas, non-ventilated spaces above ceiling tile and through plenum air-handling spaces above ceiling tile.
   4. Furnish and install materials necessary for a complete and working system.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Category 6Cabling:
   1. Category 6/Class E cable with FEP Plenum (CMP) insulation.
   2. Bare copper wire insulated with FEP. Two primaries twisted together to form a pair
      with four pairs cabled together with a central filler.
   3. Copper patch panels shall be CAT6 Panels.
   4. The contractor shall provide all cable assemblies (patch cords) and cross-connects as required for a complete system.
   5. Prysmian Group, no approved equal.

B. Modular Jacks:
   1. Category 6, RJ45, 10 Gb/s, 8 -position, 8 -wire universal module.
   2. Mini-Com Punchdown Module (BLUE).
   3. Manufacturer: Panduit, Part/Model No. CJ688TGBL

C. Modular Patch Panels:
   1. Mini-Com 48 port 2U, High Density. Populate with Category 6 jacks below
   2. Manufacturer: Panduit, Part/Model No. CPPL48WBLY

D. Surface Facelates:
   1. The surface Mount Box shall be two-port white
   2. Manufacturer: Panduit CBX2WH-AY

E. Patch Cords:
   1. Patch Cords shall be Category 6/Class E, UTP constructed of 28 AWG stranded copper cables with an enhanced performance modular plug on each end.
   2. Copper conductors in patch cable shall be twisted in pairs and separated by a quadrant separator.

2.2 WORK AREA OUTLETS

A. Flush Mounted Faceplate:
   1. One-port faceplate with mounting lugs for wall phone, constructed from high impact thermo-plastic, mounts within a single-gang wall box.
   2. Two-port faceplate, constructed from high impact thermo-plastic, with recessed label fields, mounts within a single-gang wall box.
   3. Four-port faceplate, constructed from high impact thermo-plastic, with recessed label fields, mounts within a single-gang wall box.

B. Dust Covers: Single port dust cover for modular openings, color to match faceplate.

2.4 PATCH PANELS

A. Category 6 Modular Patch Panels: 24 port, eight-position modular jack panel, high density, 6 port modules, Category A, IDC terminals, T568A/B wiring scheme.

B. Category 6 Modular Patch Panels: 48 port, eight-position modular jack panel, high density, 6 port modules, Category 6, IDC terminals, T568A/B wiring scheme.

2.5 PATCH CORDS

A. Category 6 Modular Patch Cords: Factory terminated double-ended, eight-position to eight-position, modular, stranded conductors, 4 pair, color, blue. 3-feet and 5-feet.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

A. Miscellaneous Hardware: Provide supporting hardware, cable ties, labels, pull rope, and other miscellaneous hardware for a complete and operable system.

B. Provide like items from one manufacturer, such as jacks, patch panels, equipment connection cords, and wall plates.

C. Horizontal cabling includes cables, jacks, patch panels and patch cords, as well as the necessary support systems, such as cable managers and faceplates.

D. Furnish and install materials necessary for a complete and working system.

E. The contractor must be a Certified Installer for the selected manufacturer prior to, during, and through the completion of the system installation and must be able to provide the manufacturer's extended warranty.

F. Perform work in a neat and workmanlike manner.

G. Install cable after the interior of building has been physically protected from the weather and mechanical work likely to damage cabling has been completed.

H. Before installing cabling, ensure cable pathways are completely and thoroughly cleaned.
   1. Inspect conduit, wireway, cable trays and innerduct systems prior to installation.
   2. Swab any additional enclosed raceway and innerduct systems.

I. Provide protection for exposed cables where subject to damage. Provide abrasion protection for any cable or wire bundles, which pass through holes or across edges of sheet metal.

J. Install cable ties and other cable management clamps via hand so it fits snugly. Do not over tighten or use mechanical tools which could compress, crimp, or otherwise change the physical characteristics of the cable jacket or distort the placement of twisted-pair components. Replace any cable exhibiting stresses due to over tightening of cable management devices.

K. Where possible, route cables in overhead cable trays and inside wire management systems attached to the equipment cabinets and racks. Use Velcro ties or ducts to restrain cabling installed outside of wire management systems on racks or in cabinets.

L. Co-install a pull cord (nylon; 1/8-inch minimum) with cable installed in conduit.

M. Limit cable raceway fill to less than the TIA/EIA-569-B maximum fill for the particular raceway type.

N. If a J-hook or trapeze system is used to support cable bundles, support horizontal cables at a maximum of 48- to 60-inch intervals. Cables are prohibited to rest on acoustic ceiling grids or panels.

O. Bundle horizontal distribution cables in groups of no more than 50 cables. Cable bundle quantities in excess of 50 cables may cause deformation of the bottom cables within the bundle and degrade cable performance.

P. Install cable above fire-sprinkler systems and ensure that the cable does not attach to the system or any ancillary equipment or hardware. Install cable system and support hardware such that it does not obscure any valves, fire alarm conduit, boxes, or other control devices.

Q. Do not attach cables to ceiling grid or lighting fixture wires. Where support for horizontal cable is required, install appropriate carriers to support the cabling.

R. Any cable damaged or exceeding recommended installation parameters during installation will be replaced by the contractor prior to final acceptance at no cost to the Owner.

S. Determine requirements for plenum-rated cable and devices. When in doubt, seek determination in writing by Authority Having Jurisdiction (AHJ) prior to ordering. Without written confirmation from the AHJ, Contractor to assume that a plenum rating is required. T. Unshielded Twisted Pair Cable Installation Practices:

1. Install cable in accordance with manufacturer's recommendations and best industry practices.
2. Install cables in continuous lengths from origin to destination (no splices).
3. Do not exceed the cable's minimum bend radius and maximum pulling tension.
4. Install unshielded twisted pair cable so that there are no bends smaller than four times the cable outside diameter at any point in the run and at the termination field.
5. Do not exceed 25-lbf pulling tension on 4-pair UTP cable.

U. Provide the following minimum separation distances between pathways for copper communications cables and power wiring of 480 volts or less:
   1. Open or Nonmetal Communications Pathways:
      a. 12- inches from electric motors, fluorescent light fixtures and unshielded power lines carrying up to 3 kVA.
      b. 36- inches from electrical equipment and unshielded power lines carrying more than 5 kVA.
      c. 48- inches from large electrical motors or transformers.
   2. Grounded Metal Conduit Communications Pathways:
      a. 2-1/2- inches from electrical equipment and unshielded power lines carrying up to 2 kVA.
      b. 6- inches from electrical equipment and unshielded power lines carrying from 2 kVA to 5 kVA.
      c. 12- inches from electrical equipment and unshielded power lines carrying more than 5 kVA.
      d. 3- inches from power lines enclosed in a grounded metal conduit (or equivalent shielding) carrying from 2 kVA to 5 kVA.
      e. 6- inches from power lines enclosed in a grounded metal conduit (or equivalent shielding) carrying more than 5 kVA.

V. Unshielded Twisted Pair Termination:
   1. Coil cables in the in-wall or surface-mount boxes if adequate space is present to house the cable coil without exceeding the manufacturers bend radius. In hollow wall installations where box-eliminators are used, excess wire can be stored in the wall. Do not store more than 12-inches of UTP in an in-wall box, modular furniture raceway, or insulated walls. Loosely coil and store excess slack in accessible ceiling space above each drop location when there is not enough space present in the outlet box to store slack cable.
   2. Dress and terminate cables in accordance with the recommendations made in the ANSI/TIA/EIA-568-C.1 document.
   3. Terminate four pair cables on the jack and patch panels using T568B wiring scheme.
   4. Maintain the cable jacket within 1-inch of the termination point.
   5. Do not exceed 0.5-inch of pair untwist at the termination point.
   6. Do not exceed four times the outside diameter of the cable in the termination area for bend radiance compliance.
   7. Neatly bundle and dress cables to their respective panels or blocks. Feed each panel or block by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.

W. Testing Procedures:
   1. Test cables and termination hardware for defects in installation and to verify cabling system performance under installed conditions according to

the requirements of ANSI/TIA/EIA-568-C. Verify pairs of each installed cable prior to system acceptance. Repair or replace any defect in the cabling system installation, including but not limited to cable, connectors, feed-through couplers, patch panels and connector blocks in order to ensure 100 percent useable conductors in cables installed.

2. Test cables in accordance with this document, the ANSI/TIA/EIA standards, the manufacturer's procedures and best industry practice. If any of these are in conflict, bring any discrepancies to the attention of the project team for clarification and resolution.
3. Test Unshielded Twisted Pair Cables as Follows:
    a. Test twisted-pair copper cable links for continuity, pair reversals, shorts, opens and performance as indicated below. Additional testing is required to verify Category performance. Test horizontal cabling using a Level IV test unit for Category 6 performance compliance as specified in ANSI/TIA/EIA-568 C.
    b. Continuity: Test each pair of each installed cable using a test unit that shows opens, shorts, polarity and pair-reversals, crossed pairs and split pairs. Test shielded/screened cables with a device that verifies shield continuity in addition to the above stated tests. Record the test as pass/fail as indicated by the test unit in accordance with the manufacturers' recommended procedures and referenced to the appropriate cable identification number and circuit or pair number. Correct or repair any faults in the wiring and retest the cable prior to final acceptance.
    c. Length: Test each installed cable link for installed length using a TDR type device. Test the cables from patch panel to patch panel, block to block, patch panel to outlet or block to outlet as appropriate. The cable length will conform to the maximum distances set forth in the ANSI/TIA/EIA-568-C Standard. Record cable lengths, referencing the cable identification number and circuit or pair number. For multipair cables, record the shortest pair length as the length for the cable.
4. Follow the Standards requirements established in ANSI/TIA/EIA-568-C.
5. Perform testing with a Level IV tester. The basic tests required are:
    a. Wire Map
    b. Length
    c. Attenuation
    d. NEXT (Near-end Crosstalk)
    e. Return Loss
    f. ELFEXT Loss
    g. Propagation Delay
    h. Delay Skew
    i. PSNEXT (Power Sum Near-end Crosstalk Loss)
    j. PSELFEXT (Power Sum Equal Level Far-end Crosstalk Loss)
6. Provide test results in electronic format, with the following minimum information per cable:

a. Circuit ID
b. Test Result, “Pass” or “Fail”
c. Date and Time of Test
d. Project Name

7. Provide the owner representative with an electronic copy of the test results, in the native tester software format, along with the printed test results.

X. Labeling:
1. Label horizontal cables using a machine-printed label at each end of the cable at approximately 6 inches of the termination point. Do not use handwritten labels.
2. Label patch panel ports and TO ports with the cable identifier.
3. Labels to be Telecom Room number, patch panel number and patch panel port number. Provide the final cable ID matrix to the Architect for approval one week prior to cable installation.
4. Note labeling information on the record drawings.

Y. Coordination of Conditions: Structured cabling for wireless access points of a given description may be used in more than one type of ceiling or wall structure. Coordinate ceiling construction, wall types, recessing depth and other construction details prior to ordering special components indicated in the details for shipment. Where materials supplied do not match ceiling construction replace them at no cost to Owner.

3.2 STATION CABLING

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's instructions and recommendations.

3.3 MODULAR JACKS

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's instructions and recommendations.

3.4 WORK AREA OUTLETS

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's instructions and recommendations.

3.5 PATCH PANELS

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's instructions and recommendations.

3.6 PATCH CORDS

Field-terminated patch cords and jumpers are not allowed. At a minimum, provide equipment connection cords for one-half of the cables installed at each

termination point. For example: A telecommunications outlet with four Category 6 cables installed would require two Category 6 equipment connection cords at the work area outlet and two Category 6 equipment connection cords in the telecommunications equipment room for a total of four Category 6 equipment connection cords.

3.7 COMMISSIONING

Refer to Section 3.1(W) above and execute the full test as outlined. Upon completion, prepare and deliver a comprehensive test report to the client, ensuring that all passing results are documented.

END OF SECTION

SECTION 28 10 00

VIDEO SURVEILLANCE SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included:
   1. Video Management System (VMS)
   2. Video Recording System
   3. Cameras and Lenses
   4. Camera Enclosures and Mounts
   5. Cable, Wire, and Accessories

1.2 RELATED SECTIONS

A. Contents of Division 28 and Division 27, Electronic Safety and Security, General Requirements apply to this Section.

1.3 REFERENCES AND STANDARDS

A. References and Standards as required by Division 28, Electronic Safety and Security and Division 01, General Requirements.

1.4 SUBMITTALS

A. Submittals as required by Division 28, Electronic Safety and Security and Division 01, General Requirements.

B. Submit a questionnaire for Owner programming requirements.

1.5 QUALITY ASSURANCE

A. Quality assurance as required by Division 28, Electronic Safety and Security and Division 01, General Requirements.

1.6 WARRANTY

A. Warranty of materials and workmanship as required by Division 28, Electronic Safety and Security, General Requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. PTZ Camera:
   1. FLIR PTZ (Owner furnished, contractor installed, and configured by others)

B. Client Workstation

1. FLIR (Model: USS Client Workstation, Dual Monitor)

C. Monitor
   1. Dell 24” Monitor(S2421H)
   2. Or approved equivalent

D. UPS
   1. APC(SMX2200MRLVUS)
   2. Or approved equivalent

E. POE Extender.
   1. Vigitron (Vi30002U)
   2. Or approved equivalent.

F. Power Surge Protector
   1. L-COM(ALS-CAT6HPW)
   2. Or approved equivalent

G. Cable, Wire, and Accessories: Category cabling to match Section 27 15 00, Communications Horizontal Cabling.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

A. Provide new cameras per drawings.

B. Position cameras according to drawings. Once the project begins, confirm each camera location and field of view with a signature from the Owner's designated representative before the camera mount is secured in place.

C. Provide service loops at the headend and camera equipment locations for each cable run. Neatly dress and tie wrap cabling. Label cables with laser, inkjet or machine-printed labels. Do not use handwritten labels.

D. Testing Requirements: Perform electrical and mechanical tests recommended by equipment manufacturer and required in this specification. Bench settings are not acceptable. Hold final tests and acceptance in the presence of the Owner and manufacturer's representative. Supply personnel and required auxiliary equipment for this test without additional cost to the owner. Allow 5-day "burn-in" time prior to preliminary testing

E. Training Requirements:
   1. Provide two hours of training in operational instruction and two hours of maintenance instruction. Training seminars are to be hands-on instruction held at the Owner's facility.

2. Provide the Owner with the manufacturer's operating instructions.
3. Provide factory-trained representatives to instruct Owner's personnel in the operation of system equipment.
4. Provide the Owner's Representative with a training plan and training checklist two weeks before planned training according to the manufacturer's instructions.
5. Provide comprehensive training for designated Owner Representative for operation, maintenance and troubleshooting of surveillance system.
6. The security contractor will fully explain and demonstrate the operation, function, and override of the surveillance system, including, but not limited to, Camera sequencing, software operation, remote access, programming, priority levels, and monitoring station.

F. Cutting and Patching: Responsible for cutting, fitting, or patching that may be required to complete work.

3.2 SYSTEM TEST

A. Video Camera Test
   1. Test camera resolution and frame rate.
   2. The test camera video feed is stable and doesn't have any distortion.
   3. Move the PTZ camera to make sure it performs within specified parameters.

B. Workstation/UPS Test

1. Live viewing: Verify each camera's live video feed at the monitoring workstation.

2. Workstation controllability: Verity recording functionality and playback functionality are within specified parameters.

3. UPS: Unplug power from the outlet and verify that UPS provides sufficient power to the workstation and that workstation functionality is unaffected. Leave the power disconnected for 15 minutes and record the power percentage lost. Based on the findings, calculate if UPS will sustain two hours of workstation operation.

3.3 CABLE, WIRE AND ACCESSORIES

A. Reference 3.1, General Installation Requirements.

B. Install per manufacturer's instructions and recommendations.

3.4 COMMISSIONING

Refer to Section 3.2 above and execute the full test as outlined. Upon completion, prepare and deliver a test report to the client, ensuring that all passing results are documented.

END OF SECTION

SECTION 28 30 00

PANIC BUTTON SYSTEM

PART 1 - GENERAL

1.1 SUMMARY
- A. Work Included:
  1. Panic Button System
  2. Cable, Wire and Accessories

1.2 RELATED SECTIONS
- A. Contents of Division 28, Electronic Safety and Security, General Requirements apply to this Section.

1.3 REFERENCES AND STANDARDS
- A. References and Standards as required by Division 28, Electronic Safety and Security, and General Requirements.

1.4 SUBMITTALS
- A. Submittals as required by Division 28, Electronic Safety and Security and General Requirements
- B. Submit a questionnaire for Owner programming requirements.

1.5 QUALITY ASSURANCE
- A. Quality assurance as required by Division 28, Electronic Safety and Security, and Division 01, General Requirements.

1.6 WARRANTY
- A. Warranty of materials and workmanship as required by Division 28, Electronic Safety and Security, General Requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Intercom Sub Station:
  1. AIphone (IX-NVP2)
  2. Or approved equivalent.

B. Intercom Master Station:
  1. AIphone (IX-RS-B)
  2. Or approved equivalent.

C. LED Strobe Lights:
1. Seco Larm (SL-1301)
2. Or approved equivalent.

D. Cable, Wire, and Accessories: Category cabling to match Section 27 15 00, Communications Horizontal Cabling.

2.4 UNINTERRUPTIBLE POWER SUPPLY (UPS)

A. Connect the system to UPS to support 2 hours of continuous functionality between panic button and master station with a strobe light.

2.5 CABLE, WIRE AND ACCESSORIES

A. Install electrical and signal cables required for correct operations in conduit from the controller or network switch to camera.

B. Copper Cabling:
1. 4-pair Category 6 shielded twisted pair for IP/POE master station and wall-mounted panic button. installations. Match brand manufacturer of telecom cable installed under Division 27 Communications.
2. One pair 18 gauge cable from MDF1-100 to the master station and strobe light.
3. Cabling to be plenum rated.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

A. Provide new equipment and install per drawings.

B. The system is IP-based and requires configuration. Request necessary information from the client's IT department and configure the system per the following use cases.

1. When the red mushroom button on the Intercom Sub Station is pressed in the security booth, the LED strobe light shall be activated in the Admin Monitor Room. The LED strobe light shall activate a loud audible signal in the Admin Monitor Room to warn the security personnel.

2. If necessary, two-way communication shall be established from the Intercom substation in the security booth and the Intercom Master Station in the Admin Monitor Room.

C. Testing Requirements: Perform electrical and mechanical tests recommended by equipment manufacturer. Bench settings are not acceptable. Hold final tests and acceptance in the presence of the Owner's representative.

D. Training Requirements:
1. Provide 1 hour of training in operational instruction. Training seminars are to be hands-on instruction held at the Owner's facility.
2. Provide the Owner with the manufacturer's operating instructions.
3. Provide comprehensive training for designated Owner representatives for operation, maintenance, and troubleshooting of surveillance system.
4. The security contractor will fully explain and demonstrate the operation, function, and override of the panic button system.

E. Cutting and Patching: Responsible for cutting, fitting, or patching that may be required to complete work.

3.2 CABLE, WIRE AND ACCESSORIES

A. Reference 3.1, General Installation Requirements.
B. Install per manufacturer's instructions and recommendations.

3.3 COMMISSIONING

Refer to Section 3.1(B) above and execute each step. Make sure the system functions per specified steps and document all findings in a commissioning report. Unplug the power cord from UPS from the security booth and from Admin building MDF1- 100 and conduct two use cases described above (B1 and B2), and record the findings. Upon completion, prepare and deliver a test report to the client, ensuring that all passing results are documented.

End of Section

SECTION 32 12 36

SLURRY COAT

PART 1 – GENERAL Division 0 and 1 shall apply to this section.

1.01 SUMMARY: Apply slurry coatings in designated areas.

A. Work In This Section: Principal items include:
   1. Environmental conditions.
   2. Placement of sealer.

1.02 RELATED SECTIONS:

A. Asphalt paving repair requirements shall be per Caltrans Standard Specifications prior to applying slurry seal coatings.

1.03 MEASUREMENT AND PAYMENT:

A. General: Measurement and payment for asphalt emulsion sealer will be by the lump-sum method or by the unit-price method as determined by the listing of the bid item for asphalt emulsion sealer indicated in the Bid Schedule of the Bid Form.

B. Lump Sum: If the Bid Schedule indicates a lump-sum for concrete reinforcement, the lump-sum method of measurement and payment will be in accordance with Contract Specifications Section 01 20 00, Price and Payment Procedures.

C. Unit Price:
   1. If the Bid Schedule indicates a unit price for concrete reinforcement, the unit- price method of measurement and payment will be as follows:

      a. Measurement: Asphalt emulsion sealer will be measured for payment by the ton or square foot, as designated in the Contract item, for each type of asphalt emulsion sealer placed in the Work.
      b. Payment: Asphalt emulsion sealer will be paid for at the indicated Contract unit prices for the computed quantities as determined by the measurement method specified in Article 1.03.C herein.

1.01 REFERENCES

A. State of California, Department of Transportation (Caltrans) Standard Specifications, latest edition:
   1. Section 37 Bituminous Seals

1.02 TYPES OF ASPHALT EMULSION SEALER

A. Asphalt emulsion sealers are designated as Seal Coats and Slurry Seal. Type of Sealer shall be as indicated as in Contract Documents.

1.03 SUBMITTALS

A. General: Refer to Contract Specification Section 01 33 00, Submittal Procedures, for submittal requirements and procedures.

B. Emulsion Sealer: Submit product datasheet and manufacturer's application recommendations.

1.04 ENVIRONMENTAL CONDITIONS

A. Apply sealer at ambient temperatures between 60 and 100 degrees Fahrenheit.

B. Do not apply sealer on wet pavement or if precipitation is forecasted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Seals and Coats: Products shall comply with requirements in Caltrans Standard Specifications Section 37.

B. Aggregate: Material shall be clean, free of silt, clay, salts and organic matter and comply with Aggregate Gradation Requirements in Caltrans Standard Specifications Section 37.

PART 3 – EXECUTION

3.01 PREPARATION

A. Preparation of surface shall comply with Caltrans Standard Specifications Section 37.

B. Protect existing posts, landscaping, curbs and gutters, sidewalks, buildings, and other facilities from discoloration from splashing asphalt emulsion sealer. Stained surfaces shall be painted or repaired at no cost to the District.

3.02 APPLICATION

A. Application of asphalt emulsion sealer shall comply with Caltrans Standard Specifications Section 37.

3.03 PROTECTION

A. Protect applied asphalt emulsion sealer by keeping traffic off of freshly applied sealer for 24 hours minimum or per manufacturer's recommendation, whichever is longer.

END OF SECTION

SECTION 32 31 00

FENCES AND GATES

PART 1 – GENERAL Division 0 and 1 shall apply to this section.

1.01 SUMMARY: Provide fencing and gates, complete.

A. Section Includes:

1. Industrial steel fence system – fusion welded.
2. Industrial steel fence system – internally secured.

B. Related Work:

1. Cast in place concrete

1.02 REFERENCES: The Work shall conform to the reference standards and specifications of the issues listed below, to requirements indicated and specified, to required fire ratings, and to the pertaining regulatory requirements of authorities having jurisdiction. The specifications, codes, publications, and standards listed, but referred to hereafter by the basic designation only, form a part of this Section to the extent referenced herein:

A. ASTM - American Society for Testing and Materials:
1. ASTM A 653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM B 117 - Practice for Operating Salt-Spray (Fog) Apparatus.
3. ASTM D 523 - Test Method for Specular Gloss.
4. ASTM D 714 - Test Method for Evaluating Degree of Blistering in Paint.
5. ASTM D 822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
6. ASTM D 1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
7. ASTM D 2244 - Test Method for Calculations of Color Differences from Instrumentally Measured Color Coordinates.
8. ASTM D 2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact). ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
9. ASTM D 3359 - Test Method for Measuring Adhesion by Tape Test.
10. ASTM F 2408 - Ornamental Fences Employing Galvanized Steel Tubular Pickets.

B. AAMA - American Architectural Manufactures Association:
1. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.04 DELIVERY, STORAGE, AND HANDLING:

A. Storage and Care of Electrodes: Comply with combined recommendations of AWS and the electrode manufacturer. Use of electrodes that have been wetted is prohibited.

B. Marking and Shipping Reinforcement: Bundle and tag reinforcing bars with suitable identification to facilitate sorting and placing, and transport to and store at the site off the ground to avoid damage to material. Deliver reinforcing materials in timely manner to ensure uninterrupted progress. Store reinforcing materials in a manner with no damage. Provide ready access for inspection and identification. Keep a sufficient supply of tested and approved bars at site to avoid delays.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Installers experienced with type of construction involved and materials and techniques specified.

C. Single Source: Entire fence system, and all associated accessories, fittings, and fasteners shall be obtained from a single source

1.06 DELIVERY, STORAGE, AND HANDLING:

A. Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling.

B. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and be protected against damage, weather, vandalism, and theft.

1.08 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under

environmental conditions outside manufacturer's absolute limits

1.09 WARRANTY

A The powder coated surface on all components (pickets, rails, and posts) is warranted for 10 years. Refer to manufacturer for complete details regarding warranty.

B. The electrocoated surface on all components (panels and posts) is warranted for 20 years. Refer to manufacturer for complete details regarding warranty.

C. The powder coated surface on all aluminum framework (pickets, rails and posts) is warranted for a limited lifetime. Refer to manufacturer for complete details regarding warranty.

D. The powder coated surface on all aluminum framework (pickets, rails and posts) is warranted for a limited lifetime. Refer to manufacturer for complete details regarding warranty.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

A. Acceptable Manufacturer: Ameristar Fence Products

B. Substitution: Permitted.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare the grade and remove surface irregularities, if any, which may cause interference with the installation of fencing.

C. If preparation and condition is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.03 INSTALLATION

A. Install it in accordance with manufacturer's instructions.

B. Panels Panels shall be attached to posts using mechanically fastened panel brackets supplied by the manufacturer. Provide tamper proof secured fastening system.

3.04 CLEANING

A. Leave immediate work area neat at end of each work day.

B. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.

C. Clean fence with mild household detergent and clean water rinse well. Mortar should be removed from exposed posts and other fencing material using a 10% solution of muriatic acid followed immediately by several rinses with clean water.

D. Touch up scratched surfaces using materials recommended by manufacturer. Match touchup paint color to fence finish.

3.05 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION