COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

MARK PESTRELLA, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

July 1, 2026

IN REPLY PLEASE
REFER TO FILE: BRC-2

NOTICE TO BIDDERS
MARTIN LUTHER KING, JR. MEDICAL CAMPUS
AUGUSTUS F. HAWKINS BUILDING DEMOLITION PROJECT

Notice is hereby given that the Director of Public Works will accept sealed bids for furnishing all materials, labor, and equipment required to complete construction for the Martin Luther King, Jr. Medical Campus Augustus F. Hawkins Building Demolition project.

A pre-bid conference and site visitation will be held on July 7, 2026, at 10:00 a.m., 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 1720 East 120th Street, Los Angeles, CA 90059. Attendance is strongly encouraged but not mandatory.

The bids must be submitted electronically using Bid Express, www.BidExpress.com, before 11:00 A.M. on Thursday, August 6, 2026, and no bids may be submitted after that date and time. Bids will be opened and publicly declared at 2:00 P.M. on Thursday, August 6, 2026, via online webcast.

If you have any questions regarding this Invitation for Bids, you may contact Ms. Ivonne Pena at (626) 458-2585 or by e-mail at ipena@pw.lacounty.gov.

Very truly yours,

MARK PESTRELLA, PE
Director of Public Works

Soo Kim

SOO KIM
Division Chief
Business Relations and Contracts Division

SK:ip

PROJECT MANUAL

MARTIN LUTHER KING, JR. MEDICAL CAMPUS
AUGUSTUS F. HAWKINS BUILDING
DEMOLITION PROJECT

1720 EAST 120TH STREET
LOS ANGELES, CA 90059
SPECS. NO.7974
C.P. NOS. 8A090 AND 8A091

RBB Architects, Inc.
10980 Wilshire Boulevard
Los Angeles, CA 90024

July 2026

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
BUSINESS RELATIONS AND CONTRACTS DIVISION
900 SOUTH FREMONT AVENUE
ALHAMBRA, CA 91803-5311
(626) 458-2585
ipena@pw.lacounty.gov

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A. Countywide Community Workforce Agreement
B. Los Angeles Regional Contractor Development and Bonding Program Flyer

C. Los Angeles County Contractor Development and Bonding Program FAQ's

ATTACHMENTS

1. Geotechnical Investigation Report Martin Luther King, Jr. Medical Campus Augustus F. Hawkins Building Demolition Project, prepared by GeoPentech, dated May 21, 2026.
2. Martin Luther King, Jr. Medical Center Campus Redevelopment Final Environmental Impact Report, prepared by Sapphos Environmental Inc., dated February 2011.
3. Martin Luther King, Jr. Medical Center Campus Redevelopment Final Environmental Impact Report 4th Addendum, prepared by EFI Global, dated August 2018.
4. Pre-Demolition Asbestos and Lead Survey Report, prepared by Citadel Environmental Services, Inc., dated April 26, 2019.
5. Make-Ready A Plans by RBB dated April 7, 2027.
6. Make-Ready B Plans by RBB dated April 7, 2027.

SECTION 00 01 00

INSTRUCTIONS TO BIDDERS

This project includes the Countywide Community Workforce Agreement (CWA). Refer to EXHIBIT A.

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 DPW 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. Submit electronically via https://www.infotechinc.com/bidexpress/. There is a nominal service fee to use BidExpress. Visit www.bidexpress.com and click **Create Vendor Account** to register. Refer to Infotech/BidExpress for pricing: Bid Express Fee Schedule | Infotech. Updated instructions for Infotech/BidExpress can be found https://bidexpress-help.zendesk.com/hc/en-us/categories/27917897271575-Vendor or click **here**.

Visit the Infotech Knowledge Center at the following link for more information: Bid Express® help guides.

https://bidexpress-help.zendesk.com/hc/en-us/categories/27917897271575-Vendor
BidExpress support phone number 1(888) 352-2439, Monday-Friday, 8:00 a.m.-6:30 p.m. Eastern Time.

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 “A or 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.

b. Contact with County Personnel and Code of Silence Period

All contact regarding this solicitation or any matter relating thereto must be in writing and emailed to:

Attention Ms. Ivonne Pena, Contract Analyst
E-mail: ipena@pw.lacounty.gov
Telephone: (626) 458-2585

If it is discovered that Bidder contacted and received information from any County personnel, other than the person specified above, regarding this solicitation, County, in its sole determination, may disqualify their bid from further consideration. This prohibition of contacting other County personnel, unless otherwise approved in writing and directed by Contract Analyst, as of the issue date of this solicitation and continuing until the date of award of Contract(s) will be referred to as the Code of Silence period.

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 03 13 LTWHP Jobs Coordinator**
- Section 00 03 14 Certification to Comply with Countywide Community Workforce Agreement (CWA) Form
- Section 00 03 15 Cost Impact of Countywide Community Workforce Agreement (CWA) Form
- 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 79** **Contribution and Agent Declaration Form-primary firm**
- **Section 00 04 87** **Certification of Compliance-Contact with County Personnel and Compliance with Code of Silence Period**

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. If the bidder does not meet the 25% CBE participation goal, provide documentation of bidder's good faith efforts**

	to utilize CBEs. Refer to Article 1.16 of these Instructions to Bidders.
Section 00 04 50	**Noncollusion Affidavit**
Section 00 04 60	**Attestation of Willingness to Consider GAIN/GROW 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 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, preparation of the Schedule of Values in accordance with Section 01 29 73, of the project specifications and preparation of the Storm Water Pollution Prevention Plan in accordance with Section 01 57 00. 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; Section 01 57 00, Storm Water Pollution Prevention Plan, 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, list of Submittals and SWPPP, the Bidder shall receive payment of the sum of Amount Dollars ($10,000) as compensation to perform the work required to provide a Detailed Network Construction Schedule, Schedule of Values, list of Submittals and SWPPP. The payment of $10,000 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, Schedule of Values, and SWAPP:

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, Schedule of Values, and SWPPP. The successful Bidder will have three (3) calendar days to provide County requested revisions to the Detailed Network Construction Schedule, Schedule of Values, and SWPPP provided under the Consultant Services Agreement.

Submission of an acceptable Detailed Network Construction Schedule, Schedule of Values and SWPPP, 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 Analyst issuing the IFB or RFP. The Contract Analyst 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 Analyst, (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 Analysts to conduct the administrative processing of protests filed with the County. Assigned Contract Analysts 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 Analyst 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. **Information on this program and how to obtain certification are available on the County of Los Angeles Department of Economic Opportunity website: Office of Small Business | LA County AJCC, CA https://www.ajcc.lacounty.gov/businesses/office-of-small-business.**

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/GROW 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 General Relief Opportunity for Work (GROW) participants or shall attest to a willingness to consider GAIN/GROW 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/GROW 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/GROW 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.

a. **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.

b. 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.

1.35 LOCAL AND TARGETED WORKER HIRE PROGRAM-MANDATORY EFFORT

Local and Targeted Worker Hire Program applies to this project.

A. At least 30 percent of total California construction labor hours worked on each project must be performed by a qualified Local Resident. Where allowable, contractors are encouraged to achieve higher participation levels for Local Residents.

B. At least 10 percent of total California hours worked shall be performed by County residents classified as a Targeted Worker facing barriers to employment. Hours worked by a Targeted Worker who is also a Local Resident may be applied towards the 30 percent Local Resident hire goal. A Target Worker is a resident of the County who has indices of career-limiting circumstances, specifically, one or more of the following:

1. Has a documented annual income at or below 100 percent of the Federal Poverty Level;
2. No high school diploma or GED;
3. A history of involvement with the criminal justice system;
4. Protracted unemployment (receiving unemployment benefits for at least 6 months);
5. Is a current recipient of government cash or food assistance benefits;
6. Is homeless or has been homeless within the last year;
7. Is a custodial single parent;
8. Is a former foster youth; or
9. Is a veteran, or is the eligible spouse of a veteran of the United States armed forces, under Section 2(a) of the Jobs for Veterans Act (38 U.S.C.4215[a]).
10. Eligible Migrant and seasonal farmworkers
11. English Language Learners
12. Older Individuals (55+)

13. Disabled
14. Individuals with Low Levels of Literacy
15. Multi-Craft Core Curriculum (MC3) program graduates.

C. 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.

D. Contractor shall comply with the provision required under the Local and Targeted Hire Program in the Agreement.

E. In addition, there shall be a **mandatory** requirement to use a Jobs Coordinator to be hired directly by the contractor, prior to the start of work on the project. The Jobs Coordinator is an independent third-party individual, entity, or employee with whom the Prime Contractor enters into a contract or employs to facilitate the implementation of the Local and Targeted Worker Hiring Requirements of this Agreement. The Jobs Coordinator may be selected from the approved Jobs Coordinators list available as Form 00 09 12-5. If the Prime Contractor utilizes an employee as a Jobs Coordinator, the Jobs Coordinator must be able to demonstrate or document to the County the minimum qualifications and/or experience to fulfill the duties and responsibilities as outlined in Sections 2.02 and 2.03.

F. Per State Labor Code, a minimum ratio of one apprentice hour for every five journeyman hours shall be enforced, and contractors shall strive to obtain half of all apprentice hours on the project be performed by Local and Targeted Workers. Hours worked by an apprentice who is also a Targeted Worker or a Local Resident may be applied towards the 30 percent Local Resident and/or the 10 percent Targeted Worker hire goals.

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 July 7, 2026, at 10:00 a.m., 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 1720 East 120th Street, Los Angeles CA 90059. 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 Analyst.

1.54 Application of Countywide Community Workforce Agreement

The Countywide Community Workforce Agreement (CWA) with the Los Angeles/Orange Counties Building and Construction Trades Council and its respective unions was fully executed on June 7, 2023. A copy of the Countywide CWA is included as **Exhibit A** of the Project Manual and will become an Exhibit in the final contract for this project. Countywide CWA will apply to this Project. The Contractor shall comply with all terms therein and shall be bound by the terms and conditions of the Countywide CWA applicable to the contractors for all Work on the Project for the entire duration of the Project. Countywide CWA shall be deemed incorporated in full into this agreement including, but not limited to, the provisions regarding the hiring of workers for the Project by the Contractor and all of its subcontractors of all tiers. Contractor shall execute and return to the County the Letter of Assent, attached to the Countywide CWA as Attachment A to the **Exhibit** A, at the time of contract execution and shall cause each of its subcontractors of all tiers to also execute and return to the County a copy of the Letter of Assent.

1.55 Contribution and Agent Declaration

Government Code Section 84308 requires a party to a contract proceeding to disclose any contribution of more than $500 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 $500 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 Martin Luther King, Jr. Medical Campus Augustus F. Hawkins Building Demolition Project, in accordance with Drawings and Specifications 7974, 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) + [Extended Overhead Daily Rate (2) x Multiplied by 30 days] + Bid Alternate 1 (3) = 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, and Mandatory Jobs Coordinator requirements complete according to the Drawings and Specifications, will be:

($_____) (_____)

Lump sum bid in figures Lump sum bid in words

2. 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

3. BID ALTERNATE 1:

The amount to be added to the Lump Sum Bid for inclusion of the work of Additive Alternate 1. Refer to Section 01 23 00, Alternates.

($_____) (_____)
Amount in figures Amount 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. Bidder shall be certified by the County of Los Angeles Department of Economic Opportunity at time of bid. 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 Economic Opportunity. If non-qualifying, check "no" in the appropriate box.

LSBE Certification for Non-Federally Funded County Solicitations

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 Exhibit A, 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

EXHIBIT A

Designation of a Fulltime Qualified SWPPP Practitioner (QSP)
And
a Qualified SWPPP Developer (QSD)

Name of Bidder _____
Project ID NO. _____

In accordance with Section 01 57 00 Provisions the Bidder shall submit with its bid the name of the QSP and QSD, their CASQA Certificate number, underlying certificate, and a copy of the CASQA certificate of the QSP and QSD that the Bidder proposes to use for preparing and implementing the Storm Water Pollution Prevention Plan (SWPPP) as required by the contract Special Provisions. This Section requires the QSP to be on the project fulltime during working hours and during qualifying rain events. **This requirement is more stringent than the Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.**

Failure to execute and return the signed "Designation of a Fulltime Qualified SWPPP Practitioner (QSP) and Qualified SWPPP Developer (QSD)" shall result in a recommendation to the Board that the Bidder be found non-responsive because failure to comply with this requirement reflects on the Bidder's ability to perform and manage the Work.

QSP Name	CASQA Certification No.	Underlying Certificate, e.g., CISEC, CESSWI

QSD Name	CASQA Certification No.	Underlying Certificate, e.g., PE, CPESC, etc.

This is to acknowledge that the undersigned, on behalf of their company, is fully aware to the above requirement of a Fulltime Qualified SWPPP Practitioner (QSP) and a Qualified SWPPP Developer (QSD), in accordance with Section 01 57 00.

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

Bidder/Authorized Qualified Designee's Signature	Date
Bidder/Authorized Qualified Designee's Name and Title Print	Telephone Number

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 be endorsed to include earthquake, flood, ordinance or law coverage, coverage for temporary offsite storage, debris removal, pollutant cleanup and removal, 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.

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

($_____) (_____)

Amount in figures Amount in words

_____
Name of Bidder (Firm Name)

SECTION 00 03 13

LOCAL AND TARGETED WORKER HIRE PROGRAM – MANDATORY JOBS COORDINATOR

The fee for the mandatory jobs coordinator shall be included with the Lump Sum Bid, Section 00 03 00, and shall not be in addition to it.

Mandatory Jobs Coordinator:

The County of Los Angeles has implemented a **mandatory** Local and Targeted Worker Hire Policy (LTWHP) which can be located in Section 00 09 12. There shall be a **mandatory** requirement to use a Jobs Coordinator to be hired directly by the contractor, prior to the start of work on the project. The Jobs Coordinator is an independent third-party individual, entity, or employee with whom the Prime Contractor enters into a contract or employs to facilitate the implementation of the Local and Targeted Worker Hiring Requirements of this Agreement.

($_____) (_____)
Fee Amount in figures Amount in words

Name of Jobs Coordinator_____

Address_____

Phone Number & Email_____

_____
Name of Bidder (Firm Name)

SECTION 00 03 14
CERTIFICATION TO COMPLY WITH COUNTYWIDE COMMUNITY WORKFORCE AGREEMENT (CWA) FORM

I certify on behalf of the Contractor as follows:

If selected as the Contractor on the Martin Luther King, Jr. Medical Campus Augustus F. Hawkins Building Demolition Project:

Contractor, and all of its subcontractors of any tier, agree to be become a party to and accept the terms and conditions of the Countywide Community Workforce Agreement (CWA), entitled Countywide Community Workforce Agreement, dated June 7, 2023. A copy of the Countywide CWA is attached as Exhibit A. If awarded contract, Letter of Assent shall be signed by the Prime Contractor prior to the execution of the Contract.

Note: This statement is a Pass/Fail statement. Any bidders that will not verify a commitment to comply with the requirements of Countywide CWA **shall not be selected.**

_____ Dated:_____
Responsible Contractor Representative

_____
(Signature)

_____
(Company and Position of Signatory)

_____
Name of Bidder (Firm Name)

SECTION 00 03 15
COST IMPACT OF COUNTYWIDE COMMUNITY WORKFORCE AGREEMENT (CWA) FORM

Countywide Community Workforce Agreement:

The cost associated with the inclusion of the Countywide Community Workforce Agreement shall be included with the Lump Sum Bid, Section 00 03 00, and shall not be in addition to it.

Note: This Section 00 03 15 Form shall be submitted at the time of bid. If this form is not completed and submitted with the required bid documents, the bid shall be found nonresponsive and will not be considered for review.

(_____) (_____)
Countywide CWA Cost in figures Countywide CWA Cost in words

_____ _____
Responsible General Contractor Representative Date

_____
(Signature)

_____
(Company and Position of Signatory)

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 and/or its demolition subcontractor, must have completed at least three (3) similar projects in an healthcare facility, within the last ten (10) years. Each project must have a construction value of at least $10,000,000 and size of at least 50,000 square feet. See qualifying methods below.

Qualification Method 1:

The Prime Contractor must, at a minimum, submit one project, and the subcontractor must submit information for two projects for a total of three projects.

Qualification Method 2:

The Prime Contractor will submit three projects and perform the demolition portion of this project.

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 _____, 2026 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:

Name of Contractor who completed the work:_____
If this work is completed by a subcontractor, the same subcontractor shall be listed on Section 00 04 30, Subcontractor Listing and Subcontracting

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

Project description:

_____

_____

_____

_____

_____

PROJECT 2:

Name of Contractor who completed the work:_____
If this work is completed by a subcontractor, the same subcontractor shall be listed on Section 00 04 30, Subcontractor Listing and Subcontracting

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

Project description:

_____

_____

_____

_____

_____

PROJECT 3:

Name of Contractor who completed the work:_____
If this work is completed by a subcontractor, the same subcontractor shall be listed on Section 00 04 30, Subcontractor Listing and Subcontracting

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 _____, 2026.

_____
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 Economic Opportunity (DEO). Please reference and ATTACH your Certification Letter issued by DEO 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 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

SECTION 00 04 60

ATTESTATION OF WILLINGNESS TO CONSIDER GAIN/GROW PARTICIPANTS

As a threshold requirement for consideration for contract award, Bidder/Proposer shall demonstrate a proven record for hiring GAIN/GROW participants or shall attest to a willingness to consider GAIN/GROW 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/GROW 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/GROW 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/GROW 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/GROW participants for any future employment openings if the GAIN/GROW participant meets the minimum qualifications for the opening. "Consider" means that Proposer is willing to interview qualified GAIN/GROW participants.

_____ YES _____ NO

C. Bidder/Proposer is willing to provide employed GAIN/GROW 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:			

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 $500 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:**

SECTION 00 04 87

CERTIFICATION OF COMPLIANCE - CONTACT WITH COUNTY PERSONNEL AND COMPLIANCE WITH CODE OF SILENCE PERIOD

Company Name:		
Company Address:		
City:	State:	Zip Code:
Telephone Number:		E-Mail Address:
Solicitation/Contract for:		

PROPOSER CERTIFICATION

1. The Bidder, _____ (name of the firm), and its subcontractors, have read and understand Article 1.04, paragraph b of the 00 01 00 Instructions to Bidders titled "Contact with County Personnel and Code of Silence Period."

2. Until the underlying contract is executed, all contact and communications related to, about, or regarding this solicitation have been and will be made only in writing (via e-mail) and directed exclusively to the contract analyst identified in the RFP:

   Attention Ms. Ivonne Pena, Contract Analyst
   E-Mail: ipena@pw.lacounty.gov
   Telephone: (626) 458-2585

3. Failure to comply with Article 1.04, paragraph b of the 00 01 00 Instructions to Bidders may result in the County, at its sole determination, finding the bid to be non-responsive and disqualified from further consideration.

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:

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

	2021	2022	2023	2024	2025	TOTAL	CURRENT YEAR (2026)
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_____ 2026, 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,

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within the time and in accordance with the recommendation of the Director of the Los Angeles County Public Works, dated month-day, 2XXX, Plans and Specifications Number, 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 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.

SAMPLE

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

The services provided in this Contract constitute "public works" as defined in California Labor Code 1720, and are therefore subject to payment of

SAMPLE

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):

"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

SAMPLE

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

The Contractor shall comply with the requirements of Section 1776 of the Labor Code. Contractor and Subcontractors, if any, must furnish certified

SAMPLE

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

SAMPLE

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 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

SAMPLE

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. 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.

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

11. Compliance with Jury Service Program

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.

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

SAMPLE

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.

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

SAMPLE

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 15 "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

SAMPLE

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

SAMPLE

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.

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

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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

SAMPLE

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 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

SAMPLE

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

SAMPLE

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 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.

SAMPLE

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

SAMPLE

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. Countywide Community Workforce Agreement

On June 7, 2023, the County executed the Countywide Community Workforce Agreement (CWA) with the Los Angeles/Orange Counties Building and Construction Trades Council and its respective unions, attached as Exhibit XXX of this agreement. Pursuant to the Board's direction and executed Countywide CWA, Countywide CWA will apply to this Project. The Contractor shall comply with all terms therein and shall be bound by the terms and conditions of the Countywide CWA applicable to the contractors for all Work on the Project for the entire duration of the Project. Countywide CWA shall be deemed incorporated in full into this agreement including, but not limited to, the provisions regarding the hiring of workers for the Project by the Contractor and all of its subcontractors of all tiers. Contractor shall execute and return to the County the Letter of Assent, attached to the Countywide CWA as Attachment A, at the time of contract execution and shall cause each of its subcontractors of all tiers to also execute and return to the County a copy of the Letter of Assent.

35. **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 $500

SAMPLE

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.

56. 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

SAMPLE

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.

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IN WITNESS WHEREOF, the County has, by order of its Board of Supervisors, caused these presents to be subscribed by the Director of 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 NAME OF CONTRACTOR

SAMPLE

By_____
Director of Public Works

By_____
President

_____
Type/Print Name

By_____
Secretary

_____
Type/Print Name

_____ _____
CLASSIFICATION LICENSE NO.
Contractor

APPROVED AS TO FORM:

DAWYN R. HARRISON
County Counsel

By_____
Talin Halabi
Deputy County Counsel

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

MARTIN LUTHER KING, JR. MEDICAL CAMPUS
AUGUSTUS F. HAWKINS BUILDING DEMOLITION PROJECT
1720 East 120th St Los Angeles CA 90059
SPECS NO. 7974

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 _____, 2026.

NAME OF Contractor

_____
President

_____
Type/Print Name

_____
Secretary

_____
Type/Print Name

APPROVED AS TO FORM:

DAWYN R. HARRISON
County Counsel

_____
Surety

By_____
Deputy

_____
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:

MARTIN LUTHER KING, JR. MEDICAL CAMPUS
AUGUSTUS F. HAWKINS BUILDING DEMOLITION PROJECT
1720 East 120th St Los Angeles CA 90059
SPECS NO. 7974

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 _____, 2026

NAME OF Contractor

_____
President

_____
Type/Print Name

_____
Secretary

_____
Type/Print Name

APPROVED AS TO FORM:

DAWYN R. HARRISON
County Counsel

By_____
Talin Halabi
Deputy County Counsel

_____
Surety

_____
Attorney-in-Fact

_____
Type/Print Name

SAMPLE

CERTIFICATION

SUBJECT: MARTIN LUTHER KING, JR. MEDICAL CAMPUS
AUGUSTUS F. HAWKINS BUILDING DEMOLITION
SPECS NO. 7974

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: MARTIN LUTHER KING, JR. MEDICAL CAMPUS
AUGUSTUS F. HAWKINS BUILDING DEMOLITION
PROJECT SPECS NO. 7974

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

MARTIN LUTHER KING, JR. MEDICAL CAMPUS AUGUSTUS F. HAWKINS BUILDING DEMOLITION
1720 East 120th St Los Angeles CA 90059
SPECS NO. 7974

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 _____, 2026

CONTRACTOR

_____
President

APPROVED AS TO FORM:

_____
Secretary

DAWYN R. HARRISON
County Counsel

_____
Surety

By_____
Senior Deputy County Counsel

_____
Attorney-in-Fact

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:

MARTIN LUTHER KING, JR. MEDICAL CAMPUS
AUGUSTUS F. HAWKINS BUILDING DEMOLITION PROJECT
1720 East 120th St Los Angeles CA 90059
SPECS NO. 7974

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

H. Indemnification and Insurance

43. Indemnification
44. General Insurance Requirements
45. Insurance Coverage Requirements--Types and Limits
46. Not used.
47. Not used.

I. Legal/Other

48. Assignment
49. Patents
50. Suspension and/or Termination of Work and/or Contract
51. Contractor's Warranty of Adherence to County's Child Support Compliance Program
52. Contractor's Acknowledgment of County's Commitment to Child Support Enforcement
53. Limitation of Liability
54. Forum Selection
55. Waiver
56. Prior Agreements
57. Progress Payments
58. Acceptance of Final Payment as Release
59. Substitution of Securities for Retention
60. Resolution of Construction Claims
61. Conflict of Interest
62. Anti-Trust Claims
63. County's Quality Assurance Plan
64. 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 one (1) full-size set of Drawings for the Inspector of Record, deputies and County use to be maintained at the job site.

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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.

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 RBB Architects, Inc., 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. Builders Risk Course of Construction Insurance:

1. Replacement value of County-furnished materials and equipment for this Project is valued at contract value.

2. If new Work involves a major addition/renovation that could affect the structural integrity of the existing structure, Contractor shall insure the new Work and the existing structure for the total cost of the Contract plus the value of the existing structure.

3. 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.

4. 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.

5. Such coverage shall be equal to the total Contract cost.

B. General Liability Insurance:

Minimum coverage requirements shall provide limits of not less than $2,000,000 per occurrence, $4,000,000 policy aggregate, and $4,000,000 products/completed operations aggregate. The products/completed operations coverage shall continue to be maintained in the amount herein for at least two (2) years from the date the Project is completed and accepted by the County.

C. Automobile Liability Insurance:

Minimum coverage requirements shall provide a limit of not less than $2,000,000 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

E. Specialty Liability Insurance

Contractor's Pollution Liability Insurance. Such insurance shall cover liability arising from the release, discharge, escape, dispersal or emission of pollutants,whether gradual or sudden, and include coverage for the costs and expenses associated with voluntary clean-up, testing, monitoring and treatment of pollutants in compliance with governmental mandate or requests. Motor vehicle pollution liability will be required under the Automobile Liability Insurance indicated above under section "C" for removal of pollutant from the work site. Contractor shall maintain limits of not less than $4,000,000 per occurrence and $8,000,000 aggregate.

Asbestos Liability Insurance. Such insurance shall cover liability for personal injury and property damage arising from the release, discharge, escape, dispersal or emission of asbestos, whether gradual or sudden, and include coverage for the costs and expenses associated with voluntary clean-up, testing, monitoring and treatment of asbestos in compliance with governmental mandate or requests. Motor vehicle asbestos liability will be required under the Automobile Liability Insurance indicated above under section "C" if asbestos will be removed from the work site. Contractor shall maintain limits of not less than $4,000,000 per occurrence and $8,000,000 aggregate.

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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10/2009

SECTION 00 09 12

COUNTYWIDE LOCAL AND TARGETED WORKER HIRE PROGRAM - MANDATORY

PART 1 – GENERAL

1.01 SUMMARY

This Section 00 09 12 includes:

Part 1 – General
1.01 – Summary
1.02 – Definitions
1.03 – Local and Targeted Worker Hire Program (LTWHP)

Part 2 – Administration
2.01 – Administration & Compliance
2.02 – Jobs Coordinator Minimum Qualifications
2.03 – Responsibilities of the Jobs Coordinator
2.04 – Community Service Providers

Part 3 – Forms
3.01 – Form 00 09 12-A: LTWHP Craft Employee Request Form
3.02 – Form 00 09 12-B: LTWHP Workforce Utilization Plan
3.03 – Form 00 09 12-C: FPL List of Zip Codes
3.04 – Form 00 09 12-D: Local and Targeted Worker Hire Status Report
3.05 – Form 00 09 12-E: Approved Jobs Coordinators List

1.01 MANDATORY HIRING GOALS FOR THIS PROJECT

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 ***mandatory goal*** of at least 30 percent of total California Construction Labor Hours worked be performed by a qualified Local Resident and at least 10 percent of total California Construction Labor Hours worked on this project shall be performed by County residents classified as a Targeted Worker. Hours worked by a Targeted Worker who is also a Local Resident may be applied towards both the mandatory 30 percent Local Hire and 10 percent Targeted Worker Hire goals.

Including, a minimum ratio of one apprentice hour for every five journeyman hours shall be enforced, per State Labor code requirement, and the Contractor will strive to obtain half of all apprentice hours on the project be performed by Local and Targeted Workers. In addition, there shall be a **mandatory** requirement to use a Jobs Coordinator to be hired directly by the Contractor, prior to the start of work on the project. The Jobs Coordinator is an independent third-party individual, entity, or employee with whom the Contractor enters into a contract or employs to facilitate the implementation of the Local and Targeted

Worker Hiring Requirements of this Agreement. The Jobs Coordinator may be selected from the approved Jobs Coordinators list available as Form 00 09 12-E. If the Contractor utilizes an employee as a Jobs Coordinator, the Jobs Coordinator must be able to demonstrate or document to the County the minimum qualifications and/or experience to fulfill the duties and responsibilities as outlined in Sections 2.02 and 2.03.

1.02 **DEFINITIONS**

Terms used in the implementation of the LTWHP shall be defined as follows:

A. **California Construction Labor Hours –** Includes all craft worker hours performed on the project by California residents, excluding the hours performed by off-site material fabricators, designers, project office staff, or vendors.

B. **Certified Payroll Reports** – The Contractor shall comply with the requirements of Section 1776 of the Labor Code, State of California for the submission of Certified Payroll Reports (CPR). The Contractor and its subcontractors shall submit a copy of all CPR's to the County on a monthly basis, no later than on the first Monday of the subsequent month. Contractor and its subcontractors shall submit all CPR's to the County electronically if an online system is designated by the County**.**

C. **Community Service Providers –** A network of public and private partners working to support workers and businesses by serving their employment and training needs. These providers include local one-stop job/career centers funded by the Federal Workforce Innovation and Opportunities Act (WIOA). These centers help businesses find skilled workers and connect customers to work related training and education; most services are available at no cost. Examples of Community Service Providers are listed in Section 2.04.

D. **Craft Employee Request Form –** The form used by the Contractor and its subcontractors to request dispatch of craft workers (including, but not limited to, apprentices and journeymen), who are Local Residents or Targeted Workers, from a Community Service Provider or union hiring hall in the event that assistance in obtaining such workers is needed. The request form is submitted by the Contractor/subcontractors, completed and executed by the Community Service Provider or union hiring hall, and a copy retained by the Contractor for auditing purposes.

E. **Jobs Coordinator** – An individual or firm that facilitates implementation of the Targeted Worker hiring requirements of the County of Los Angeles for the Contractor/subcontractors. The Jobs Coordinator must be able to demonstrate or document to the County the requisite qualifications and/or experience to fulfill the duties and responsibilities as outlined in Section 2.02 and 2.03.

F. **Local and Targeted Worker Hire Status Report** – A monthly report required to be submitted to the County as listed on Form 00 09 12-D.

G. **Local Resident** – A Local Resident is defined as an individual whose primary place of residence is within the Tier 1 or Tier 2 ZIP Codes of the County, as listed in Forms 00 09 12-A and 00 09 12-C.

H. **Workforce Utilization Plan** – Form 00 09 12-B submitted by the Contractor on behalf of itself and its subcontractors prior to commencing work, specifying a Workforce Utilization Plan, which contains the workforce plan and schedule for the hiring of qualified Local Residents and Targeted Workers, including the use of the subcontractors' workforce to meet the LTWHP hiring goal. The Contractor shall submit updates of the Workforce Utilization Plan to reflect changes in project conditions, schedules, or subcontractors.

I. **Targeted Worker** - A Targeted Worker is an individual who is a County resident and faces at least one or more of the following barriers to employment:

1. Has a documented annual income at or below 100 percent of the Federal Poverty Level;
2. No high school diploma or GED;
3. A history of involvement with the criminal justice system;
4. Protracted unemployment (receiving unemployment benefits for at least 6 months);
5. Is a current recipient of government cash or food assistance benefits;
6. Is homeless or has been homeless within the last year;
7. Is a custodial single parent;
8. Is a former foster youth; or
9. Is a veteran, or is the eligible spouse of a veteran of the United States armed forces, under Section 2(a) of the Jobs for Veterans Act (38 U.S.C.4215[a]).
10. Eligible Migrant and seasonal farmworkers
11. English Language Learners
12. Older Individuals (55+)
13. Disabled
14. Individuals with Low levels of Literacy
15. Multi-Craft Core Curriculum (MC3) program graduates.

J. **Tier 1 Zip Codes** – Tier 1 ZIP Codes are those Zip codes listed in Form 00 09 12-A.

K. **Tier 2 Zip Codes** – Tier 2 ZIP Codes are those Zip codes listed in Form 00 09 12-C.

1.03 **LOCAL AND TARGETED WORKER HIRE PROGRAM**

A. The Contractor and its subcontractors shall meet the following minimum mandatory Local Resident and Target Worker hiring requirements:

1. At least 30 percent of total California Construction Labor Hours worked on the project must be performed by a qualified Local Resident;
2. And at least 10 percent of total California Construction Labor Hours worked on the project shall be performed by a Targeted Worker. The hours worked by a Targeted Worker who is also a Local Resident may also be applied towards the 30 percent Local Resident hiring goal.
3. A minimum ratio of one apprentice hour for every five journeyman hours shall be enforced, per State Labor code requirement, and the Contractor will strive to obtain half of all apprentice hours on the project be performed by Local and Targeted Workers.
4. In addition, there shall be a mandatory requirement to use a Jobs Coordinator, as that term is defined in Section 1.02, to facilitate implementation of the Targeted hiring requirements of this Policy; and the Contractor shall ensure the mandatory hiring requirements provided for Local and Targeted Workers are met in accordance with this Policy.

B. The available pool of Local Residents whose primary place of residence is within Tier 1 ZIP Codes (listed under Form 00 09 12-A), must first be exhausted in the manner specified in Section 2.01G before employing worker(s) from Tier 2 ZIP Codes (listed under Form 00 09 12-C).

C. All California Construction Labor Hours shall be included in the calculation for the percentage requirements set forth in Section 1.03 A.

D. The Contractor and its subcontractors shall not discriminate against or give preference to any particular individual or group based on race, color, gender, sexual orientation, age or disability.

PART 2 – ADMINISTRATION

2.01 ADMINISTRATION & COMPLIANCE

A. Prior to start of work on the project, the Contractor shall perform the following:
1. The Contractor shall hire a Jobs Coordinator for the project in accordance with Section 2.02.
2. The Contractor and all subcontractors of every tier shall coordinate with the Jobs Coordinator for services to support their efforts in meeting the targeted hiring percentages as described in Section 1.01 of this Specification.

B. The Contractor and its subcontractors shall use the Craft Employee Request Form (Form 00 09 12-A) for all requests for dispatch of qualified Local Residents and Targeted craft workers (including apprentices and journeymen) in the event that

assistance in obtaining such workers is needed from a Community Service Provider, union hiring hall, or other source.

C. Prior to commencing work, the Contractor, on behalf of itself and its subcontractors, shall submit a Workforce Utilization Plan (Form 00 09 12-B) to the County Project Manager that contains the workforce hiring plan and schedule for the hiring of qualified Local and Targeted Workers and the assignment and use of the subcontractors' workforce to meet the Local Worker Hiring requirement. The Contractor, thereafter, shall submit updates of the Workforce Utilization Plan to reflect changes in project conditions, schedule, or subcontractors.

D. No later than the 15th calendar day of each month, the Contractor shall submit to the designated County representative a completed Local and Targeted Hire Status Report containing the relevant information for the preceding month. The Local and Targeted Hire Status Report shall contain, at a minimum, the information specified below for Contractor and its subcontractors:

1. For each California Project Craft Worker (apprentices and journeymen): (a) the total labor hours, total number of all workers (apprentices and journeymen), hours worked on the project; and (b) the wages earned on the project.
2. Total number of Local Residents (apprentices and journeymen), hours worked (apprentices and journeymen), segregated by Tier 1 and Tier 2 Residency Preference Areas, and wages earned by each Local Resident.
3. Total number of Targeted Worker hours worked (apprentices and journeymen by Tier 1 and Tier 2 Residency Preference Areas) and Targeted worker data and workers demographic profile.
4. Total number of hours worked by Local Residents by subcontractor.

E. No later than the 15th calendar day of each month, the Contractor and all its subcontractors shall submit the Local and Targeted Hire Status Report to the designated County representative (or submit the data online if the County elects to provide an online system), to demonstrate progress in meeting the Workforce Utilization Plan. Failure to submit the Local and Targeted Worker Hire Status Report to the designated County representative shall be deemed to constitute zero percent local hire participation for the month and the County may retain the Monthly Mandatory Compliance Withholding (MMCW) amount.

F. The County may, in its sole discretion, elect to provide an online system for the Contractor and all of its subcontractors to input the data required in the Local and Targeted Worker Hire Status Report. If the County so elects, the Contractor and subcontractors shall utilize that online system in lieu of completing and submitting the Local and Targeted Worker Hire Status Report.

G. The Contractor and its subcontractors shall <u>first</u> meet the Local and Targeted Worker Hire participation requirement by employing qualified workers from the Tier 1 Preference Area. If the Contractor is unable to meet their entire Local and Targeted Worker Hire need from this area, it must submit to the Project Manager a statement certifying that it has exhausted all available qualified Local and Targeted Workers

from this area during a 48-hour period before pursuing workforce from the Tier 2 Preference Area.

H. The Contractor's compliance with the approved Workforce Utilization Plan will be evaluated monthly using the Local and Targeted Hire Status Report.

I. To enforce compliance on contracts containing mandatory hiring goals, an amount will be withheld from the monthly progress payment to the Contractor in proportion to the deficit percentage of the mandated Local and Targeted Hiring Goal percentage and the actual percentage obtained. The maximum that may be withheld during the duration of the project is one percent of the total construction contract amount, but not to exceed $500,000, comprised of 0.75 percent for Local Worker goal compliance, and 0.25 percent for Targeted Worker goal compliance. This amount is called the Monthly Mandatory Compliance Withholding (MMCW) amount. The percentage of the MMCW that will be withheld for a given month will be the same as the percentage of the deficit in achieving the LTWHP targets for that month.

The maximum MMCW amount is determined as follows:

Construction Contract Value X .75% ÷ Number of months in baseline construction schedule = MMCW for Local Workers

Construction Contract Value X .25% ÷ Number of months in baseline construction schedule = MMCW for Targeted Workers

J. If the Targeted Worker Hiring mandatory requirements of the Policy have not been satisfied as required for a project, the Contractor nonetheless may be deemed to be in compliance if the Contractor demonstrates both (a) that the Contractor and each of its subcontractors have complied with all other requirements of the Policy, and (b) that the Contractor and each of its subcontractors have satisfactorily demonstrated the following:

Documented contact with the Department of Workforce Development, Aging and Community Services, America Job Centers or with an agency that supports and provides employment and training services for Targeted Workers in construction employment, and in which instance the agency did not refer a qualified Targeted Worker to the Contractors or subcontractor within 48 hours of the job request for fair consideration of the Targeted Worker.

K. At the conclusion of the project, the County will conduct a final evaluation of the Contractor's compliance with the Workforce Utilization Plan as described in Section 2.01.C and execute a final release of funds, if applicable, as described in Section 2.01.I. The Contractor's failure to meet the Local and Targeted Worker Hiring Requirement in Section 1.01 by the conclusion of the project shall result in the County imposing liquidated damages and deducting such amount otherwise owed to the Contractor in its final payment. The County will not be required to pay interest on any amounts withheld during the term of the contract.

L. The County and Contractor specifically agree that the MMCW amount, minus the total value of previous releases, in direct proportion to the actual Local and Targeted hire participation levels achieved by the Contractor consistent with the Workforce Utilization Plan, 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 due to the Contractor's inability to achieve the Local and Targeted Worker Hiring Requirement in Section 1.01.

M. For construction contracts where the work is performed for a private County Lessee, the Lessee shall be responsible for administration of all aspects of this Section 2.01, including the calculation and collection of the Local Hire Participation Compliance Rectification Amount. At the conclusion of the project, the Lessee shall pay over the designated County representative any such amounts collected and shall provide a full report to the designated County Representative of all monthly information required to be collected in this Section 2.01.

2.02 JOBS COORDINATOR MINIMUM QUALIFICATIONS

A. If the Jobs Coordinator is selected from the approved list provided on Form 00 09 12-E, that Jobs Coordinator shall be deemed to meet the minimum qualifications. No additional qualification information need be provided.

B. If the Contractor desires to utilize a Jobs Coordinator not listed on Form 00 09 12-E (*i.e.*, a Contractor employee or other non-listed firm), the Contractor must be able to demonstrate that the selected Jobs Coordinator meets the minimum qualifications listed in this Section 2.02. When requested by the County, the Contractor shall provide documentation sufficient to satisfy the County, in the County's sole discretion, that the selected Jobs Coordinator meets the minimum qualifications listed in this Section 2.02.

C. A minimum of 3 years' experience as providing Jobs Coordinator services. Successful candidates for Jobs Coordinators must be able to demonstrate the in-depth ability, experience, and possess the necessary staff capable of providing required services.

D. A successful Jobs Coordinator must demonstrate they possess working relationships with the Building Trades, Targeted Workers and signatory craft councils and unions operating within County of Los Angeles' jurisdiction by describing previous interactions, relationships, and partnerships with these party's/groups.

E. A successful Jobs Coordinator must be able to demonstrate that it has experience on projects similar in scale to the current project.

F. A successful Jobs Coordinator must demonstrate that they possess experience with Targeted Worker populations.

G. A successful Jobs Coordinator must have experience in working with work-source centers, faith-based organizations and other Community Based Organizations (CBOs).

H. A successful Jobs Coordinator must be familiar with incentive programs and tax credit subsidies provided by the State and Federal government to hire workers that fit the corresponding category. Jobs Coordinator to describe their experience in working with these programs

2.03 RESPONSIBILITIES OF THE JOBS COORDINATOR

The Contractor shall ensure that the selected Jobs Coordinator effectively performs the following duties:

A. The Jobs Coordinator shall develop, create, design and market specific programs to attract Targeted Workers for construction opportunities (e.g. handouts and fliers for “walk-ins” demonstrating program entrance procedures).

B. The Jobs Coordinator shall coordinate services for Contractor to use in the recruitment of Targeted Workers.

C. The Jobs Coordinator shall educate and assist Contractor on incentives provided by state or federal programs for on-the-job training and employer tax credits.

D. The Jobs Coordinator shall conduct orientations, job fairs and community outreach meetings in the local community.

E. The Jobs Coordinator shall screen and certify the Targeted Workers status.

F. The Jobs Coordinator shall establish a referral and retention tracking mechanism for placed Targeted workers and apprentices.

G. The Jobs Coordinator shall network with the various work source centers, community and faith-based organizations and other non-profit entities that provide qualified Local and/or Targeted Workers.

H. The Jobs Coordinator shall coordinate with the various building trades crafts for referral and placement of Targeted Workers.

I. The Jobs Coordinator shall maintain a database of pre-qualified Targeted Workers for referral.

J. The Jobs Coordinator shall be the point of contact to provide information about available job opportunities on projects.

K. The Jobs Coordinator shall assist the subcontractors with their documentation effort and other reports as it relates to their Targeted Worker hiring requirements.

L. The Jobs Coordinator shall work closely with County staff, the Building Trades, and subcontractors in achieving the Targeted hiring goals.

2.04 COMMUNITY SERVICE PROVIDERS

Examples of Community Service Providers that may be used by Contractor and subcontractors to identify Local Residents and Targeted Workers include:

- Los Angeles County Workforce Development, Aging, and Community Services: http://wdacs.lacounty.gov/
- LA Jobs: https://www.jobsla.org/vosnet/Default.aspx
- Cal Jobs: http://www.caljobs.ca.gov/vosnet/Default.aspx
- Helmets to Hardhats: https://www.helmetstohardhats.org
- America's Job Center of California: http://www.americasjobcenter.ca.gov/

PART 3 – FORMS

Form 00 09 12-A: LTWHP Craft Employee Request Form

Form 00 09 12-B: LTWHP Workforce Utilization Plan for MARTIN LUTHER KING, JR. MEDICAL CAMPUS AUGUSTUS F. HAWKINS BUILDING DEMOLITION PROJECT

Form 00 09 12-C: FPL List of Zip Codes

Form 00 09 12-D: Local and Targeted Worker Hire Status Report

Form 00 09 12-E: Approved Jobs Coordinators List

Please note that the County reserves the right to modify, update, change, or make improvements to this form at any time. Qualifying Zip Codes will remain the same.

COUNTYWIDE CWA – Martin Luther King, Jr. Medical Campus Augustus F. Hawkins Building Demolition Project

The County of Los Angeles Countywide Community Workforce Agreement applies to this project. This project shall include a *mandatory* hiring goal of at least 30% California Construction Labor Hours performed by either Tier 1 or Tier 2 Qualified Local Residents and at least 10% of California Construction Labor Hours on the project performed by those classified as a Targeted Worker. California Construction Labor Hours is defined as all craft worker hours performed on the project by California residents, excluding the hours performed off site metal fabricators, designers, project office staff, or vendors. Hours worked by a Targeted Worker who is also a Tier 1 or Tier 2 Qualified Local Resident may be applied towards the 30% goal.

C O N T R A C T O R U S E O N L Y

Please complete and fax or email this form to the applicable union to request craft workers that fulfill the hiring requirements for this project. After faxing this request, call the Local Union to verify receipt and substantiate their capacity to furnish workers as specified below. Please print Fax or Email Transmission Verification Reports and keep copies as records.

TO:	Local Union #:	**CC:**	County Project Labor Coordinator:
	Email/Fax:		Email/Fax:
FROM:	Contractor:		
	Issued by:		
	Email/Phone/Fax:		

UNION CRAFT WORKER REQUEST:

Craft Classification	Journeyman or Apprentice	Tier 1 or Tier 2 Worker	Targeted Worker	No. of Workers Requested
	☐ JM ☐APP	*	**	
	☐ JM ☐APP	*	**	
	☐ JM ☐APP	*	**	
	Total Number of Workers Requested:			

In accordance with the CWA, Article 7, Referral, County and Contractor are requesting the Union:

* Provide workers from Tier 1. If the supply of available Tier 1 workers has been exhausted, please provide workers from Tier 2, if available.

** Provide targeted workers, if available.

WORKER REPORTING INSTRUCTIONS:

Reporting Date/Time	
Project Location:	
Reporting To:	
On Site Phone:	
Special Instructions:	

U N I O N U S E O N L Y

Please complete the "Union Use Only" section and fax or email both pages to the requesting Contractor and Project Labor Coordinator.

Dispatch Received by & Date:	

Date Worker(s) Dispatched:						
Name	**Helmets to Hardhats**	**Journeyman or Apprentice**	**Tier 1 or Tier 2 Worker?**	**Zip Code**	**Targeted Worker?**	**Targeted Category ** if known**
	☐ Y ☐ N	☐ JM ☐ APP	☐ Tier 1 ☐ Tier 2 ☐ No*		☐ Y ☐ N	
	☐ Y ☐ N	☐ JM ☐ APP	☐ Tier 1 ☐ Tier 2 ☐ No*		☐ Y ☐ N	
	☐ Y ☐ N	☐ JM ☐ APP	☐ Tier 1 ☐ Tier 2 ☐ No*		☐ Y ☐ N	

* No: By selecting "No" for the "Tier 1 or Tier 2 Worker" certifies, on behalf of the Union, that the Union has exhausted all reasonable efforts to locate and dispatch such Tier 1 or Tier 2 worker.

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COUNTYWIDE CWA – Martin Luther King, Jr. Medical Campus Augustus F. Hawkins Building Demolition Project

** Please indicate number of the Targeted Worker category (1 through 15, as shown on page 2). Indicate multiple categories per worker, if applicable.

QUALIFYING ZIP CODES - Below are ALL Tier 1 and Tier 2 Qualifying Zip Codes.
Tier 1 Zip Codes are shaded.

Note: Tier 1 Zip Codes must be exhausted first before moving into Tier 2 Zip Codes.

90001	90002	90003	90004	90005	90006	90007	90008	90010	90011
90012	90014	90015	90016	90017	90018	90019	90020	90021	90022
90023	90026	90028	90029	90031	90032	90033	90034	90035	90036
90037	90038	90040	90042	90043	90044	90047	90057	90058	90059
90061	90062	90063	90089	90201	90220	90221	90222	90242	90247
90250	90255	90262	90270	90280	90301	90302	90303	90304	90401
90501	90601	90602	90640	90706	90716	90723	90731	90744	90802
90804	90805	90806	90810	90813	91001	91046	91103	91201	91203
91204	91205	91303	91331	91335	91340	91342	91343	91352	91401
91402	91405	91406	91411	91502	91601	91605	91606	91702	91706
91731	91732	91733	91744	91746	91754	91755	91766	91767	91768
91770	91776	91803	93243	93534	93535	93543	93550	93552	93553
93560	93591	X	X	X	X	X	X	X	X

** A **Targeted Worker** is an individual who is *both* a County resident and who faces **one or more** of the following barriers to employment:

1. Has a documented annual income at or below 100% of the Federal Poverty Level
2. Has no high school diploma or GED
3. Has a history of involvement with the criminal justice system
4. Is experiencing protracted unemployment (receiving unemployment benefits for at least 6 months)
5. Is a current recipient of government cash or food assistance benefits
6. Is homeless or has been homeless within the last year
7. Is a custodial single parent
8. Is a former foster youth
9. Is a veteran or is the eligible spouse of a veteran of the United States armed forces under Section 2(a) of the Jobs for Veterans Act (38 U.S.C.4215[a])
10. Is an eligible migrant and seasonal farm worker
11. Is currently an English language learner
12. Is an older individual (55+)
13. Is disabled
14. Is an individual with a low level of literacy
15. Is a Multi-Craft Core Curriculum (MC3) Program Graduate

[This form is not intended to replace a Union's Dispatch or Referral Form normally given to the employee when being dispatched to the jobsite.]

FORM 00 09 12-B - LTWHP Workforce Utilization Plan

Contractor: **All Contractors**

Workforce Utilization Plan / Projection Hours

Project Name: **Martin Luther King, Jr. Medical Campus Augustus F. Hawkins Building Demolition Project** **Date:** _____

Project Duration: TBD Calendar Days

	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27	Aug-27	Sep-27	**Total**
PROJECTED PROJECT HOURS														
Local Hours (Tier 1)	50	0	0	0	0	0	0	0	0	0	0	0	0	50
Local Hours (Tier 2)	100	0	0	0	0	0	0	0	0	0	0	0	0	100
Total Project Hours	500	0	0	0	0	0	0	0	0	0	0	0	0	500
Total Local Hours (%)	30%													30%
Targeted Worker Hours	50	0	0	0	0	0	0	0	0	0	0	0	0	50
Targeted Worker Hours (%)	10%													10%
ACTUAL PROJECT HOURS														
Local Hours (Tier 1)	75	0	0	0	0	0	0	0	0	0	0	0	0	75
Local Hours (Tier 2)	100	0	0	0	0	0	0	0	0	0	0	0	0	100
Total Project Hours	500	0	0	0	0	0	0	0	0	0	0	0	0	500
Total Local Hours (%)	35%													35%
Targeted Worker Hours	50	0	0	0	0	0	0	0	0	0	0	0	0	50
Targeted Worker Hours (%)	10%													10%

COUNTY OF LOS ANGELES
LOCAL AND TARGETED WORKER HIRE POLICY
QUALIFYING ZIP CODES

Tier 1, 2 and Qualifying Zip Codes are defined as:

Tier 1 Zip Code: A Tier 1 Qualified Local Resident is defined as a County resident whose primary residency is: (1) within five (5) miles of the proposed project site; and (2) is within a Qualifying Zip Code. If a qualifying Zip Code is partially located within the 5-mile radius, then the entire Zip Code is considered as a Tier I Zip Code, and workers living in that entire Zip Code area may qualify as Tier I hiring.

Tier 2 Zip Code: A Tier 2 Qualified Local Resident is defined as a County resident whose primary residency is: (1) within a Qualifying Zip code; and (2) that Qualifying Zip Code is beyond five (5) miles of the proposed project site.

Qualifying Zip Code: A Qualifying Zip Code is defined as a zip code within the County of Los Angeles, where either: (1) the average percentage of households living below 200 percent of the Federal Poverty Level (FPL) for that individual's primary residency's Zip Code is greater than the County average for such households; or (2) the Zip Code is one of 11 additional Zip Codes determined by the Board on September 6, 2011 to be a Zip Code where at least 30 percent of the population is living in poverty, and with an unemployment rate of at least 150 percent of the national average.

Zip Code	Region	SD1	SD2	SD3	SD4	SD5
90001	Florence / South Central (City of LA)		X		X	
90002	Watts (City of LA)		X		X	
90003	South Central (City of LA)		X			
90004	Hancock Park (City of LA)	X	X	X		
90005	Koreatown (City of LA)		X			
90006	Pico Heights (City of LA)	X	X			
90007	South Central (City of LA)	X	X			
90008	Baldwin Hills / Crenshaw (City of LA) / Leimert Park (City of LA)		X			
90010	Wilshire Blvd (City of LA)		X			
90011	South Central (City of LA)	X	X			
90012	Civic Center (City of LA) / Chinatown (City of LA)	X				
90014	Los Angeles	X				
90015	Downtown Los Angeles (City of LA)	X	X			
90016	West Adams (City of LA)		X			
90017	Los Angeles	X				
90018	Jefferson Park (City of LA)		X			
90019	Country Club Park (City of LA) / Mid City (City of LA)		X			
90020	Hancock Park (City of LA)		X			
90021	Downtown Los Angeles (City of LA)	X				
90022	East Los Angeles	X			X	
90023	East Los Angeles (City of LA)	X			X	
90026	Echo Park / Silverlake (City of LA)	X				
90028	Hollywood (City of LA)			X		X
90029	Downtown Los Angeles (City of LA)	X		X		
90031	Montecito Heights (City of LA)	X				
90032	El Sereno (City of LA) / Monterey Hills (City of LA)	X				
90033	Boyle Heights (City of LA)	X				
90034	Palms (City of LA)		X	X		
90035	West Fairfax (City of LA)		X	X		
90036	Park La Brea (City of LA)		X	X		
90037	South Central (City of LA)		X			
90038	Hollywood (City of LA)			X		
90040	Commerce, City of	X			X	

COUNTY OF LOS ANGELES
LOCAL AND TARGETED WORKER HIRE POLICY
QUALIFYING ZIP CODES

Zip Code	Region	SD1	SD2	SD3	SD4	SD5
90042	Highland Park (City of LA)	X				
90043	Hyde Park (City of LA) / View Park / Windsor Hills		X			
90044	Athens		X			
90047	South Central (City of LA)		X			
90057	Westlake (City of LA)	X				
90058	Vernon	X	X		X	
90059	Watts (City of LA) / Willowbrook		X		X	
90061	South Central (City of LA)		X			
90062	South Central (City of LA)		X			
90063	City Terrace	X				
90089	Exposition Park(City of LA)		X			
90201	Bell / Bell Gardens / Cudahy				X	
90220	Compton / Rancho Dominguez		X			
90221	East Rancho Dominguez		X		X	
90222	Compton / Rosewood / Willowbrook		X		X	
90242	Downey				X	
90247	Gardena		X			
90250	Hawthorne (Holly Park) / Lawndale (Federal Bldg)		X			
90255	Huntington Park / Walnut Park		X		X	
90262	Lynwood				X	
90270	Maywood				X	
90280	South Gate		X		X	
90301	Inglewood		X			
90302	Inglewood		X			
90303	Inglewood		X			
90304	Lennox		X			
90401	Santa Monica			X		
90501	Torrance		X		X	
90601	Whittier	X			X	
90602	Whittier	X			X	
90640	Montebello	X			X	
90706	Bellflower				X	
90716	Hawaiian Gardens				X	
90723	Paramount				X	
90731	San Pedro (City of LA) / Terminal Island (City of LA)				X	
90744	Wilmington (City of LA)		X		X	
90802	Long Beach				X	
90804	Long Beach				X	
90805	North Long Beach (Long Beach)		X		X	
90806	Long Beach				X	
90810	Carson / Long Beach		X		X	
90813	Long Beach				X	
91001	Altadena					X
91046	City of Glendale					X
91103	Pasadena					X
91201	Glendale					X
91203	Glendale					X
91204	Glendale (Tropico)					X
91205	Glendale (Tropico)					X
91303	Canoga Park (City of LA)			X		
91331	Arleta (City of LA) / Pacoima (City of LA)			X		X
91335	Reseda (City of LA)			X		
91340	San Fernando			X		
91342	Lake View Terrace (City of LA) / Sylmar (City of LA)			X		X
91343	North Hills (City of LA)			X		
91352	Sun Valley (City of LA)			X		X

COUNTY OF LOS ANGELES
LOCAL AND TARGETED WORKER HIRE POLICY
QUALIFYING ZIP CODES

Zip Code	Region	SD1	SD2	SD3	SD4	SD5
91401	Van Nuys (City of LA)			X		
91402	Panorama City (City of LA)			X		
91405	Van Nuys (City of LA)			X		
91406	Van Nuys (City of LA)			X		
91411	Van Nuys (City of LA)			X		
91502	Burbank					X
91601	North Hollywood (City of LA)					X
91605	North Hollywood			X		X
91606	North Hollywood			X		X
91702	Angeles National Forest	X				X
91706	Baldwin Park / Irwindale	X				X
91731	El Monte	X				
91732	El Monte	X				
91733	South El Monte	X				
91744	Cityof Industry / La Puente / Valinda	X				
91746	Bassett / City of Industry / La Puente	X				
91754	Monterey Park	X				
91755	Monterey Park	X				
91766	Phillips Ranch / Pomoona / Chino	X				
91767	Pomona	X				X
91768	Pomona	X				
91770	Rosemead	X				X
91776	San Gabriel	X				X
91803	Alhambra	X				
93243	Lebec					X
93534	Lancaster					X
93535	Hi Vista					X
93543	Littlerock / Juniper Hills					X
93550	Palmdale / Lake Los Angeles / Sierra Madre					X
93552	Palmdale					X
93553	Littlerock / Juniper Hills / Pearblossom / Llano					X
93560	North Lancaster					X
93591	Palmdale/Lake Los Angeles					X

LOCAL AND TARGETED HIRE STATUS REPORT
LOS ANGELES COUNTY

Project: Martin Luther King Jr, Hawkins Building Demolition
Supervisorial District:
Project Code/Specs:7974
Contractor(s): Multiple Contractors
Craft(s): Multiple Crafts
Construction Contract Amount: $0.00
Mandatory Local and Targeted Hiring Goal: 30.00% & 10%

From Date: Jan 2025
To Date:
Total Forecast Hours: 0.00
Total Project Hours to Date: 0.00
Total Hours Percent Complete: 0.00%

Area	Total Number of Workers Sep 01-Sep 30	% of Total Workers Sep 01-Sep 30	Total Hours Worked Sep 01-Sep 30	% of Total Hours Worked Sep 01-Sep 30	Cumulative Total Number of Workers	Cumulative % of Total Workers	Cumulative Total Hours Worked	Cumulative % of Total Hours Worked	Cumulative Wages w/ Benefits	Cumulative Number of Foremen	Cumulative Foremen Hours	Cumulative Foreman Hours %	Cumulative Number of Journeymen	Cumulative Journeyman Hours	Cumulative Journeyman Hours %	Cumulative Number of Apprentices	Cumulative Apprentice Hours	Cumulative Apprentice Hours %
Tier 1	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Tier 2	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Other in LA County (non-local)	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Outside of LA County	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Employees Not In Specified Zip Lists	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Local and Targeted Workers																		
Local Resident (Tier 1 + Tier 2)	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Targeted Worker	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Demographic Profile																		
African American	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Asian	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Caucasian	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Hispanic	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Native American	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Not Specified	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Two Or More Races	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Other	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Male	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Female	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Veteran	0	0.00%	0.00	0.00%	0	0.00%	0.00	0.00%	$0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Total Employees	0		0.00		0		0.00		$0.00	0	0.00		0	0.00		0	0.00	

SAMPLE

JOB COORDINATOR PANEL

as of December 2023

Casamar Group, LLC Joe Garcia 23335 Alamos Lane Newhall, CA 91321 TEL: 661.254-2373 Fax: 661.253.0549 jgarcia@casamargroup.com	**Del Richardson & Associates, Inc.** Del Richardson 510 S. La Brea Avenue Inglewood, CA 90301 TEL: 310.645.3729 ext. 229 FAX: 310.645.3355 Del.Richardson@drainc.com
Harris & Associates John W. Harris 865 S. Figueroa Street Los Angeles, CA 90017 TEL: 213.489.9833 FAX: 626.316.7103 john@jwharrislaw.com	**Managed Career Solutions, Inc.** Philip Starr 3333 Wilshire Blvd., Suite 405 Los Angeles, CA 90010 TEL: 213.355.5312 FAX: 213.381.5053 pstarr@mcscareergroup.com
Mindful Integration of Construction Services Theodora Oyie, MBA 5665 Wilshire Blvd. #1114 Los Angeles, CA 90036 TEL: 323. 383.9844 inclusion@mics.us	**Modern Times, Inc.** Joseph Hernandez 1892 E. Altadena Drive Altadena, CA 91001 TEL: 213.810.6105 FAX: 626.316.7103 joe@moderntimesinc.com
Onesimus, Inc Michael Richardson 129 E. 136th Street Los Angeles, CA 90061 TEL: 310.701.0359 profitableanduseful@gmail.com	**Pacific Resources Services Corporation** Ben Ocasio 11421 Lambert Ave. El Monte, CA 91732 TEL: 626.800.4006 FAX: 626.800.4140 bocasio@pacificresourcesservices.com
Padilla & Associates, Inc. Patricia Padilla 211 East City Place Drive Santa Ana, CA 92705 TEL: 714.225.0116 ppadilla@padillainc.com	**PDA Consulting, Inc.** Pamela Penn 8901 S. La Cienega Blvd. Suite 201 Inglewood, CA 90301 TEL: 310.910.0940 pamela.penn@pdaconsultinggroup.com
Playa Vista Job Opportunities and Business Services Mary Taylor 4112 S. Main Street Los Angeles, CA 90037 TEL: 323.432.3955 FAX: 323.432.3995 mtaylor@pvjobs.org	**TransCal Services, LLC** Jeffery Henderson 6109 S. Western Ave., Suite 308 Los Angeles, CA 90047 TEL: 323.305.6470 FAX: 323.305.6471 jhenderson@transcalservices.com
TSG Enterprises, Inc. dba The Solis Group Elizabeth Solis 131 N. El Molino Ave., Suite 100 Pasadena, CA 91101 TEL: 626.685.6989 FAX: 626.685.6985 elizabeths@thesolisgroup.com	**Power2Workers** Christiana Faulkner 5505 S. Vermont Ave. Los Angeles, CA 90037 TEL: 323.920.6674 christiana@power2workers.org

Metro

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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 Martin Luther King, Jr. Medical Campus Augustus F. Hawkins Building Demolition Project.

B. The scope of work for the project will include abatement of any hazardous materials and demolition of the existing 226,800-square-foot, three-story Augustus F. Hawkins building at the MLK Medical Campus. Site work includes stabilization, grading, hydroseeding, irrigation, fencing and footings to protect the space for future development.

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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 Martin Luther King, Jr. Medical Campus Augustus F. Hawkins Building Demolition 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 303 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.

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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 $2,400 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 $2,400 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.

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 an optional prebid conference and job walk of the project site at 10:00 a.m. on July 7, 2026, at the project site, 1720 East 120th Street, Los Angeles, CA 90059.

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.

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.

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 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.

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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.

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 six (6) copies of shop drawings to the Department for review. One set will be returned to Contractor marked "no exceptions noted" or "exceptions noted." If changes are required, six (6) copies 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.

Particular care shall be used for the Hawkins Garden area adjacent to, and south of, the Hawkins Building. It also slightly wraps around the Hawkins Building to the east and west side. This area will be protected in place from damage and will be kept open for use for as long as possible before demolition requires its closure for safety reasons. However, closure will be kept to the absolute minimum time allowable.

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.

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.

   For projects where the disturbed area is one acre or more, the Contractor must submit a Storm Water Pollution Prevention Plan (SWPPP) per Section 01 57 00 of these provisions.

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B. Related Work: Cleaning; Section 01 74 23.

1.20 WORK IN PROGRESS UNDER OTHER CONTRACTS

It is anticipated that the work of a developer may be concurrently in progress with the work of this contract. Refer to General Conditions articles, "Other Contracts" and Cooperation with Others."

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SECTION 01 12 16

PHASING OF THE WORK

PART 1-GENERAL

1.1 SUMMARY

A. The adjacent buildings, Community Hospital, Behavioral Health Center Building, and Parking Structure C as well as existing driveways and access roads (Campus) will remain open and operational during the demolition Work. The Work must be undertaken such that the Campus 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 existing buildings prior to substantial completion of the entire project. If applicable, 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 demolition 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 building] [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 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 - TBD

1. Durations - TBD

2. Access Limitations - Bridge connection to Behavioral Health Center and access to Behavioral Health Center electrical and IDF rooms require coordination with appropriate building management. Maintain all utility services during the utility relocation or new service work

3. Sequencing - TBD

PART 2 PRODUCTS (Not Applicable)

PART 3. EXECUTION (Not Applicable)

END OF SECTION

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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 is 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 tenant improvement 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 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, oxygen, nitrous oxide, vacuum and compressed air.

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, 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.

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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 Board of Supervisors 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: Provide and install a 20-foot sound control wall along the entire job site for the project duration of 303 calendar days. The perimeter of the job site is 1600 feet. Reference 4th Addendum Final Environmental Impact Report dated August 2018.

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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 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 within a reasonable time frame 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 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 time of 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 response;
k. Mark each page of each RFI attachment in the lower right corner with the RFI 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 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 five (5) 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 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, 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)

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SECTION 01 29 73

SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Submit to the Department, six (6) copies of an accurate 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".

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 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.

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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 "Unit Prices" for administrative requirements governing use of unit prices.
4. 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 cost-loaded Construction Schedule.

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 County PM at the earliest possible, but no later than seven (7) working days before the date scheduled for submittal of initial Applications for Payment

3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.
b. Name of Architect.
c. County'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.
h. Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual's table of contents. Provide several line items for principal subcontracts' 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.

7. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.

8. 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.

9. 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.

10. 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.

11. 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.

12. Revise subparagraph below to suit Project. As an alternate approach to method described, include each Change Order as a new line item or a separate sheet.

13. 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 Architect and paid for by Owner.

B. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

C. 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.

D. Payment Application Times: Progress payments shall be submitted to County Project Manager monthly, by the 7th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

E. Payment Application Forms: Use forms provided by Owner for Applications for Payment. Sample copies are included at end of this Section.

F. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. The Architect will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions are made.
2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

G. Transmittal: Submit an electronic copy in PDF format, listing all enclosures therein.

H. 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.

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. Schedule of unit prices.
6. Submittals Schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.

12. Report on preconstruction conference.
13. Certificates of insurance and insurance policies.
14. Performance and payment bonds.
15. Data needed to acquire Owner's insurance.
16. 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.

* * *

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

Project:
Contract No:
CP No.:

Application No: #REF!
Invoice No: #REF!
Period To: #REF!

From: Contractor

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 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 Architect
b. Review General/Supplementary Conditions
c. Deferred Approvals

2. Receive documentation from 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. Schedule and administer meetings throughout progress of the work as needed.

B. Make arrangements for meetings, prepare agenda with copies for participants, preside 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 County will make physical arrangements, prepare agenda 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 diskettes. The backup diskettes 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 original and four copies 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 in triplicate, 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 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) on hard copies and CD that is compatible with P6. The Contractor shall provide to the County for review four (4) copies 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 CD-ROM in the field office at project site, available at all times for reference. Identify images same as for those submitted to Architect and Construction 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 Construction Manager Directed Construction Photographs: From time to time, Architect or Construction 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 two copies 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 Contractor to 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. 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, copies 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, 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 using 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 5 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 – Six (6) copies 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, two (2) copies 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 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).

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 Field Office and Sheds
1.03 Temporary Utilities
1.04 Staging (Laydown) Area(s)
1.05 Parking
1.06 Sanitary Facilities
1.07 Temporary Barriers and Enclosures
1.08 Temporary Environmental Controls
1.09 Construction signboards

1.02 FIELD OFFICES AND SHEDS

In addition to contractor's field office, the contractor shall provide and maintain during construction (2) hoteling spaces for use by the County's inspection and project management personnel.

All required utilities, including but not limited to water, power, telecommunications, shall be arranged for and paid for by the contractor during the construction period. A security alarm warning system shall also be provided and maintained during the construction period.

Contractor shall provide and maintain on the premises, a watertight shed storage structure to keep all materials which might be damaged by weather, including storage facilities for concrete test samples or other material samples required for the work.

1.03 TEMPORARY UTILITIES

The contractor shall arrange for and provide all utility services necessary to perform the work, including electricity, fire protection, fuel oil, heating, cooling and ventilating, lighting, natural-gas, telecommunications and water. Any motors that may be permitted to be connected to any existing County's 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 providing and connecting all temporary utility services. The County will assume payment for utility service charges at the time the various permanent meters are set and the County has

assumed beneficial occupancy of the facility or accepted the Project, whichever occurs first. Refer to Project General Requirements Section for permanent utility services.

1.04 STAGING (LAYDOWN) AREA(S)

If contractor deems there is sufficient space within property limits to locate the staging (laydown) area, and the temporary offices and sheds, he may do so. If additional space is required by the contractor, the contractor shall procure it offsite at his own expense.

1.05 PARKING

There will be no contractor parking allowed in campus parking lots. If the contractor deems there is sufficient space within the property limits to locate the required parking, no additional parking will be required. However, if there is not sufficient parking at the site for the contractor to perform operations efficiently, contractor shall secure additional parking offsite, at his own expense.

1.06 SANITARY FACILITIES

Contractor shall install and maintain in a sanitary condition, suitable chemical toilets for use by 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 employees, or fractional part thereof, working at the job site. The temporary restroom facilities shall be serviced daily.

1.07 TEMPORARY BARRIERS AND ENCLOSURES

1. The contractor shall provide and maintain during the construction period, a 8 ft. high chain link fence with gate(s) around the construction area(s) consisting of 11 gauge (minimum) x 2" mesh chain link fabric attached to steel pipes and suitable base, 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. Green screen fabric shall be affixed to the chain link fencing. Fencing shall not have any loose or easy to remove tie wires, hog rings, etc. Base shall be properly secured to avoid overturning during high winds, etc.

2. Provide and maintain the Department specified chain link fence enclosures around each jobsite with vehicle and man gates as required.

3. Obtain and pay for all required permits and inspections. Construct in accordance with applicable codes and regulations of public agencies having jurisdiction.

1.08 TEMPORARY ENVIRONMENTAL CONTROLS

The 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 weather-tight tarpaulins or roofing materials firmly secured or by other approved methods. Refer to General Conditions. When, in the opinion of the County, breaches in roof or wall areas afford access to unauthorized persons, the contractor shall, at no additional expense to the Department, construct at such breaches, substantial barricades of type and material as approved by the Department.

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.

MARTIN LUTHER KING, JR. MEDICAL CAMPUS AUGUSTUS F. HAWKINS BUILDING DEMOLITION PROJECT
County of Los Angeles
Board of Supervisors

Holly J. Mitchell	2nd District
Hilda L. Solis	1st District
Lindsey P. Horvath	3rd District
Janice Hahn	4th District
Kathryn Barger	5th District

Joseph M. Nicchitta, Chief Executive Officer, Chief Executive Office
Mark Pestrella, Director, Department of Public Works
Dr. Christina R. Ghaly, Department of Health Services
Lisa H. Wong, PSY.D., Department of Mental Health

RBB 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.

* * *

SECTION 01 57 00

STORM WATER POLLUTION PREVENTION

PART 1 – GENERAL

1.1 Storm Water Pollution Prevention Plan (SWPPP).

Storm Water Pollution Prevention Plan is used if the project disturbs one (1) acre or more of soil and conforms to Risk Level 2.

1.1.1 Terms and Definitions.

1. **Active Areas of Construction –** are all 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. A copy of the APP template is included as Exhibit E in Section E.3 of the Special Provision.

3. **Agency-Certified SWPPP** – a SWPPP that has been reviewed and certified by the Agency.

4. **Best Management Practices (BMPs) –** Temporary construction practices listed in table 1.1.5 (A), and identified in the California Stormwater Quality Association (CASQA) Construction BMP Handbook.

5. **BMP Handbook** – The edition of the Californi Stormwater Quality Association (CASQA) Construction BMP Handbook, in effect as of the date of advertisement of the Contract.

6. **BMP Checklist** – the LACPW BMP Checklist included as Exhibit E in Section E.1 of the Special Provisions.

7. **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.

8. **Final Stabilization** – the implementation of soil stabilization BMPs following the completion of Work.

9. **Inactive Disturbed Soil Areas (DSA) –** areas that have been disturbed and have not or will not be disturbed for at least 14 Days.

10. **Non-Storm Water Discharges -** discharges that do not originate from precipitation events.
11. **Non-Visible Pollutants** - pollutants associated with a specific Project site or activity that cannot be seen through observation and which can have a negative impact on water quality.

12. **Numeric Action Level (NAL)** - Numeric action level (250 NTU and 6.5-8.5 pH) at which the QSP shall evaluate whether the implemented BMPs are performing effectively or if corrective actions are required.

13. **TMDL Numeric Action Level** - TMDL numeric action levels as listed in Table H-2 of the CGP (Order No. 2022-0057-DWQ). An exceedance occurs on the second, and each subsequent, analytical result for samples taken from any and all discharge location(s) within the same drainage area, during the same reporting year that is above the concentration set forth in an applicable numeric action level.

14. **Passive Treatment** - the application of natural or synthetic chemicals and products to reduce turbidity in discharges through coagulation and flocculation. Passive treatment does not rely on computerized, enclosed systems with pumps, filters, and real-time controls. Passive treatment may include pumps where they are necessary to move water around the construction site. Passive treatment products are available in a variety of forms and may be land-applied for soil stabilization (e.g., bonded fiber matrixes, hydromulches) or wat
15. er-applied for sediment removal (e.g., liquid treatment chemicals, powders, slow-releasing solid blocks/socks).

16. **Perimeter Sediment Control BMPs** – a temporary sediment control BMP around the perimeter of the Project site used to prevent sediment discharges from storm water run-on or run-off.

17. **Probability of Precipitation (PoP**)- the likelihood, expressed as a percent, of a measurable precipitation event (1/100th of an inch) at a grid point during the indicated valid period.

18. **Qualified SWPPP Developer (QSD)** – an individual certified by the California Stormwater Quality Association (CASQA) as meeting the requirements of Order No. 2022-0057-DWQ to develop, revise, and amend SWPPPs.

19. **Qualified SWPPP Practitioner (QSP)** – an individual certified by the California Stormwater Quality Association (CASQA) as meeting the requirements of Order No. 2022-0057-DWQ.

20. **Qualifying Precipitation Event (QPE) -** any weather pattern that is forecast to have a 50 percent or greater Probability of Precipitation (PoP) and a Quantitative Precipitation Forecast (QPF) of 0.5 inches or more within a 24-

hour period. The event begins with the 24-hour period when 0.5 inches has been forecast and continues on subsequent 24- hour periods when 0.25 inches of precipitation or more is forecast. Qualifying precipitation event forecast information shall be obtained from the National Weather Service Forecast (e.g., by entering the zip code of the Project location at https://forecast.weather.gov).

21. **Quantitative Precipitation Forecast (QPF)** - A spatial and temporal precipitation forecast that will predict the potential amount of future precipitation for a specified region, or area.

21. **Run-On -** storm water discharges that flow onto the Project site.

22. **Run-On Control BMPs -** BMPs used to divert or direct run-on either around or through the Project site.

23. **Surface Water Buffer** – Is a natural buffer and/or equivalent erosion and sediment controls when a water of the U.S., is located within 50 feet of the site's soil disturbances, unless infeasible.

24. **SWPPP Preparation Template -** shall be CASQA Construction BMP Handbook and the SWPPP Template for Traditional Construction Sites for the 2022 Construction Stormwater General Permit.

25. **Total Maximum Daily Load (TMDL) -** is the sum of the maximum amount of a pollutant that a waterbody can receive per day and still meet state water quality standards. It is the sum of the individual Waste Load Allocations (WLAs) for point sources, the load allocations for nonpoint and natural background sources, and the margin of safety.

26. **Turbidity** – The cloudiness of water quantified by the amount light traveling through a water column is scattered by suspended organic and inorganic particles as measured and reported in Nephelometric Turbidity Units (NTU).

1.1.2 Abbreviations.

Abbreviation	Word or Words
APP	Accumulated Precipitation Procedure
BMP	Best Management Practice
CGP	Construction General Permit (Order No. 2022-0057-DWQ)
ELAP	Environmental Laboratory Accreditation Program
NAL	Numeric Action Level
NEL	Numeric Effluent Limitations
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
NOT	Notice of Termination

Abbreviation Word or Words

PoP .....Probability of Precipitation
QPE .....Qualifying Precipitation Event
QPF.....Quantitative Precipitation Forecast
QSD .....Qualified SWPPP Developer
QSP .....Qualified SWPPP Practitioner
RWQCB .....Los Angeles Regional Water Quality Control Board
SMARTS .....Storm Water Multiple Application Reporting and Tracking System
SWPPP .....Storm Water Pollution Prevention Plan
SWRCB.....State Water Resources Control Board
TMDL .....Total Maximum Daily Load
WDID .....Waste Discharge Identification Number

1.1.3 General. The SWPPP shall conform to the requirement in these Special Provisions, the CASQA Construction BMP Handbook and the SWPPP and CSWMP Template for Traditional Construction Sites for the 2022 Construction Stormwater General Permit. The CASQA Construction BMP Handbook is *available* ***by subscription*** at:

http://www.casqa.org

No work having the potential to cause pollution, as determined by Engineer, shall be performed until the SWPPP has been reviewed and certified by the Agency and a Waste Discharge Identification Number (WDID) has been issued by the State Water Resources Control Board (SWRCB) Storm Water Multiple Application Reporting and Tracking System (SMARTS).

1.1.4 Regulatory Agency Requirements. The following permits shall be considered as reference documents:

a) Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles and Ventura Counties (Order No. R4-2021-0105, NPDES Permit No. CAS004001). Within the City of Long Beach, Order No. 99-060, NPDES Permit No. CAS004004.

b) National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities No. CAS000002, Order No. 2022-0057-DWQ for Risk Level 2.

c) Within the unincorporated areas of the County of Los Angeles, Los Angeles County Code, Chapter 12.80.

1.1.5 Best Management Practices (BMPs).

Note: The following BMPs requirements may be more stringent than what is included in the CASQA Construction BMP Handbook.

a) Minimum Requirements. The Contractor shall implement an effective combination of erosion and sediment controls and maintain the appropriate Construction Site BMPs shown in Table 1.1.5 (A). The BMPs shown in this table meet or exceed the Waste Discharge Requirements referenced in 1.1.4.

TABLE 1.1.5 (A)

Construction Site BMPs		
ID	**BMP Name**	**Minimum Requirement**
Temporary Soil Stabilization		
EC-1	Scheduling	**X**
EC-2	Preservation of Existing Vegetation	**X**
EC-3	Hydraulic Mulch	
EC-4	Hydro seeding	
EC-5	Soil Binders(1)	
EC-6	Straw Mulch	
EC-7	Geotextiles & Mats(2)	**X**
EC-8	Wood Mulching	
EC-9	Earth Dikes/Drainage Swales & Ditches	
EC-10	Outlet Protection/Velocity Dissipation Devices	
EC-11	Slope Drains	
EC-12	Stream bank Stabilization	
EC-14	Compost Blankets	
EC-15	Soil Preparation / Roughening	
EC-16	Non-Vegetative Stabilization	
Temporary Sediment Control		
SE-1	Silt Fence	**X**
SE-2	Sediment Basin	
SE-3	Sediment Trap	
SE-4	Check Dam	
SE-5	Fiber Rolls	**X**
SE-6	Gravel Bag Berm	**X**
SE-7	Street Sweeping and Vacuuming	**X**
SE-8	Sandbag Barrier	**X**
SE-10	Storm Drain Inlet Protection	**X**
SE-11	Active Treatment System	
SE-12	Manufactured Linear Sediment Controls	
SE-13	Compost Socks and Berms	
SE-14	Biofilter Bags	
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(3)	**X**
NS-3	Paving and Grinding Operations	**X**
NS-4	Temporary Stream Crossing	
NS-5	Clear Water Diversion(4)	
NS-6	Illicit Connection/ Discharge	**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	
NS-13	Concrete Finishing	
NS-14	Material Over Water	
NS-15	Demolition Adjacent to Water	
NS-16	Temporary Batch Plants	
Waste Management and Material Pollution Control		
WM-1	Material Delivery and Storage	**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**

(1) Soil binders shall not be used within any streambeds or waterbodies or areas that run-off will enter the streambeds or waterbodies, as determined by the Engineer. All soil binders shall be approved by the Engineer prior to use. Flocculants, coagulants, or other similar products shall not be used on the Work, unless approved by the Engineer.

(2) All temporary soil stabilization and temporary sediment control BMPs that contain plant material (including, but not limited to fiber rolls, erosions control blankets/mats, straw, mulch, and seeds mixes) shall be certified weed-free, biodegradable, and approved by the Engineer prior to use. Fiber rolls wrapped in “photodegradable” plastic netting will not be acceptable. If netting is used, it shall be flexible (e.g., “soft” hemp) so that wildlife does not become trapped in the netting.

Additional BMPs may be required as a result of actual field conditions, Contractor activities, or construction operations.

b) **Implementation Requirements.** Implementation shall conform to the requirements on the applicable BMP Fact Sheets and the following:

1) **Temporary Sediment Control**

i) Linear sediment controls shall be placed at appropriate locations along the perimeter of the site.

ii) Linear sediment controls shall be placed along the toe and face of inactive disturbed slopes (within 14 Days of inactivity), and at grade breaks of exposed soil in accordance with Table 1.1.5 (B).

TABLE 1.1.5 (B)

Slope Percentage	Maximum Spacing
≤ 1:20	Per QSD's Direction
1:20 to 1:4	35 feet
> 1:4 to ≤ 1:3	20 feet
> 1:3 to ≤ 1:2	15 feet
> 1:2	10 feet

iii) Stockpiles of soil shall be covered and surrounded by a berm of perimeter sediment controls prior to a Qualifying Precipitation Event and when not in use.

2) **Wind Erosion Control**

i) Wind erosion control BMPs shall be implemented in conformance with the requirements of the jurisdictional air quality regulatory agency.

3) **Tracking Control**

i) Each entrance to, and exit from, the Project site shall be stabilized per TC-1. Traffic entering/exiting the Project site shall be directed so as to only use such stabilized entrances/exits. Mud and/or sediment tracked onto paved surfaces shall be removed by the end of each Day.

4) **Waste Management and Material Pollution Control**

i) Material stockpiles shall be covered and bermed (surrounded by a berm) not when not actively being usedand prior to a Qualifying Precipitation Event.

ii) Stockpiles of temporary asphalt concrete (“cold mix”) shall be covered at all times.

iii) Solid waste shall be placed in containers and covered. Solid waste shall not be stockpiled.

iv) Stockpiles shall be removed from roadways at the end of each Day or as directed by the Engineer.

v) The Contractor shall have a minimum of 3 spill response cleanup on the Work site at all times.

vi) Spills and leaks shall be cleaned up within one hour after spillage.

vii) Concrete wast shall be considered as including, but not limited to, slurry, cement, wash waters, additives, or group. 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 onto the underlying soil or surrounding areas.

viii) Secondary containment shall be provided for all sanitary facilities. The QSP shall conduct training for construction site staff for routine housekeeping and sanitary waste management BMPs of identified sources of bacteria (e.g., portable toilets, dumpsters, etc.).

ix) Drip pans or absorbent pads shall be used during all vehicle and equipment maintenance, and under all stationary equipment at all times.

x) Demolition materials shall be covered with an impermeable barrier such as, but not limited to, plastic sheeting prior to a Qualifying Precipitation Event to prevent known contaminants from being mobilized. If Contractor is unable to cover demolished material that was not previously investigated or found to be absent of applicable pollutants in reportable quantities shall sample for any non-visible pollutants that may be in stormwater discharges.

1.1.6 Submittals.

a) **General.** The SWPPP shall be prepared in accordance with the SWPPP Template, and submitted within 10 days of issuance of Notice to Proceed Part 1 (NTP1).

b) **Qualified SWPPP Developer (QSD)**. The SWPPP shall be prepared, certified and amended by QSD. A copy of the QSD’s certificate shall be included in Appendix I of the SWPPP submittal.

c) **Accumulated Precipitation Prcedure (APP)**. The SWPPP shall include an APP developed in accordance with the Accumulated Precipitation Procedure Template included in Exhibit E, Exhibit E.3.

1.1.7 Agency Review and Certification. The Agency may require corrections and/or revisions and one or mor e re-submittals prior to certification.

The Contractor shall submit a comment response table following the format below. The table shall be submitted with each re-submittal.

Comment No.	Comment	Response
Include the Agency comment number.	Repeat the comment.	Describe action taken to fully address the comment.

The term SWPPP, as used in Subsections 1.1.8 and thereafter, shall mean the SWPPP which has been reviewed by the Agency and includes the signed Legally Responsible Person (LRP) or Authorized Signatory Certification Page. A blank copy of this Certification Page shall be inserted in the SWPPP submittal (after the cover page) is included as Exhibit E (Attachment) at the end of this specification.

Contractor shall submit one electronic copy of the SWPPP in portable document format (pdf) of the SWPPP per 3-8. The pdf shall not exceed a file size of 75 MB.

The Agency will submit the NOI including the SWPPP to the SWRCB. The SWRCB and RWQCB may require revisions. The SWRCB or RWQCB has not established a time frame for review of the SWPPP and issuance of the WDID.

Review and certification by the Agency or regulatory agencies will not relieve the Contractor of the responsibility for the adequacy of the SWPPP nor for full compliance with all applicable Federal, State, and local laws and regulations governing water quality.

The Contractor shall maintain (1) one hard copy of the SWPPP and SWPPP amendments at the Work site. The SWPPP shall be made available to a representative of regulatory agencies upon request. Any requests by the public shall be directed to the Engineer.

1.1.8 SWPPP Amendments and Change of Information (COI). Amendments to the SWPPP shall be prepared and submitted for review and certification to the Agency within 5 Days of a request by the Engineer.

1.1.9 Implementation.

a) **General.** The Contractor shall be responsible for implementation of the SWPPP, all certified amendments, and these specifications from the date of issuance of the Notice to Proceed Part 2 until the Work is completed, and a Notice of Termination has been filed by the Agency. This includes weekends, holidays, non-Working Days, any periods of temporary suspension of the Work, or during any construction moratoriums. The Contractor shall be responsible for ensuring that all subcontractors, suppliers, vendors, or any other persons performing Work on this Contract complies with SWPPP and these specifications.

Implementation of the SWPPP shall conform to these specifications and the requirements in the CASQA Construction BMP Handbook per 1.1.3.

If the BMPs selected in the SWPPP do not result in conformance with these specifications, the Contractor shall implement additional BMPs as necessary.

b) **Sign Requirements.** The Contractor shall provide and install a sign at a location, approved by the Engineer, that is viewable and legible by the public from a safe, publicly accessible location. The sign shall include the following information:

i) Project name and WDID number;
ii) QSP's name and phone number; and
iii) Contractor's name and phone number.

The sign shall be 48-inches by 96-inches and constructed of 1-inch laminated plywood. The sign lettering shall be a minimum of 4-inches in height, with black text on a white background. The lower edge of the sign shall be mounted a minimum of 6-feet (maximum of 7 feet) above grade.

Details for the sign shall be included Section 1.3 of the SWPPP.

c) **Qualified SWPPP Developer (QSD)** The Contractor shall retain a QSD from the Issuance of Notice to Proceed Part 1 until the Work is completed, and a Notice of Termination has been filed by the Agency.

The Contractor shall ensure that a QSD performs the following visual inspections of the Work site:

1) Within 30 days of commencement of Work;
2) Within 30 days of a Contractor replacing a QSD;
3) Twice annually, once August through October and once January through March;
4) Within 7 calendar days after a numeric action level exceedance; and
5) As requested by the Engineer

d) **Qualified SWPPP Practitioner (QSP).** The Contractor shall designate retain a QSP from the Issuance of Notice to Proceed Part 1 until the Work is completed, and a Notice of Termination has been filed by the Agency. A copy of the QSP's certificate shall be included in Appendix I of the SWPPP.

The Contractor shall provide a QSP full-time on the Project site during all hours of the Work, and during Qualifying Precipitation Events. The QSP shall not delegate the responsibilities required by these specifications to a non-QSP.

The QSP shall have the responsibility and authority to fully implement the SWPPP.

e) **Accumulated Precipitation Procedure (APP).** The QSP shall implement the APP whenever a discharge of accumulated precipitation is necessary. The QSP shall notify the Engineer 24 hours prior to the scheduled discharge. Samples of accumulated precipitation shall be collected by the QSP and analyzed per Section 7.7 of the SWPPP or as directed by the Engineer prior to discharge.

f) **Visual Monitoring.** The QSP and/or QSD, as required, shall inspect the Work to ensure compliance with the SWPPP and these specifications; and shall document inspections on the BMP Checklist.

The QSP and/or QSD shall sign and submit one copy of the completed BMP Checklist to the Engineer within 24 hours of completing each inspection. One completed and signed copy of each BMP Checklist shall be kept with the SWPPP.

If any visual monitoring events required by the SWPPP are not conducted, the QSP shall notify the Engineer and the Environmental Compliance Unit (ECU) within 24 hours at oenrique@pw.lacounty.gov.

Contractor shall implement all BMP corrective actions within 24 hours.

1) **Rain Gauge Reading.** The QSP shall record the time, date, and rain gauge reading from the Agency's real-time rainfall data precipitation map, http://ladpw.org/wrd/precip/alert_rain/. If the rain event is a Qualifying Precipitation Event, the attach a copy to Appendix M.

2) **Water Quality Sampling and Analysis.** The QSP shall collect and analyze all water quality samples as required by the SWPPP. The QSP shall submit Monitoring Records (Appendix N) and Storm Event Monitoring Forms (Appendix O) the Engineer within 24 hours of the conclusion of each Qualifying Precipitation Event. Monitoring Record and Storm Event Monitoring Forms shall be completed for each Qualifying Precipitation Event regardless of whether samples were collected or not.

If any water quality samples are not collected during a sampling event required by the SWPPP, the QSP shall notify the Engineer and the Environmental Compliance Unit (ECU) within 24 hours at oenrique@pw.lacounty.gov

The QSP shall immediately evaluate the water sampling data. Data averaging is not permitted. If any single water sampling result exceeds the NALs and/or NELs, the QSP shall:

i. Notify the Engineer and the Environmental Compliance Unit (ECU) within 24 hours of any NAL Exceedance at oenrique@pw.lacounty.gov.
ii. Implement immediate corrective actions to address the cause of the exceedance and to prevent further exceedance.
iii. Prepare and submit a NAL exceedance report within 72 hours to the the Engineer.

3) **Annual Report.** The QSP shall prepare, sign, and submit to the Engineer an annual report for the reporting period of July 1 to June 30 of each year. The Annual Report Checklist and associated logs are included as Exhibit E at the end of this specification. The Annual Report shall include all BMP Checklists, Monitoring Records (Appendix N), and Storm Event Monitoring Forms (Appendix O), completed during the reporting period. If date of issuance of the Notice to Proceed occurs prior to June 30, the report shall be submitted no later than July 15 for the prior reporting period. If Work is completed and accepted prior to June 30, the report shall be submitted within 15 Days after being requested by the Engineer.

4) **Notice of Termination Report.** The QSP shall prepare, sign, and submit to the Engineer a Notice of Termination QSP Report within 15 days of the completion of Work.

The Notice of Termination QSP Report Checklist is included as Exhibit E.5 at the end of this specification and shall include a site map that includes the following:

i) Project boundaries and adjacent lands with labeled key features, such as roadways and waterbodies.
ii) Developed drainage basin boundaries and discharge location points.

iii) Site entrances and exits, lot boundaries, roads, structures, and features related to the project that may be used as a reference.

iv) Specific permanent erosion control BMPs, post-construction BMPs, and low impact development features.

v) Individual erosion control BMPs (including final landscaping) identified using hatch patterns, symbols, or shading unique to each BMP.

vi) Location and orientation of all photographs as required below.
The Notice of Termination QSP Report Checklist shall include the following photographs:

i) Photographs of each specific permanent erosion control BMPs, post-construction BMPs, and low impact development features.

ii) Photographs to document final site conditions and demonstrate compliance with post-construction requirements of the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities No. CAS000002, Order No. 2022-0057-DWQ for Risk Level 2.

1.1.10 Enforcement. The Contractor shall implement corrective actions identified by the Engineer, to maintain compliance with the SWPPP and these specifications. Corrective actions identified by the QSP, or the Engineer shall be implemented within 24 hours of being identified. The Engineer may direct certain corrective actions to be implemented immediately.

Failure of the Contractor to implement corrective actions within the time specified above will result in written notification from the Engineer in the form of a “Notice of BMP Noncompliance Form”.

Part 1 of the “Notice of BMP Noncompliance Form” will include:

a) Description and location of the non-compliance.

b) Date and time that the non-compliance was identified.

c) Description of the corrective actions(s) identified by the Engineer.

d) Date and time the required corrective action(s) shall be completed.

For each corrective action identified in Part 1 of the “BMP Noncompliance Form”, not implemented by the date and time indicated, the Engineer will issue Part 2 of the “Notice of BMP Noncompliance Form”.

For each corrective action identified in Part 2 of the “BMP Noncompliance Form” not implemented by the date and time indicated, the Engineer will deduct from the Contractor’s monthly progress payment, or final payment, $1,000 per day per corrective action until the corrective action is implemented.

If a BMP non-compliance results in a non-stormwater discharge to the storm drain system, channel, streambed, or any other waterbody as determined by the Engineer, it will result in an immediate penalty of $1,000 per day until the corrective action is implemented. **This penalty may be assessed without prior written notification and may result in suspension of the Work.**

Repeat, or flagrant, non-compliance, as determined by the Engineer, will result in immediate penalty of $1,000 per day until corrective action is implemented. This penalty may occur without prior written notification and may result in suspension of the Work.

The Contractor shall be responsible for the costs and for the liabilities imposed by law as a result of its failure to fully-comply with these specifications. Costs and liabilities include, but are not limited to, fines, penalties and damages whether assessed against the Agency or the Contractor. In addition, the Engineer will deduct from any monies due to the Contractor, the total amount of any legal fees, staff costs, and consultant fees incurred as a result of the Contractor's non-compliance with these specifications.

1.1.11 Payment. Payment for preparation of the SWPPP and revisions to the SWPPP shall be considered as included in the Stipulated Unit Price for "PREPARATION OF THE SWPPP (STIPULATED UNIT PRICE OF $5,000)."

Payment for implementation of the SWPPP and amendments to the SWPPP shall be considered as included in the lump sum Bid Price for "IMPLEMENTATION OF THE SWPPP."

Payment shall include, but not limited to:

a) Providing a full-time QSP on the Project site during all hours of the Work and Qualifying Precipitation Events per 1.1.9.d, providing a QSD to perform inspections per 1.1.9.c, and all QSD/QSP training per 1.1.1.

b) Performing all visual monitoring per 1.1.9.f.

c) Providing, installing, and removing project signage per 1.1.9.b.

d) Furnishing, installing, maintaining, removing, and disposing of all BMPs per 1.1.5, including all corrective actions per 1.1.

e) APP implementation per 1.1.9.e.

f) Conducting and reporting all water quality sampling and analysis data per 1.1.9.f.2 including NAL/NEL Exceedance Reports,

g) Preparing and submitting Annual Reports, including revisions per 1.1.9.f.3.

h) Preparing and submitting Notice of Termination QSP Report per 1.1.9.f.4.

i) Subscription to CASQA BMP Manuals

If the BMPs selected in the certified SWPPP do not meet the performance standards of these special provisions, the Contractor shall implement additional BMPs and amend the SWPPP at no additional cost to the Agency.

Payment will be prorated on a monthly basis over the duration of the Contract. The final payment will not be made until the Engineer has filed a Notice of Termination (NOT).

ATTACHMENT:

Exhibit E – Documentation Required to Supplement the CASQA SWPPP

- Exhibit E.1 – Best Management Practices (BMP) Checklist
- Exhibit E.2 – LACPW 2022 CGP Cover Sheet and Certification Page
- Exhibit E.3 – Accumulated Precipitation Procedure (APP) Template
- Exhibit E.4 – Annual Report Checklist
- Exhibit E.5 – Notice of Termination Reporting Checklist

Revised: 03/2024

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Exhibit E

Documentation Required to Supplement the CASQA SWPPP

Exhibit E.1 - Best Management Practices (BMP) Checklist

Exhibit E.2 - LACPW 2022 CGP Cover Sheet and Certification Page

Exhibit E.3 - Accumulated Precipitation Procedure (APP) Template

Exhibit E.4 - Annual Report Checklist

Exhibit E.5 - Notice of Termination Reporting Checklist

Note: Electronic files of these documents are available on request.

EXHIBIT E.1

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
BEST MANAGEMENT PRACTICES (BMP) CHECKLIST

Project Name: _____ PCA No.: _____ Report No: _____

Contractors Name: _____ Project ID No.: _____ Inspection Time: _____

QSP Name: _____ PM/CM Name: _____ Inspection Date: _____

Signature: _____ Signature: _____ Report Date: _____

Inspection Type: ☐ Weekly ☐ Pre-Storm ☐ Post-Storm ☐ During ☐ Other_____

Stage of construction: ☐ Utilities ☐ Grading/excavation/drilling ☐ Paving/general construction ☐ Vertical ☐ Final landscaping/stabilization

Approximate area of construction exposed (acres): _____ Are SWPPP amendments necessary? ☐ Yes ☐ No

Construction activities completed (add additional pages if needed): _____

Are all paved roads that provide access to the project inspected daily for tracking of sediment and other debris? ☐ Yes ☐ No

Are there any odors, sheens, turbidity, floating or suspended materials, discoloration on any water discharges? ☐ Yes ☐ No ☐ N/A

If yes, describe the source:_____

Weather Information:

Was precipitation present during inspection? ☐ Yes ☐ No Precipitation Amount (in.) _____

Beginning date/time of the QPE: _____ Rain Guage Station: _____

Duration of the QPE (days:Hrs): _____ End Date/Time of QPE: _____

Erosion Conrol BMPs

Included in SWPPP?		BMP Description		Deployed on Site?		Adequately designed /implemented?			Maintained/ effective?			Location/Deficiencies/Corrective Actions/Implementation Dates
Yes	No			Yes	No	Yes	No	N/A	Yes	No	N/A	
☐	☐	EC-1	Scheduling	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-2	Preserve Existing Vegetation	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-3	Hydraulic Mulch	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-4	Hydroseeding	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-5	Soil Binders	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-6	Straw Mulch	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-7	Geotextiles & Mats	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-8	Wood Mulching	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-9	Earth dikes/drainage swales and	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-10	Outlet Protection/Velocity Dissipation	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-11	Slope Drains	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-12	Streambank Stabilization	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-14	Compost Blankets	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-15	Soil Preparation / Roughening	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	EC-16	Non-Vegetative Stabilization	☐	☐	☐	☐	☐	☐	☐	☐	

Temporary Sediment Control BMPs

Yes	No			Yes	No	Yes	No	N/A	Yes	No	N/A	
☐	☐	SE-1	Silt Fence	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-2	Desilting Basin	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-3	Sediment Trap	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-4	Check Dam	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-5	Fiber Rolls	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-6	Gravel Bag Berm	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-7	Street Sweeping and Vacuuming	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-8	Sandbag Barrier	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-10	Storm Drain Inlet Protection	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-12	Manufact. Linear Sediment Controls	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-13	Compost Socks and Berms	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	SE-14	Biofilter Bags	☐	☐	☐	☐	☐	☐	☐	☐	

Wind Erosion Control BMPs

Included in SWPPP?		BMP Description		Deployed on Site?		Adequately designed /implemented?			Maintained/ effective?			Location/Deficiencies/Corrective Actions/Implementation Dates
Yes	No			Yes	No	Yes	No	N/A	Yes	No	N/A	
☐	☐	WE-1	Wind Erosion Control	☑	☐	☐	☐	☐	☐	☐	☐	

Tracking Control BMPs

Included in SWPPP?		BMP Description		Deployed on Site?		Adequately designed /implemented?			Maintained/ effective?			Location/Deficiencies/Corrective Actions/Implementation Dates
Yes	No			Yes	No	Yes	No	N/A	Yes	No	N/A	
☐	☐	TC-1	Stabilized Construction Entrance/Exit	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	TC-2	Stabilized Construction Roadway	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	TC-3	Entrance/Outlet Tire Wash	☐	☐	☐	☐	☐	☐	☐	☐	

Temporary Non-Storm Water BMPs

Included in SWPPP?		BMP Description		Deployed on Site?		Adequately designed /implemented?			Maintained/ effective?			Location/Deficiencies/Corrective Actions/Implementation Dates
Yes	No			Yes	No	Yes	No	N/A	Yes	No	N/A	
☐	☐	NS-1	Water Conservation Practices	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-2	Dewatering Operations	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-3	Paving and Grading Operations	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-4	Temporary Stream Crossing	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-5	Clear Water Diversion	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-6	Illicit Connection/ Illegal Discharge	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-7	Potable Water/ Irrigation	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-8	Vehicle and Equipment Cleaning	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-9	Vehicle and Equipment Fueling	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-10	Vehicle and Equipment Maintenance	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-11	Pile Driving Operations	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-12	Concrete Curing	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-13	Concrete Finishing	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-14	Material Over Water	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-15	Demolition Adjacent to Water	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	NS-16	Temporary Batch Plants	☐	☐	☐	☐	☐	☐	☐	☐	

Temporary Materials Management BMPs

Included in SWPPP?		BMP Description		Deployed on Site?		Adequately designed /implemented?			Maintained/ effective?			Location/Deficiencies/Corrective Actions/Implementation Dates
Yes	No			Yes	No	Yes	No	N/A	Yes	No	N/A	
☐	☐	WM-1	Material Delivery and Storage	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	WM-2	Material Use	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	WM-3	Stockpile Management	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	WM-4	Spill Prevention and Control	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	WM-5	Solid Waste Management	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	WM-6	Hazardous Waste Management	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	WM-7	Contaminated Soil Management	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	WM-8	Concrete Waste Management	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	WM-9	Sanitary/Septic Waste Management	☐	☐	☐	☐	☐	☐	☐	☐	
☐	☐	WM-10	Liquid Waste Management	☐	☐	☐	☐	☐	☐	☐	☐	

Attach photos as needed

EXHIBIT E.2

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
LEGALLY RESPONSIBLE PERSON (LRP)
OR AUTHORIZED SIGNATORY
CERTIFICATION PAGE

Insert Project Name

Insert Project ID

This signed Certification Page certifies that this SWPPP and all other Permit Required Documents (PRDs) have been approved and accepted to be in accordance with the requirements of the contract Special Provisions and the Construction General Permit.

The Legally Responsible Persons (LRPs) for the Los Angeles County of Public Works, Project Management Division III, has designated Oscar R. Enriquez as their Authorized Signatory.

Signature	Date
Oscar R. Enriquez	(626) 300-4779
Supervisor, Environmental Compliance Unit	Telephone Number

EXHIBIT E.3

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
ACCUMULATED PRECIPITATION PROCEDURE
(APP)

Project Name	
Project ID	
Contractor Name	

REQUIRED TEXT:

Accumulated Precipitation Procedure (APP)

This project may accumulate precipitation due to: [Insert brief description of how precipitation may be trapped on site such as in low lying areas, planned excavations or other means where it may be necessary to discharge water to the storm drain system or water body.]. No accumulated water will be discharged without implementing this Accumulated Precipitation Procedure (APP).

Areas Expected to Accumulated Precipitation

[Describe in detail the areas that are expected to accumulate rain water on the construction site. These locations are shown on WPCD [insert WPCD page number]

BMPs Selected for Accumulated Precipitation

[Describe BMPs that are selected for the project that will ensure the discharge of accumulated precipitation meet to NALs/NELs identiifed in the SWPPP.]

Alternative Disposal Option(s) for not Discharging Accumulated Precipitation

[Describe options for not discharging accumulated precipitation offsite such as storing the water on site, infiltration, using the water for dust control or other methods.]

Inspection Prior to Discharge

After a precipitation event, water that has accumulated in the excavation that may need to be discharged. The water shall be inspected to determine whether it has come into contact with any other pollutants (e.g., spilled fuel, contaminated soil, etc.) prior to discharge. If other pollutants are suspected, the water will be handled in accordance with BMP WM-10 liquid waste management for disposal off site.

Discharge BMPs and Location(s)

If sediment is the only potential pollutant, the accumulate precipitation will be [Describe how NS-2 Dewatering Operations BMPs will be implemented including a description of the selected BMPs and equipment utilizied to meet the NALs/NELs in the SWPPP.]

[Describe location(s) of the discharge such as to the gutter, drain inlet, water body, etc. Include BMPs for erosion control and velocity dissipation at the discharge point points where erosion could occur.]

Notifications

The Contractor shall notify the Engineer as follows:

- A minimum of 24 hours prior to each discharge of accumulated precipitation.
- Malfunction of BMPs or equipment used for the discharge of accumulated precipitation.
- Exceedance of any NAL/NELs.
- Revisions to the APP.

Inspection, Maintenance, and Repair

The accumulated precipitation discharge and associated BMPs and equipment will be continuously monitored during discharge events and documented on the BMP Checklist.

The flow path or conveyance will be inspected and cleaned of all sediment, debris, and trash. In the event that the BMPs or equipment are not functioning adequately, the discharge will be terminated until revised or repaired to function adequately. This may require a revision to this APP and approved by the Engineer.

Sampling and Analysis

Prior to the discharge of accumulated precipitation, the QSP shall sample and analyze all discharge in accordance with Section 7.7 of the SWPPP. The QSP shall continue to sample and analyze discharge every 24 hours until the discharge is complete.

The results shall be submitted to the Engineer and maintained in the SWPPP. If the analysis indicates an exceedance of any NALs/NELs then the discharge shall not commence or be immediately terminated.

_____	_____
QSP/QSD Signature	Date
_____	_____
QSP/QSD Name (printed)	QSP/QSD Certificate No.

EXHIBIT E.4

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
ANNUAL REPORT CHECKLIST

Project Name	
Project WDID	
Contractor Name	
Reporting Period: From Date (dd/mm/yy) to Date (dd/mm/yy)	

Complete the following Checklist:

Reporting Period	**Yes**	**No**
Was Contractor Active for 3 Months or more during this Reporting Period?		

General Information	
QSD Name and Certificate Number.	
QSP Name and Certificate Number.	
Provide names and Certificate Numbers of additional QSPs or QSDs that performed inspections or sampling.	

Visual Inspections	**Yes**	**No**
Were all visual inspections performed per the SWPPP and General Permit? Attach the “Inspection Log” and all BMP Checklists.		
Were there any visual inspection exceptions? If Yes, attach the “Inspection Exception Log”.		
Note: For "Inspections Exceptions", please refer to Attachment D (III.B.1) of the CGP for conditions that exempt performing inspections. If these conditions are not met, then inspections are required.		

Sampling Events	**Yes**	**No**	**Response**
How many Qualifying Precipitation Events occurred during this reporting period? Attach completed Rain Gauge Readings (Appendix M) of the SWPPP.			
How many of these Qualifying Precipitation Events were sampled? Attach completed Storm Event Monitoring Forms (Appendix O) of the SWPPP.			
Did visual inspections trigger any Non-Visual Pollutants/TMDL Sampling Events per Section 7.71 of the SWPPP? If Yes, how many?			
How many of these Non-Visual Pollutants/TMDL Sampling Events were sampled? Attach completed Attach completed Effluent Sampling Field Log Sheets and COC Forms (Appendix O) of the SWPPP.			
Were any dewatering activities conducted? If Yes, how many?			
If yes, were these dewatering activities conducted under the requirements of the 2022 CGP or a separate NPDES Permit			
If Yes, how many of these Dewatering Events were sampled? Attach completed Effluent Sampling Field Log Sheets and COC Forms (Appendix O) of the SWPPP.			
Where all Monitoring Records and Storm Event Monitoring Forms submitted to the Engineer within 24 hours of the conclusion of each Sampling Event.			

Sampling Events (continued)	Yes	No	Response
Were there any sampling events missed? If Yes, attach the “Sampling Exception Log”.			
Were there any sampling violations? If Yes, attach the “Violations Log”.			
Was the Engineer notified of any sampling violations with 24 hours? If Yes, attach documentation of notification.			
Note: For "Sampling Exceptions", refer to Attachment D (III.B.1) of the CGP for conditions that exempt sampling. If these conditions are not met, then sampling is required.			

Violations	Yes	No
Were there any of the following General Permit violations? If Yes, identify below and attach the “Violations Log”.		
Deficient BMP Implementation?		
Deficient Reports?		
Effluent Violations?		
Incomplete/Insufficient SWPPP?		
Unauthorized NSWD?		
Other?		
Was the Engineer notified of any General Permit violations with 24 hours? If Yes, attach documentation of notification.		

Corrective Actions	Yes	No
Were any Corrective Actions required? If Yes, attach the “Corrective Action Log”.		
Were there any Unimplemented Corrective Actions? If Yes, attach the “Unimplemented Corrective Action Log”.		

Penalty of Perjury Statement. "I declare under the penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

QSP/QSD Signature _____ Date _____

QSP/QSD Name (printed) _____ QSP/QSD Certificate Number _____

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
ANNUAL REPORT – INSPECTION LOG

Inspection Type[(1)]	Name of QSP/QSD	Date (MM/DD/YYYY)	Time (HH24:MIN)	Location	Additional Comments

(1) Inspection Type: Weekly, Pre-Storm, During Strom, or Post-Storm

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
ANNUAL REPORT – INSPECTION EXCEPTIONS LOG

Inspection Type[(1)]	Name of QSP/QSD	Date (MM/DD/YYYY)	Time (HH24:MIN)	Location	Explanation of Missed Inspection

(1) Inspection Type: Weekly, Pre-Storm, During Strom, or Post-Storm

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
ANNUAL REPORT – SAMPLING EXCEPTIONS LOG

Sampling Type[(1)]	Name of QSP/QSD	Date (MM/DD/YYYY)	Time (HH24:MIN)	Location	Explanation of Missed Sampling

(1) Sampling Type: Stormwater Discharge Sampling, Receiving Water Sampling, Non-Visible Sampling, or Dewatering

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
ANNUAL REPORT – VIOLATIONS LOG

Violation Type[1]	Description	Reported By[2]	Date (MM/DD/YYYY)	Time (HH24:MIN)	Location	Additional Comments

(1) Violation Type: Deficient BMP Implementation, Deficient Report, Effluent Violation, Incomplete/Insufficient SWPPP, Unauthorized NSWD, or other.
(2) Reported By: Contractor's QSP/QSD, Public Works, Local Agency, or 3rd Party.

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
ANNUAL REPORT – CORRECTIVE ACTIONS LOG

Corrective Action /Compliance Activity	Description	Performed By	Date (MM/DD/YYYY)	Time (HH24:MIN)	Location	Additional Comments

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
ANNUAL REPORT – UNIMPLEMENTED CORRECTIVE ACTIONS LOG

Corrective Action/Compliance Activity Not Performed	Explanation	Date (MM/DD/YYYY)	Time (HH24:MIN)	Location	Additional Comments

EXHIBIT E.5

LOS ANGELES COUNTY PUBLIC WORKS
STORMWATER QUALITY DIVISION
NOTICE OF TERMINATION
QSP REPORT CHECKLIST

Project Name	
Project WDID	
Contractor Name	

The QSP shall prepare, sign, and submit to the Engineer a Notice of Termination Report within 15 days of the completion of Work. Check each box below to verify the requirement is included in the NOT report.

The Notice of Termination Report shall include a site map containing the following:

- ☐ Project boundaries and adjacent lands with labeled key features, such as roadways and waterbodies.
- ☐ Developed drainage basin boundaries and discharge location points.
- ☐ Site entrances and exits, lot boundaries, roads, structures, and features related to the project that may be used as a reference.
- ☐ Specific permanent erosion control BMPs, post-construction BMPs, and low impact development features.
- ☐ Individual erosion control BMPs (including final landscaping) identified using hatch patterns, symbols, or shading unique to each BMP.
- ☐ Location and orientation of all photos used to document final site conditions and demonstrate compliance with post-construction as required below.

The Notice of Termination Report shall include the following photographs:

- ☐ Photographs of each specific permanent erosion control BMPs, post-construction BMPs, and low impact development features.
- ☐ Photographs to document final site conditions and demonstrate compliance with post-construction requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities No. CAS000002, Order No. 2022-0057-DWQ.

QSP Signature	Date
QSP Name (printed)	QSP Certificate Number

SECTION 01 57 19

TEMPORARY AND ENVIRONMENTAL CONTROLS

SECTION 1 - GENERAL

1.1 SUMMARY

A. 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.

B. The Contractor will be responsible for providing and obtaining approval of a Storm Water Prevention Pollution Plan per Section 01 57 00.

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.

C. Storm Water Pollution Prevention Plan: Prior to beginning any demolition or excavation on Projects greater than one acre, the Contractor will prepare a Storm Water Pollution Prevention Plan (SWPPP) and submit to County as required in Section 01 57 00. The Contractor will also obtain and become familiar with the latest edition of the Los Angeles County Department of Public Works Construction Site Best Management Practices (BMP's) Manual. The BMP Manual presents specific guidance on selecting practices that reduce pollutants in storm water discharges from construction activities.

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.

D. Storm Water Pollution Prevention Plan:

   a. The Contractor will begin preparing the SWPPP per Section 01 57 00 immediately after the receipt of Notice to Proceed No.1. The Contractor and the County will meet not more than (21) calendar days after NTP No.1 to review the SWPPP.

   b. The Contractor will comply with Best Management Practices (BMP) outlined in the Los Angeles County Department of Public Works Construction Site Best Management Practices (BMP's) Manual.

   c. The Contractor will be responsible for training and implementing the SWPPP and BMPs during construction per Section 01 57 00. The Contractor will schedule and conduct inspections with oversight agencies upon their request.

   d. The Contractor will be responsible for amending the SWPPP as required by Section 01 57 00 of these special provisions.

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 Los Angeles 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 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. <u>The cost of implementing the NPDES standards and adhering to the Storm Water Pollution Control Requirements must be included in the lump sum bid for the Project.</u>

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.

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.

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 architect will prepare the Certificate of Substantial Completion following 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 architect 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 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 architect for the County's 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 architect for the County's 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 architect for the County's 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 six (6) copies 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.

* * *

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 CD 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 Engineer 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 two original, signed copies, each.

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.

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.

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. Newly prepared 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 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 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 Architect.

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 Architect'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 79 00

DEMONSTRATION AND TRAINING

1.00 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for instructing County's personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.

2. Training in operation and maintenance of systems, subsystems, and equipment.

3. Demonstration and training video recordings.

1.03 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

B. Qualification Data: For facilitator, instructor and videographer.

C. Attendance Record: For each training module, submit list of participants and length of instruction time.

D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.04 CLOSEOUT SUBMITTALS

A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.

1. Identification: On each copy, provide an applied label with the following information:

i. Name of Project.
ii. Name and address of videographer.
iii. Name of Architect.
iv. Name of Construction Manager.
v. Name of Contractor.
vi. Date of video recording.

2. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
3. At completion of training, submit complete training manuals for County's use in PDF electronic file format on compact disc.

1.05 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.

D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Coordination and Meetings." Review methods and procedures related to demonstration and training including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.
2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.06 COORDINATION

A. Coordinate instruction schedule with County's operations. Adjust schedule as required to minimize disrupting County's operations and to ensure availability of County's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

2.00 PRODUCTS

2.01 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
   i. System, subsystem, and equipment descriptions.
   ii. Performance and design criteria if Contractor is delegated design responsibility.
   iii. Operating standards.
   iv. Regulatory requirements.
   v. Equipment function.
   vi. Operating characteristics.
   vii. Limiting conditions.
   viii. Performance curves.

2. Documentation: Review the following items in detail:
   i. Emergency manuals.
   ii. Operations manuals.
   iii. Maintenance manuals.
   iv. Project record documents.
   v. Identification systems.
   vi. Warranties and bonds.

vii. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:
   i. Instructions on meaning of warnings, trouble indications, and error messages.
   ii. Instructions on stopping.
   iii. Shutdown instructions for each type of emergency.
   iv. Operating instructions for conditions outside of normal operating limits.
   v. Sequences for electric or electronic systems.
   vi. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:
   i. Startup procedures.
   ii. Equipment or system break-in procedures.
   iii. Routine and normal operating instructions.
   iv. Regulation and control procedures.
   v. Control sequences.
   vi. Safety procedures.
   vii. Instructions on stopping.
   viii. Normal shutdown instructions.
   ix. Operating procedures for emergencies.
   x. Operating procedures for system, subsystem, or equipment failure.
   xi. Seasonal and weekend operating instructions.
   xii. Required sequences for electric or electronic systems.
   xiii. Special operating instructions and procedures.

5. Adjustments: Include the following:
   i. Alignments.
   ii. Checking adjustments.
   iii. Noise and vibration adjustments.
   iv. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:
   i. Diagnostic instructions.
   ii. Test and inspection procedures.

7. Maintenance: Include the following:
   i. Inspection procedures.
   ii. Types of cleaning agents to be used and methods of cleaning.
   iii. List of cleaning agents and methods of cleaning detrimental to product.
   iv. Procedures for routine cleaning
   v. Procedures for preventive maintenance.
   vi. Procedures for routine maintenance.
   vii. Instruction on use of special tools.

8. Repairs: Include the following:
   i. Diagnosis instructions.
   ii. Repair instructions.
   iii. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   iv. Instructions for identifying parts and components.
   v. Review of spare parts needed for operation and maintenance.

3.00 EXECUTION

3.01 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
B. Set up instructional equipment at instruction location.

3.02 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and County for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct County's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. County will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with County with at least seven days' advance notice.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a written performance-based test.

F. Cleanup: Collect used and leftover educational materials and give to County. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.03 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. Video: Provide minimum 640 x 480 video resolution converted to .mp4 format file type, on electronic media.

1. Electronic Media: Read-only format compact disc acceptable to County, with commercial- grade graphic label.

2. File Hierarchy: Organize folder structure and file locations according to project manual table of contents. Provide complete screen-based menu.

3. File Names: Utilize file names based upon name of equipment generally described in video segment, as identified in Project specifications.

4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training DVD that describes the following for each Contractor involved on the Project, arranged according to Project table of contents:

i. Name of Contractor/Installer.
ii. Business address.
iii. Business phone number.
iv. Point of contact.
v. E-mail address.

C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.

1. Film training sessions in segments not to exceed 15 minutes.
   i. Produce segments to present a single significant piece of equipment per segment.

ii. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.

iii. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.

D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.

1. Furnish additional portable lighting as required.

E. Narration: Describe scenes on video recording by dubbing audio narration off-site after video recording is recorded. Include description of items being viewed.

F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.

G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

END OF SECTION

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 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 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 Augustus F. Hawkins 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 024113

REMOVAL OF SITE ITEMS

DESCRIPTION

1.1 GENERAL

This item shall consist of removal and disposing of pavements and removal of anything required to be removed for the progression of the work within the limits designated on the demolition plans outside of the project buildings, required by the Specifications, or as required by the OWNER'S REPRESENTATIVE.

Except for materials which are to be stockpiled, crushed and/or recycled, all other items removed to allow construction of the project shall be removed and legally disposed of off the property.

CONSTRUCTION METHODS

2.1 GENERAL

All items required to be removed shall be disposed of off property, unless otherwise noted, and shall be transported to a legal disposal site(s). Proof of proper disposal at a legally authorized dumping site is required. All contaminated materials to be disposed through arrangements with Clean Harbors in accordance with contract documents.

It is the CONTRACTOR'S responsibility to provide adequate and appropriate equipment to transport materials, and to maintain haul roads and stockpile sites in satisfactory condition.

All other materials used in conjunction with this work shall be furnished by the CONTRACTOR and will be considered incidental to the Item.

The remaining site and/or materials shall be re-compacted and restored to as near to the original condition as possible or as shown on the Plans (if specified).

Equipment used for removing existing pavements and structures shall be in proper working condition and shall be capable of removing the pavement without excessively disturbing or removing the underlying materials. Equipment shall not leak fluids onto the ground that could potentially contribute to contamination.

2.2 EXISTING ITEMS AND SURFACES DESIGNATED TO REMAIN

Objects, surfaces, and items including the underground utilities designated to remain shall be carefully avoided and left undisturbed. Any damage to these Items shall be immediately corrected by the CONTRACTOR to the satisfaction of the OWNER and any Public oversight agencies and at no cost to the OWNER.

2.3 ADJOINING PAVEMENTS DESIGNATED TO REMAIN

Existing pavement to be removed shall be saw-cut to the limits shown on the plans and to the nearest concrete joint as applicable. All pavements shall be double saw-cut to full depth.

The matching edge of existing pavements designated to be saw cut shall be saw cut in a straight and true line. The saw cut edge shall be protected from damage until the finished surface has been completed. Where the matching edge of existing pavement designated to remain is not to be saw cut, the CONTRACTOR shall take all precautions necessary to remove the pavement adjacent to this edge without damaging it. This edge shall be protected from damage until the finished surface has been completed.

Edges that are damaged shall be re-sawn the entire length of the matching joint prior to placing the finished surface at no expense to the OWNER. Over-saw cutting at corners will not be allowed.

2.4 REMOVAL OF EXISTING PAVEMENT. Portland cement concrete and asphalt pavements shall be sawn full depth

Portland Cement Concrete: The existing concrete to be removed per the site demolition drawings shall be freed from the pavement to remain. Existing concrete pavement slabs as identified on the plans or by the ENGINEER for removal shall be removed by sawing through the complete depth of the slab.

It is anticipated that all concrete slabs contain steel or wire mesh reinforcing. The CONTRACTOR's removal plans and operations shall not cause damage to cables, utility ducts, pipelines, or drainage structures or other structures, pavements, or facilities under or adjacent to the pavement. Any damages, whether inadvertent or not, caused by the CONTRACTOR's actions shall be repaired by the CONTRACTOR at no expense to OWNER and to the satisfaction of the ENGINEER.

Asphaltic Concrete: The existing asphaltic concrete pavement to be removed shall be cut to the full depth of the bituminous material around the perimeter of the area to be removed. The CONTRACTOR shall be responsible for removal of all surface and underlying layers of asphalt in the work. If the material is to be reused on the site, it shall be broken to a maximum size as designated by the requirements stated in the Processed Miscellaneous Base specification. If the material is not reused on the site, it shall be recycled for off-site reuse.

2.5 REMOVALS

All existing items that need to be removed, whether specifically identified on the plans or not (with the exception of the monitoring wells and groundwater treatment systems), and removal of those items is necessary for the progression of the work and are encountered within the established lines, grades, or grading sections, or as designated on the plans, shall be removed by the CONTRACTOR, unless such existing items are otherwise specified to be relocated, adjusted, salvaged, abandoned in place, reused in the work, or are designated to remain in place. The CONTRACTOR's removal plans and operations shall not cause damage to cables, utility ducts, pipelines, or drainage structures or other structures, pavements, or facilities under or adjacent to the pavement. Any damages, whether inadvertent or not, caused by the CONTRACTOR's actions shall be repaired by the CONTRACTOR at no expense to the OWNER and to the satisfaction of the OWNER and/or OWNERS REPRESENTATIVE.

These project plans and specifications constitute the best available information for the site and facilities. However, the CONTRACTOR shall satisfy itself of all site facilities and items required to be removed and shall include all costs for complete removal and disposal of those items within the project limits or as required for completing the work. The CONTRACTOR is responsible for reviewing all demolition plans, all existing and proposed utility plans, and all other project plans as they apply to demolition and removals, and shall inspect the site and verify the undertaking all removals required for construction, prior to conducting the work. From this investigation, the CONTRACTOR shall submit a plan for the specific demolition activities, to the OWNER and/or OWNERS REPRESENTATIVE, for review and approval prior to commencement of all demolition activities. The CONTRACTOR shall consider in the demolition and removal plan any items that are required for salvage and handover to the OWNER or OWNER'S REPRESENTATIVE or other parties as identified in the Contract Documents.

Existing water mains shall be deemed to be constructed of asbestos cement piping which shall be removed in accordance with SCAQMD Rule 1403, procedure 3 requirements (Available at www.sqaqmd.gov/rules/reg/reg14/r1403.pdf).

Existing and proposed utility plans and site demolition plans depict the best available information for the project site and the OWNER accepts no responsibility for unknown or non-specified removals beyond this specification or beyond what is shown on the project plans. The CONTRACTOR shall, through his own plan review and site inspection, be responsible for removal of all items shown, described, or implied throughout the limits of the project. The CONTRACTOR shall demonstrate to the OWNER that all remaining utilities and appurtenances are not a part of an active system and are therefore authorized for removal, prior to removal of any utility items. Pending that evaluation, the CONTRACTOR shall be authorized by the OWNER to commence removal of all utility items and appurtenances. If any active systems are encountered which cannot be taken out of service or cannot be removed and are in conflict with the proposed construction of this project, the CONTRACTOR shall immediately bring this to the OWNER's attention.

All materials and debris which are to be discarded shall be disposed of by the CONTRACTOR in accordance with the contract documents. Voids shall be filled with crushed aggregate base and compacted to the requirements of Sections 200-1 and 301-2 of the Standard Specifications for Public Works Construction (SSPWC) (Greenbook) Class C and corresponding latest edition Brown Book.

Removal items may include but are not limited to the following items, which the CONTRACTOR should anticipate encountering and shall be responsible for removing from the site:

Vegetation and Landscaping:

1. Trees, bushes, shrubbery, stumps, roots, all vegetation remnants, topsoil, landscape gravel, and rip rap not previously removed in clearing efforts.

Objects and Obstructions:

1. Fence posts, chain link fence fabric, visibility screens or slats, concrete fence post bases, fence rails, braces, tension wires, arresting cables, gates, gate tracks, latches, hardware, barbed wire, extension arms, and all remaining fence appurtenances.
2. All freestanding posts and signs, foundations, mounting hardware, and appurtenances.
3. All types of bollards, bollard foundations, concrete and metal barriers, concrete parking blocks, K-rail, temporary barricades and guard rail posts.
4. All concrete and asphalt curbing, parking blocks and anchors, survey monuments and markers, foundations, aircraft grounding devices, concrete block, and all appurtenances.
5. Various remaining equipment enclosures, shelters, storage sheds, and portable storage containers.
6. Various mass concrete and asphalt structures, concrete and asphalt foundations, CMU and concrete wall, stoops, handrails, miscellaneous metal attachments, pads, and any associated supports or reinforcement, concrete curbs and islands.
7. All catch basins, grates, collars, drainage swales, concrete valley gutters, and all other assorted drainage structures or appurtenances.

8. All water tanks, piping, pumps, related electrical systems and equipment, foundations, containment curbing, structural framing and all appurtenances including GET system.

Utility Items:

1. Light and utility poles, traffic signalization, light fixtures, mast arms, luminaires, guy wires and anchors, grounding rods, ground wiring, attached signs, conduits, conductors, fuses, switches, breakers, fuses, control, major electrical equipment such as substations, transformers etc., junction boxes, mounting hardware, foundations, and all appurtenances.
2. Free standing or pedestal mounted switches, breakers, fuses, control, and junction boxes, communication and card reader devices.
3. Posts, braces, foundations, attached signs, lights, fixtures, mounting hardware, and appurtenances.
4. Underground electrical and communication facilities including junction boxes, pull boxes, electrical vaults, duct bank, conduit, cable, raceways, grounding equipment systems, and all appurtenances.
5. Above ground electrical and communication facilities including conduit, raceways, cables, switches, junction, fuse switch, and breaker boxes, and associated appurtenances.
6. All wells, well heads, pumps, and all appurtenances. Monitoring wells shall be protected in place.
7. All fuelling facilities, pumps, tanks, curbs raised pads, bollards, piping, hoses, fixtures, electrical services and other assorted appurtenances.
8. Above-ground water and firewater main piping, valve risers, valves, valve boxes, test headers, pressure indicating valves meter boxes, utility covers, concrete collars, fire hydrants, pipe restraints, thrust blocks, manholes, cleanouts, utility vaults and appurtenances.
9. Underground storage tanks (UST), contents and all associated appurtenances. The USTs at the site have all been previously removed. If encountered, the CONTRACTOR would need to involve the LACDPW and follow all appropriate regulations.
10. Removal of storm drainage and sanitary sewer manholes, sanitary sewer or storm water, oil/water separators/clarifiers, catch basins, capping of pipes at property line, pipe plugs, storm water clarifiers, storm drain valves, storm drainage piping, trench drains and associated appurtenances as indicated on the contract documents.

Equipment:

1. All remaining equipment, air conditioners, air compressors, and appurtenances.
2. All remaining equipment, mechanisms, or components and debris thereof.

Other Assorted Items:

1. All above-ground, conduits, cables, switches, breakers, fuses, control, and junction boxes and all appurtenances attached to the fencing.
2. All benches, chairs, tables, shelving, decorative railing, bicycle posts, bank protection, and all appurtenances.

3. Pallets and assorted package containers and materials.
4. Trash receptacles, trash, and debris.
5. Any and all objects, obstructions, or other deleterious items which are located within the proposed construction prism of the project.

2.6 DUST CONTROL

The CONTRACTOR is advised that control of dust during demolition operations is his/her sole responsibility and is of the utmost importance. Airborne dust and debris can cause hazards in addition to creating visibility concerns. Adequate use of water trucks or other methods of dust control shall be utilized at all times. The OWNER has the authority to cease all construction operations, with no modification to the allowable contract schedule, when excess dust is observed. Owner's Representative will have PM10 monitors at the project site.

2.7 TRANSITE STORM DRAIN PIPE REMOVAL

If encountered, existing transite storm drain within the limits of the project shall be removed and disposed of off Property in accordance with approved environmental and regulating guidelines and procedures discussed in the following section.

1. Non-friable asbestos cement pipe (ACP) is present on this project; CONTRACTOR shall ensure that any portion of work involving ACP and its components shall ensure that adequate care is employed to maintain the "ACP" in a non-friable condition. Removal of ACP shall be in whole sections where possible. Cutting or breaking of ACP to facilitate removal shall be in compliance with California Regulations, Title 8 and Section 5208. CONTRACTOR shall at a minimum follow the following requirements for ACP that is to be cut or broken.
    a. Evacuate the area of unauthorized personnel, post warning signs, and provide adequate barriers to keep unauthorized personnel out of the area during removal.
    b. Provide asbestos accredited and insured workers performing the cutting or breaking of ACP with personal protective equipment of at least a respirator and disposable clothing (worker shall be in compliance with respiratory protection requirements of Title 8 Section 5414).
    c. Area to be cut or broken shall be adequately wetted with amended water to reduce fiber emission. Method employed by CONTRACTOR shall be determined to minimize fiber release. Power saw cutting shall not be allowed. All related debris from the cutting or breaking of ACP shall be considered friable. CONTRACTOR shall dispose of the friable material in accordance with California regulations Title 22.
    d. All waste generated and ACP shall be wrapped in 6 mil polyethylene sheeting or bags and properly labeled.

        CONTRACTOR is responsible for all ACP removal associated contamination.

        All materials and debris which are to be discarded shall be disposed of by the CONTRACTOR in accordance with the contract documents. Voids left below the new structural section shall be filled with crushed aggregate base and compacted to the requirements of subgrade preparation.

2. All friable asbestos-containing materials (material that can be crumbled, pulverized, or reduced to powder in hand) are regulated as a hazardous waste and shall be transported by a licensed hazardous waste hauler and disposed of in an appropriate landfill. Upon discovery of-friable asbestos, the CONTRACTOR shall immediately notify the OWNER.
3. CONTRACTOR shall submit to OWNER copies of all disposal receipts from legal disposal site for all loads of hazardous material pipe removed from this site.
4. All friable asbestos-containing materials (material that can be crumbled, pulverized, or reduced to powder in hand) are regulated as a hazardous waste and shall be transported by a licensed hazardous waste hauler and disposed of in an appropriate landfill. Upon discovery of-friable asbestos, the CONTRACTOR shall immediately notify the OWNER.
5. CONTRACTOR shall submit to OWNER copies of all trucking manifests and disposal receipts from legal disposal site for all loads of hazardous material pipe removed from this site.

METHOD OF MEASUREMENT

3.1 VEGETATION AND LANDSCAPING

3.2 Vegetation and Landscaping: The unit of measurement of removal of existing landscaping shall be measured as a single Lump Sum unit. PAVEMENT REMOVAL

Pavement Removal: The unit of measurement for pavement removal shall be the number of Square Yards by type of pavement by thickness as shown, removed by the CONTRACTOR as designated in the project plans. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the CONTRACTOR shall not be included in the measurement for payment.

Removal of any Asphaltic Concrete or Portland Cement Concrete shall include complete removals that include any embedded dowels, reinforcing steel or other metals. CONTRACTOR shall assume existing Portland Cement Concrete is reinforced with reinforcement occupying up to 15 percent of the existing Portland Cement Concrete volume.

3.3 OBJECTS AND OBSTRUCTIONS

Objects and Obstructions: The unit of measurement shall be according to the units indicated or defined against its' respective payment item listed. Removal of all other items required that do not have direct listed payment items will not be measured separately.

3.4 WATER PIPE REMOVAL

Above-ground water pipe removal as shown on the plans shall be considered incidental to the demolition of the building they service or wall to which they are attached. No separate measurement shall be made there for. Water pipe removal includes valves and fittings associated with the line and capping of an existing water line that requires being protected in-place. Existing water mains shall be deemed to be constructed of asbestos cement piping which shall be removed in accordance with SCAQMD procedure 3 requirements.

3.5 BACKFLOW PREVENTER REMOVAL

Backflow preventer removal shown on the plans shall be considered incidental to the demolition of the building they serve. No separate measurement shall be made there for. Removal shall include the backflow preventer, support blocks and concrete pads, valves and thrust blocks associated with each unit.

3.6 ELECTRICAL DUCT AND CONDUIT REMOVAL

Above-ground electrical duct and conduit removal of various sizes shown on the plans shall be considered incidental to the demolition of the building they serve. No separate measurement shall be made there for. Removal shall include utility termination coordination with the utility provider and duct or conduit, conductors,.

3.7 SEWER REMOVAL

Above-ground sewer removal shown shall be considered incidental to the demolition of the building they serve. No separate measurement shall be made there for. Removal shall include capping the utility at the ground elevation.

3.8 NATURAL GAS LINE REMOVAL

Above-ground gas line removal shown on the plans shall be considered incidental to the demolition of the building they serve. No separate measurement shall be made there for. Removal includes coordination with the utility provider for shut off and purging the line.

3.9 EQUIPMENT

3.10 The unit of measurement shall be according to the units indicated or defined against its' respective payment item listed and disposed of accordingly. Removal of all other items required that do not have direct listed payment items will not be measured separately.TRENCH DRAIN REMOVAL

Removal of trench drain required as shown on the plans shall be measured by the Linear Foot of trench drain removed and disposed and removed off site.

3.11 STORM DRAIN STRUCTURES

Removal of storm drain structures required as shown on the plans shall be measured per Each individual structure removed.

3.12 TRANSITE STORM DRAIN PIPE REMOVAL

Removal of transite storm drain pipe if required as shown on the plans shall be measure by the Linear Foot of pipe removed and disposed of at a legal disposal site.

3.13 STORM DRAIN PIPE REMOVAL

Above-ground storm drain Pipe Removal: Removal of storm drain pipe required as shown on the plans shall be considered incidental to the demolition of the building they serve. No separate measurement shall be made there for. Removal shall include off-site disposal.

3.14 MASONRY WALL REMOVAL

Removal of masonry wall as shown on the plans shall be measured by the Linear Foot of masonry wall and footings removed and disposed of off site. Backfilling of the excavated footings shall be considered included in the measurement per linear foot.

3.15 MISCELLANEOUS ITEMS

Other miscellaneous items: Due to the varied nature of the other associated items, removal of the other associated items will be measured as a lump sum. Items not specifically identified shall be considered incidental to the work and will not be measured separately.

BASIS OF PAYMENT

4.1 VEGETATION AND LANDSCAPING

Payment for vegetation and landscaping removal shall be as a Lump Sum, which payment and price shall constitute full compensation for furnishing all labor, supervision, equipment, materials and incidentals necessary to completely remove, recycle and dispose of vegetation and landscaping.

4.2 PAVEMENT REMOVAL

Payment for pavement removal shall be made at the contract unit price per Square Yard of pavement removed, by type of pavement by thickness as shown, which payment and price shall constitute full compensation for furnishing all materials and for all preparation, saw cutting, hauling, crushing, processing, placing of the material, and dust control, and for all labor, equipment, supervision, tools, and incidentals necessary to complete this item.

4.3 OBJECTS AND OBSTRUCTIONS

Payment for objects and obstructions with listed payment items shall be paid at the contract unit price for their respective payment unit, which payment and price shall constitute full compensation for furnishing all labor, materials, tools, supervision, equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property. Payment and price for removal of objects and obstructions other than those having a direct listed payment item are to be included in the other items of work and will not be paid for separately.

4.4 WATER PIPE REMOVAL

Payment for Above-Ground Water Pipe Removal shall be considered incidental to the demolition of the building they serve. There shall be no separate payment there for. Payment and price shall constitute full compensation for furnishing all labor, equipment, supervision, materials and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property. Note that all water piping is deemed to be constructed of asbestos cement piping which shall be removed per Procedure 3 in SCAQMD Rule 1403, available at www.SCAQMD.gov/rules/reg14/r1403.pdf.

4.5 FIRE HYDRANT REMOVAL

Payment for “Fire Hydrant Removal” shall be made at the Contract Unit price per each, which payment and price shall constitute full compensation for furnishing all labor, equipment, supervision, materials and incidentals necessary to remove the item from the project site and dispose of the materials in a legal manner, off property.

4.6 BACKFLOW PREVENTER REMOVAL

Payment for Backflow Preventer Removal shall be considered incidental to the demolition of the building they serve. There shall be no separate payment there for. Payment and price shall constitute full compensation for furnishing all labor, supervision, equipment, materials and incidentals necessary to remove the item from the project site and dispose of the materials in a legal manner, off property.

4.7 ELECTRICAL DUCT AND CONDUIT REMOVAL

Payment for Electrical Duct and Conduit Removal shall be considered incidental to the demolition of the building they serve. There shall be no separate payment there for. Payment and price shall constitute full compensation for furnishing all labor, equipment, supervision, materials and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property.

4.8 SEWER REMOVAL

Payment for Above Ground Sewer Removal shall be considered incidental to the demolition of the building they serve. There shall be no separate payment there for. Payment and price shall constitute full compensation for furnishing all labor, supervision, equipment, materials and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property.

4.9 SEWER MAINTENANCE HOLE REMOVAL

Payment for “Sewer Maintenance Hole Removal” shall be made at the Contract unit price per each, which payment and price shall constitute full compensation for furnishing all labor, supervision, equipment, materials and incidentals necessary to remove the item from the project site and dispose of the materials in a legal manner, off property.

4.10 NATURAL GAS LINE REMOVAL

Payment for Above-Ground Natural Gas Removal shall be considered incidental to the demolition of the building they serve. There shall be no separate payment there for. payment and price shall constitute full compensation for furnishing all labor, supervision, equipment, materials and incidentals necessary to remove the item from the project site and dispose of the materials in a legal manner, off property.

4.11 EQUIPMENT

4.12 Payment for equipment removals with listed payment items shall be paid at the contract unit price, which payment and price shall constitute full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property. Payment and price for removal of equipment other than those having a direct listed payment item are to be included in other items of work and will not be paid for separately.**TRENCH DRAIN REMOVAL**

Payment for trench drain removal shall be paid at the contract unit price per Linear Foot, which payment and price shall constitute full compensation for furnishing all labor, supervision, materials, tools equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property. Removal of trench drain shall include removal of grate, frame, concrete; reinforcing and trench drain connection piping.

4.13 STORM DRAIN STRUCTURES

Payment for storm drain structure removal shall be paid at the contract unit price per Each, which payment and price shall constitute full compensation for furnishing all labor, supervision, materials, tools equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property. Removal of storm drain structures shall include removal of concrete, reinforcing, grates, frames, manhole covers, steps and all other hardware that is part of the structure.

4.14 STORM DRAIN PIPE REMOVAL

Payment for Above Ground Storm Pipe shall be considered incidental to the demolition of the building they serve. There shall be no separate payment there for. Payment and price shall constitute full compensation for furnishing all labor, supervision, materials, tools equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property.

4.15 TRANSITE STORM DRAIN PIPE REMOVAL

If encountered, payment for transite storm drain pipe removal shall be paid at the contract unit price per Linear Foot which payment and price shall constitute full compensation for furnishing all labor, supervision, materials, tools equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off airport property.

4.16 STORM DRAIN PIPE REMOVAL

Payment for Storm Drain Pipe Removal shall be considered incidental to the demolition of the building they serve. There shall be no separate payment there for. Payment and price shall constitute full compensation for furnishing all labor, supervision, materials, tools equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property.

4.17 REMOVE MISCELLANEOUS ITEMS

Payment for all other miscellaneous associated item removals shall be paid at the Lump Sum contract price, which payment and price shall constitute full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off property. This includes the removal of all items other than those indicated in the plans and herein for removal.

4.18 FENCE REMOVAL

Payment for fence removal shall be paid at the contract unit price per lump sum, which payment and price shall constitute full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals necessary to remove the blast fence and all of its associated items from the project site and dispose of the materials in a legal manner, off property. There will be no separate payment for the removal of anchors, posts, foundations, electrical systems, lead paint abatement and all other appurtenances associated with the blast fence. These are to be included in the item of work and will not be paid for separately.

Payment will be made under:

024113.1	Vegetation and Landscaping Removal – per lump sum
024113.2	Asphalt Pavement Removal, 2 in to 6 in Thickness – per square yard
024113.3	Asphalt Pavement Removal, 6 in to 12 in Thickness – per square yard
024113.4	PCC Pavement Removal – per square yard
024113.5	Remove Existing Storm Drain – per linear foot
024113.6	Remove Chain Link Fence – per linear foot
024113.7	Remove Existing 4” Storm Drain Structure– per each
024113.8	Remove Existing 6” Storm Drain Structure– per each
024113.9	Remove Existing 8” Storm Drain Structure– per each
024113.10	Remove Existing 12” Storm Drain Structure– per each
024113.11	Remove Existing 24” Storm Drain Structure– per each
024113.12	Remove Existing 27” Storm Drain Structure– per each
024113.13	Remove Existing 30” Storm Drain Structure– per each
024113.14	Remove Existing 36” Storm Drain Structure– per each
024113.15	Cap Storm Drain – per each
024113.16	Remove Existing Trench Drain – per linear foot
024113.17	Remove Miscellaneous Items – per lump sum
024113.18	Remove 4” and under 4" Water (0.75”, 1”, 2”, 3”, etc.) – per linear foot
024113.19	Remove 6" Water – per linear foot
024113.20	Remove 8" Water – per linear foot
024113.21	Remove 10" Water – per linear foot
024113.22	Remove 12" Water – per linear foot
024113.23	Remove 16" Water – per linear foot
024113.24	Remove 24" Water – per linear foot
024113.25	Remove 30" Water – per linear foot
024113.26	Remove Fire Hydrant and valve – per each
024113.27	Remove Backflow Preventer – per each

024113.28	Remove Fire Department Connection – per each
024113.29	Cap Water – per each
024113.30	Remove Electrical Duct – per linear foot
024113.31	Remove Misc. Electrical Line/Conduit – per linear foot
024113.32	Remove 4” and under Sewer (2”, 3”, 4”)
024113.33	Remove 6" Sewer – per linear foot
024113.34	Remove 8" Sewer – per linear foot
024113.35	Remove 10" Sewer – per linear foot
024113.36	Remove 12" Sewer – per linear foot
024113.37	Remove 15” Sewer
024113.38	Cap Sewer – per each
024113.39	Remove Sewer Maintenance Hole – per each
024113.40	Remove Miscellaneous Manhole – per each
024113.41	Remove Gas (1.5, 2, 3, and 5”) – per linear foot
024113.42	Remove 8" Gas– per linear foot
024113.43	Cap and Disconnect Gas – per each
024113.2	Remove Existing Transite Storm Drain – per linear foot
024113.45	Remove Existing ACP Water – per linear foot
024113.46	GET System (Groundwater Extraction and Treatment System) – per Lump Sum

END OF SECTION 024113

SECTION 024116 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of buildings and site improvements.
2. Removing below-grade construction.
3. Disconnecting, capping or sealing, and removing site utilities.

B. Related Sections:

1. Section 011000 "Summary" for use of the premises and phasing requirements.
2. Section 013200 "Construction Progress Documentation" for preconstruction photographs taken before building demolition.
3. Section 015000 "Temporary Facilities and Controls" for temporary construction, protection facilities, and environmental-protection measures for building demolition operations.
4. Section 017419 "Construction Waste Management and Disposal" for recycling and disposal of nonhazardous demolition wastes and for removal and storage of refrigerant.

1.3 DEFINITIONS

A. Demolish: Completely remove and legally dispose of off-site.

B. Recycle: Recovery of demolition waste for subsequent processing in preparation for reuse.

C. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified refrigerant recovery technician.

B. Proposed Protection Measures: Submit informational report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

C. Schedule of Building Demolition Activities: Indicate the following:

1. Detailed sequence of demolition work, with starting and ending dates for each activity.
2. Temporary interruption of utility services.
3. Shutoff and capping or re-routing of utility services.

D. Building Demolition Plans: Drawings indicating the following:

1. Locations of temporary protection and means of egress for adjacent occupied buildings.

E. Predemolition Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before the Work begins.

F. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

G. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

D. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be demolished.
2. Review structural load limitations of existing structures.
3. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review and finalize protection requirements.
5. Review procedures for noise control and dust control.
6. Review procedures for protection of adjacent buildings.
7. Review items to be salvaged and returned to County. Verify that removal of items to be salvaged will be by or under the direction of personnel who would normally install these items.

1.7 PROJECT CONDITIONS

A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.

B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.

1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
    a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

C. County assumes no responsibility for buildings and structures to be demolished.

1. Conditions existing at time of inspection for bidding purpose will be maintained by County as far as practical.

D. Hazardous Materials: It is unknown whether hazardous materials will be encountered in the Work.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and County. Hazardous materials will be removed by County under a separate contract.

E. On-site storage or sale of removed items or materials is not permitted.

1.8 COORDINATION

A. Arrange demolition schedule so as not to interfere with County's on-site operations or operations of adjacent occupied buildings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting demolition operations.

B. Review Project Record Documents of existing construction provided by County. County does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Verify with Architect items to be removed and items to be preserved in place before starting demolition operations.

D. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 PREPARATION

A. Refrigerant: Remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction before starting demolition.

B. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished.

1. Arrange to shut off indicated utilities with utility companies.
2. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
3. Cut off pipe or conduit a minimum of 24 inches 610 mm below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.

C. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of demolition.

3.3 PROTECTION

A. Existing Facilities: Protect adjacent walkways, and other building facilities during demolition operations.

B. Existing Utilities: Maintain utility services to remain and protect from damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by County and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to County and authorities having jurisdiction.
    a. Provide at least 72 hours' notice to occupants of affected buildings if shutdown of service is required during changeover.

C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways where required and as indicated. Comply with requirements in Section 015000 "Temporary Facilities and Controls."

1. Protect adjacent buildings and facilities from damage due to demolition activities.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
6. Protect other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.

D. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.4 DEMOLITION, GENERAL

A. General: Demolish indicated buildings and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
2. Maintain fire watch during and for at least one hour after flame cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from County and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Explosives: Use of explosives is not permitted.

3.5 DEMOLITION BY MECHANICAL MEANS

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.

C. Remove concrete and asphaltic concrete slabs, walks, paving, and curbs within 5 feet outside footprint indicated for new construction, or that are indicated to be removed, by cutting with a concrete saw to a 2 inch depth along joint lines before breaking out portions to be removed.

D. Below-Grade Construction: Demolish foundation walls and other below-grade construction.

1. Remove below-grade construction, including basements, foundation walls, and footings, completely.

E. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.

1. Piping: Disconnect piping at unions, flanges, valves, or fittings.
2. Wiring Ducts: Disassemble into unit lengths and remove plug-in and disconnecting devices.

3.6 SITE RESTORATION

A. Below-Grade Areas: Rough grade below-grade areas ready for further excavation or new construction.

B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.7 REPAIRS

A. Promptly repair damage to adjacent buildings, walkways, loading docks, building entries, and other building facilities and utility services caused by demolition operations.

B. Make necessary repairs and replacements as acceptable to the Architect, at no additional cost to the County.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site. See Section 017419 "Construction Waste Management and Disposal."

B. Remove demolition waste materials from Project site and legally dispose of them in an EPA-approved landfill acceptable to authorities having jurisdiction. See Section 017419 "Construction Waste Management and Disposal" for recycling and disposal of demolition waste.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

C. Do not burn demolished materials.

3.9 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

1. Clean roadways of debris caused by debris transport.

END OF SECTION 024116

SECTION 054000 - COLD FORMED METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cold formed metal framing systems for exterior walls.

B. Related Sections include the following:

1. Division 9 Section "Gypsum Board Assemblies" for non-load-bearing, metal-stud-framed assemblies for interior non-load-bearing partitions and ceilings.
2. Division 9 Section "Gypsum Board Assemblies" for cement backer board-based exterior sheathing for exterior metal-stud framing.
3. Division 9 Section "Gypsum Sheathing" for gypsum-based exterior sheathing for exterior metal-stud framing.

1.2 DESIGN REQUIREMENTS (Exterior Only)

A. Where design of studs, joists, bracing and other framing members and connections are not indicated on the contract documents they shall be designed by a licensed structural engineer registered in the State of California and employed by the Contractor. Design shall include fasteners, attachments and lateral bracing required for proper installation. Design shall conform to the following criteria:

1. Exterior Wall Framing: Design exterior wall framing to withstand the wind loads and seismic loads specified in the 2022 California Building Code (CBC) with Title 24 Amendments.
2. Compute structural properties of studs, joists, bracing, and other framing members in accordance with the 2001 AISI "Specifications for Design of Cold-Formed Steel Structural Members" with 2004 Supplement.

B. Shop drawings and calculations for the design shall be stamped and signed by a licensed structural engineer in the State of California and submitted for review (for general conformance with the project requirements) to the Architect and SEOR and then submitted to OSHPD for review and approval. The contractor and their engineer shall be responsible for obtaining OSHPD approval for the submittal.

1.3 SUBMITTALS

A. Comply with provisions of Section 01330 – Submittal Requirements.

B. Shop Drawings: Submit shop drawings for exterior wall framing systems. Provide wall framing elevations that indicate size, gage and cross sections and spacing of framing members. Show framing around all openings. Indicate on the wall framing elevations horizontal slip joint locations at each floor level. Detail areas that may not be completely shown on the drawings and are required for proper installation. Show connections and supplemental strapping,

bridging, lateral bracing, accessories, and all details required for proper installation. Furnish layout of required clips to the metal deck installer well in advance of deck installation.

C. Product Data: Submit framing manufacturer's literature, including a current ICC Evaluation Report, showing tabulation of structural properties, load capacities, dimensions, metal gages and type of coating for all framing and furring members. Submit power driven fastener manufacturer's current ICC Evaluation Report.

D. Submit mill certificates for exterior studs & tracks signed by steel sheet producer or test reports from a qualified independent testing agency indicating steel sheet complies with requirements, including uncoated steel thickness, yield strength, tensile strength, total elongation, chemical requirements, ductility, and galvanized-coating thickness.

E. Submit welding procedures for all welding applications to the Architect, SEOR and OSHPD for review and approval.

1.4 QUALITY ASSURANCE

A. Qualification of Welding: Qualify welding procedures and welding operators in accordance with AWS D1.3 latest edition and the 2022 California Building Code (CBC). Provide certifications that welders to be employed in the construction have satisfactorily passed AWS qualification tests. If recertification of welders is required, retesting will be the Contractor's responsibility.

B. Regulatory Requirements: Furnish and install wall framing and powder driven fasteners in accordance with the framing and fastener manufacturer's current ICC Evaluation Reports.

C. Fire Rated Assemblies: Comply with CBC, Chapter 7 - Fire-Resistant Materials and Construction.

1. Provide framing identical to that used in assemblies tested for fire resistance according to ASTM E 119-07 and listed by GA File Numbers in GA-600, "Fire Resistance Design Manual," or by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency acceptable to the authorities having jurisdiction over the work.
2. Provide fire resistive head of wall joint assemblies identical to those used in assemblies tested for fire resistance according to UL 2079 after cyclical movement in accordance with CBC Section 706.2 and listed by Underwriters Laboratories, Intertek Testing Services or other testing and inspecting agency acceptable to the authorities having jurisdiction over the work.

D. Pre-installation Conference: Before beginning installation of the metal framing systems, hold a conference with representatives of the installers of metal framing systems, door frames, plaster, gypsum board, mechanical and electrical construction, Contractor, in attendance. The conference shall ensure a clear understanding of the drawings and specifications, resolve possible conflicts and establish coordination between all parties involved.

E. Mock-Ups: Comply with the requirements specified elsewhere in these specifications.

F. Comply with all pertinent provisions of Section 01450 – Contractor Quality Control Program.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the project site and store them in adequately ventilated dry locations. If it is necessary to store materials outside, stack them off the ground on a platform and fully protected from the weather. Delivery, storage and handling shall be in accordance with Sections 01650 and 01660 of the specifications.

1.6 MANUFACTURERS

A. Available Manufacturers: Provide the product of any manufacturer complying with the Steel Stud Manufacturers Association (SSMA) ICBO ER-4943P.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Hot-dip Zinc Coated Steel: ASTM A 653, Grade SQ, designation G90 @ Exterior G40 min. @ Interior, Grade 50, (50,000 psi) @ Exterior / Grade 33, (33,000psi) @ Interior psi yield strength or greater.

B. Carbon Steel: ASTM A1003 (ASTM A1011 is Hot-Rolled Steel), Grade 50, (50,000 psi) @ Exterior / Grade 33m (33,000psi) @ Interior or greater. Provide framing components with electro-galvanized finish, conforming to ASTM A653, Type RS or shop-applied red oxide, zinc chromate or other similar primer.

C. Welding Electrodes: AWS A5.1 latest edition or A5.5 latest edition. E60xx and/or E70xx. For cold formed metal framing welded to structural steel use low hydrogen E70xx electrodes.

D. Expansion Anchors: Concealed anchors shall be carbon steel and have ICC approval. Exposed anchors shall be stainless steel and have ICC approval.

E. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials and tested per latest ESR. Provide the product of one of the following acceptable manufacturer or the equal product of another manufacturer approved in accordance with Section 01630:

1. Hilti Corp.
2. ITW/Ramset/Red Head
3. Powder Power Tool Corp.

F. Mechanical Fasteners: Minimum no. 8 by 3/8 inch cadmium or zinc coated self-drilling, self-threading steel drill screws with low-profile head beneath sheathing, and manufacturer's standard head elsewhere unless otherwise noted on contract documents.

G. Galvanizing Repair Compound (Exterior Framing Member Touch-Up Only): High zinc dust content galvanizing repair paint meeting the requirements of ASTM A 780 or hot applied zinc rich material. Provide one of the following available products or another product complying with the referenced standard:

1. American Solder & Flux; Drygalv
2. Kenco Div.; Galvicon
3. Metalloy Products Co.; Galvalloy

2.2 NON-LOAD-BEARING CURTAIN-WALL FRAMING

A. Fabricate all framing members in exterior walls from hot dip zinc coated steel.

B. Steel Studs: Manufacturer's standard C-shaped steel studs fabricate from hot dip zinc coated steel and complying with ASTM C 955. Minimum uncoated-steel thickness shall be 0.0538 inch. Web shall be punched and shall be of depths indicated. Flange Width shall be not less than 1-5/8 inches unless otherwise noted on contract documents.

C. Steel Track: Manufacturer's standard U-shaped steel track fabricate from hot dip zinc coated steel and complying with ASTM C 955. Minimum uncoated-steel thickness shall be 0.0538 inch. Web shall be unpunched and shall be of depths indicated. . Flange width shall be not less than 1-1/4 inches unless otherwise noted on contract documents.

D. Deflection Clips: Provide deflection clips, as shown in the contract documents, capable of accommodating upward, downward and horizontal displacements of primary structure.

2.3 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories of the same material and finish used for framing members, with a minimum yield strength of 33,000 psi unless noted otherwise on contract documents.

B. Provide accessories noted below, of thickness and configuration indicated on the Drawings. Where not indicated provide accessories manufacturer's standard of thickness and configuration.

1. Supplementary framing.
2. Bracing, bridging, and solid blocking.
3. Stud kickers, knee braces, and girts.
4. Hole reinforcing plates.
5. Backer plates.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.

B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that are required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

3.2 INSTALLATION

A. General: Unless otherwise indicated, conform to rules and practices set forth in the CBC and AISI "Specifications for Design for Cold Formed Steel Structural Members," ASTM C 1007, and with the manufacturer's printed instructions and recommendations, as applicable.

1. Cut stock neat and square. Cut framing members by sawing or shearing; do not torch cut. Provide members free of kinks and twists. Do not use damaged or distorted materials.
2. Erect straight, plumb, square, true to lines, levels or elevations indicated, free from excessive twists and bends and braced as shown or noted.
3. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
4. Use pre-punched openings in the studs wherever possible to run 1½" outside diameter or smaller conduit or plumbing lines horizontally between studs. If penetrations are required in studs reinforce studs per the Steel Stud Manufacturer's Association (SSMA) requirements or refer to contract documents for stud reinforcing details. If reinforcing details are not specifically shown on the contract documents, reinforce stud penetrations per SSMA requirements.
5. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated on contract documents.
6. Secure studs to top and bottom runner tracks by either welding or screw fastening at both inside and outside flanges; wire tying of framing components will not be permitted.

    a. Comply with AWS D1.3 latest edition requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.

7. Install supplementary framing, blocking, and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work requiring attachment to the wall or partition. Use backing plates of thickness specified herein and of proper size to accommodate fastenings.
8. Frame wall openings as shown and detailed in construction details and/or shop drawings.

B. Non-Load-Bearing Curtain-Wall Installation:

1. Connect vertical deflection clips to bypassing studs and anchor to primary building structure.
2. Provide cold-rolled steel channel bridging, welded or mechanically fastened to webs of punched studs. Install horizontal bridging in curtain-wall studs, spaced in rows indicated in construction details or applicable framing Shop Drawings. Fasten at each stud intersection.

C. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of lath, sheathing, wallboard or other finishing materials.

D. Touch-up: Touch up abrasions, burns, and welding, including construction activities of other trades, with primers for primed steel or with galvanizing compound if galvanized at all exterior framing installations only. Remove oil, grease, rust, loose scale, loose coatings, weld slag and other deleterious material before touch-up.

3.3 FIELD QUALITY CONTROL

A. Comply with pertinent provisions of Section 01450.

B. All inspection and testing shall be in compliance with 2022 CBC, Title 24 CCR requirements.

END OF SECTION

SECTION 071326 - SELF-ADHERING SHEET WATERPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Modified bituminous sheet waterproofing.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
2. Include manufacturer's written instructions for evaluating, preparing, and treating substrate, technical data, and tested physical and performance properties of waterproofing.

B. Shop Drawings: Show locations and extent of waterproofing and details of substrate joints and cracks, expansion joints, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver liquid materials to Project site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by waterproofing manufacturer.

C. Remove and replace liquid materials that cannot be applied within their stated shelf life.

D. Store rolls according to manufacturer's written instructions. Do not double-stack pallets of membrane. Cover on top and all sides, allowing for adequate ventilation.

E. Protect stored materials from direct sunlight.

F. Handle materials according to manufacturer's written instructions, so as to prevent damage of any kind. Remove and replace damaged materials with new materials as specified.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended in writing by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.

1. Do not apply waterproofing in snow, rain, fog, or mist.

B. Maintain adequate ventilation during preparation and application of waterproofing materials.

PART 2 - PRODUCTS

2.1 MODIFIED BITUMINOUS SHEET WATERPROOFING

A. Modified Bituminous Sheet: Minimum 60-mil nominal thickness, self-adhering sheet consisting of 56 mils of rubberized asphalt laminated on one side to a 4-mil-thick, polyethylene-film reinforcement, and with release liner on adhesive side; formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.

1. Product: Waterproofing shall be compatible with existing. Subject to compliance with requirements, products from the following manufacturers that may be incorporated in the Work include, but are not limited to, the following:
   a. GCP Applied Technologies Inc.
   b. Henry Company.
   c. W.R. Meadows, Inc.

2. Sheet Strips: Self-adhering, rubberized-asphalt strips of same material and thickness as sheet waterproofing.

2.2 AUXILIARY MATERIALS

A. Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.

1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.

B. Primer: Liquid waterborne primer recommended for substrate by sheet-waterproofing material manufacturer.

C. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate by sheet-waterproofing material manufacturer.

D. Liquid Membrane: Elastomeric, two-component liquid, cold fluid applied, of trowel grade or low viscosity.

E. Substrate Patching Membrane: Low-viscosity, two-component, modified asphalt coating.

F. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch , predrilled at 9-inch centers.

A. Protection Course, Asphaltic: ASTM D6506, semirigid sheets of fiberglass or mineral-reinforced-asphaltic core, pressure laminated between two asphalt-saturated fibrous liners and as follows:

1. Thickness: Nominal 1/8 inch.
2. Adhesive: Rubber-based solvent type recommended by waterproofing manufacturer for protection course type.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of waterproofing.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.

B. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

C. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids flush with surrounding areas.

1. Install sheet strips of width according to manufacturer's written instructions and center over treated construction and contraction joints and cracks exceeding a width of 1/16 inch.

D. Bridge and cover isolation joints and expansion joints.

1. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.

E. Corners: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.

1. Install membrane strips centered over vertical inside corners. Install 3/4-inch fillets of liquid membrane on horizontal inside corners and as follows:

3.3 MODIFIED BITUMINOUS SHEET-WATERPROOFING APPLICATION

A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions and per recommendations in ASTM D 6135.

1. Tie-in modified bituminous sheets to existing waterproofing.

B. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.

C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2-1/2-inch-minimum lap widths and end laps. Overlap and seal seams, and stagger end laps to ensure watertight installation.

D. Apply continuous sheets over already-installed sheet strips, bridging substrate cracks, construction, and contraction joints.

E. Seal exposed edges of sheet-waterproofing terminations not concealed by metal counterflashings or ending in reglets with mastic.

F. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 6 inches beyond repaired areas in all directions.

G. Immediately install protection course with butted joints over waterproofing membrane.

3.4 PROTECTION, REPAIR, AND CLEANING

A. Protect waterproofing from damage and wear during remainder of construction period.

B. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.

END OF SECTION 071326

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Glass-fiber blanket.

B. Related Requirements:

1. Section 092900 "Gypsum Board."

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each product, for tests performed by a qualified testing agency.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

B. Deliver materials to Project Site in manufacturer's original packaging. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Immediately remove damaged material from Project Site.

PART 2 - PRODUCTS

2.1 GLASS-FIBER BLANKET

A. Insulation shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Glass-Fiber Blanket, Unfaced: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. CertainTeed Corporation.
   b. Johns Manville; a Berkshire Hathaway company.
   c. Owens Corning.

2.2 ACCESSORIES

A. Insulation for Miscellaneous Voids:

1. Glass-Fiber Insulation: ASTM C 764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E 84.
2. Spray Polyurethane Foam Insulation: ASTM C 1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

B. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.3 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.4 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
3. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.

C. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft..
2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.5 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 092400 - CEMENT PLASTERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exterior vertical plasterwork (stucco).

B. Related Requirements:

1. Section 054000 "Cold-Formed Metal Framing."
2. Section 072100 "Thermal Insulation" for thermal insulations.
3. Section 092900 "Gypsum Board" for gypsum board construction.
4. Section 099113 “Exterior Paint.”

1.3 REFERENCES

A. Reference Standard: Comply with the Portland Cement Plaster Stucco Resource Guide, 3rd edition 2002 Northwest Wall and Ceiling Bureau.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated, including manufacturer's certificate that materials meet Specification requirements, and written recommendations, proportion mixes, and installation instructions for factory prepared finish materials.

B. Shop Drawings: Show locations and installation of control and expansion joints, including plans, elevations, sections, details of components, and attachments to other work. . Comply with locations and details indicated on the Drawings, or if locations are not indicated on the Drawings, comply with locations specified in the Installing Accessories article of Part 3 of this Section.

C. Samples: For each type of factory-prepared finish coat and for each color and texture specified.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver manufactured materials in original unopened packages or containers, with manufacturer's label intact and legible.

B. Store materials inside under cover, and keep them dry and protected against damage from weather, moisture, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

1.7 FIELD CONDITIONS

A. Comply with ASTM C 926 requirements.

B. Exterior Plasterwork:

1. Apply and cure plaster to prevent plaster drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
2. Apply plaster when ambient temperature is greater than 40 deg F.
3. Protect plaster coats from freezing for not less than 48 hours after set of plaster coat has occurred.

C. Factory-Prepared Finishes: Comply with manufacturer's written recommendations for environmental conditions for applying finishes.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: Where indicated, provide cement plaster assemblies identical to those of assemblies tested for fire resistance according to ASTM E 119 by a qualified testing agency.

2.2 METAL LATH

A. Expanded-Metal Lath: ASTM C 847, cold-rolled carbon-steel sheet with ASTM A 653/A 653M, G60, hot-dip galvanized-zinc coating.

1. Basis-of-Design Product: Subject to compliance with requirements, provide CEMCO; California Expanded Metal Products Co. or comparable product by one of the following:
   a. ClarkDietrich Building Systems.

2. Diamond-Mesh Lath: Flat, 3.4 lb/sq. yd..
3. 3/8-Inch Rib Lath: 3.4 lb/sq. yd..

B. Paper Backing: FS UU-B-790a, Type I, Grade D, Style 2 vapor-permeable paper.

1. Provide paper-backed lath unless otherwise indicated.

2.3 ACCESSORIES

A. General: Comply with ASTM C 1063, and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

B. Metal Accessories:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Alabama Metal Industries Corporation; a Gibraltar Industries company.
   b. CEMCO; California Expanded Metal Products Co.
   c. ClarkDietrich Building Systems.
   d. MarinoWARE.
   e. Phillips Manufacturing Co.

2. Foundation Weep Screed: Fabricated from hot-dip galvanized-steel sheet, ASTM A 653/A 653M, G60 zinc coating.
3. Cornerite: Fabricated from metal lath with ASTM A 653/A 653M, G60, hot-dip galvanized-zinc coating.
4. External- (Outside-) Corner Reinforcement: Fabricated from metal lath with ASTM A 653/A 653M, G60, hot-dip galvanized-zinc coating.
5. Cornerbeads: Fabricated from zinc or zinc-coated (galvanized) steel.
   a. Smallnose cornerbead with expanded flanges; use unless otherwise indicated.

6. Casing Beads: Fabricated from zinc or zinc-coated (galvanized) steel; square-edged style; with expanded flanges.
7. Control Joints: Fabricated from zinc or zinc-coated (galvanized) steel; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
8. Expansion Joints: Fabricated from zinc or zinc-coated (galvanized) steel; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.
9. Two-Piece Expansion Joints: Fabricated from zinc or zinc-coated (galvanized) steel; formed to produce slip-joint and square-edged reveal that is adjustable from 1/4 to 5/8 inch wide; with perforated flanges.

2.4 MISCELLANEOUS MATERIALS

A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories. Do not use reclaimed irrigation water.

B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch long, free of contaminants, manufactured for use in cement plaster.

C. Bonding Compound: ASTM C 932.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Larsen Products Corp.; Plaster-Weld, or comparable product as approved by Architect.

D. Fasteners for Attaching Metal Lath to Substrates: ASTM C 1063.

E. Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch diameter unless otherwise indicated.

2.5 PLASTER MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I.

1. Color for Finish Coats: White.

B. Lime: ASTM C 206, Type S; or ASTM C 207, Type S.

C. Sand Aggregate: ASTM C 897.

D. Acrylic-Based Finish Coatings: Factory-mixed acrylic-emulsion coating systems formulated with colorfast mineral pigments and fine aggregates; for use over cement plaster base coats. Include manufacturer's recommended primers and sealing topcoats for acrylic-based finishes.

1. Basis-of-Design Product: Subject to compliance with requirements, provide LaHabra; Acrylic Finish or comparable product by one of the following:
   a. Omega Products International, Inc.; OmegaFlex Finish Fine.

2. Color: As selected by Architect from manufacturer's full range.

2.6 PLASTER MIXES

A. General: Comply with ASTM C 926 for applications indicated.

1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. of cementitious materials.

B. Base-Coat Mixes for Use over Metal Lath: Scratch and brown coats for three-coat plasterwork as follows:

1. Portland Cement Mixes:
   a. Scratch Coat: For cementitious material, mix 1 part portland cement and 0 to 3/4 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
   b. Brown Coat: For cementitious material, mix 1 part portland cement and 0 to 3/4 parts lime. Use 3 to 5 parts aggregate per part of cementitious material, but not less than volume of aggregate used in scratch coat.

C. Base-Coat Mixes for Use over Unit Masonry: Single base (scratch) coat for two-coat plasterwork on high-absorption plaster bases as follows:

1. Portland Cement Mix: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.

D. Factory-Prepared Finish-Coat Mixes: For acrylic-based finish coatings, comply with manufacturer's written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Verify that substrates are free of dust, loose particles, oil, and other foreign matter that would affect bond of plaster coats.
2. Examine substrates, grounds, and accessories to ensure that finished plaster surfaces will be true to line, level, and plumb without requiring additional thickness of plaster.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

B. Prepare smooth, solid substrates for plaster according to ASTM C 926.

3.3 INSTALLATION, GENERAL

A. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.

3.4 INSTALLING METAL LATH

A. Metal Lath: Install according to ASTM C 1063.

1. Partition Framing and Vertical Furring: Install flat-diamond-mesh lath.
2. Flat-Ceiling and Horizontal Framing: Install flat-diamond-mesh lath.
3. On Solid Surfaces, Not Otherwise Furred: Install self-furring, diamond-mesh lath.

3.5 INSTALLING ACCESSORIES

A. Install according to ASTM C 1063 and at locations indicated on Drawings.

B. Reinforcement for External (Outside) Corners:

1. Install cornerbead at exterior locations.

C. Control Joints: Locate as approved by Architect for visual effect and as follows:

1. As required to delineate plasterwork into areas (panels) of the following maximum sizes:
   a. Vertical Surfaces: 144 sq. ft..
   b. Horizontal and Other Nonvertical Surfaces: 100 sq. ft..

2. At distances between control joints of not greater than 18 feet o.c.

3. As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.
4. Where control joints occur in surface of construction directly behind plaster.
5. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

3.6 PLASTER APPLICATION

A. General: Comply with ASTM C 926.

1. Do not deviate more than plus or minus 1/4 inch in 10 feet from a true plane in finished plaster surfaces when measured by a 10-foot straightedge placed on surface.
2. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
3. Provide plaster surfaces that are ready to receive field-applied finishes indicated.

B. Bonding Compound: Apply on unit masonry substrates for direct application of plaster.

C. Walls; Base-Coat Mixes for Use over Metal Lath: For scratch and brown coats, for three-coat plasterwork with 3/4-inch total thickness, as follows:

1. Portland cement mixes.

D. Walls; Base-Coat Mix: For base (scratch) coat, for two-coat plasterwork and having 3/8-inch thickness on masonry, as follows:

1. Portland cement mix.

E. Plaster Finish Coats: Apply to provide smooth float finish as selected by Architect.

F. Acrylic-Based Finish Coatings: Apply coating system, including primers, finish coats, and sealing topcoats, according to manufacturer's written instructions.

G. Painting: Refer to Section 099113 “Exterior Painting.”

3.7 PLASTER REPAIRS

A. Plaster will be rejected if finished surfaces are not of uniform thickness, texture or color, not plumb or true to plane, or if excessive cracking occurs.

B. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

3.8 CLEANING AND PROTECTION

A. Remove temporary protection and enclosure of other work after plastering is complete. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered.

END OF SECTION 092400

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Gypsum board.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include manufacturer's printed installation instructions and certification that product meets specification requirements.

B. Shop Drawings: Submit elevation drawings of visible wall areas.

1.4 QUALITY ASSURANCE

A. Reference Standards and Specifications:

1. Comply with reference standards specified in this Section.
2. In cases of conflict between requirements specified in this Section, applicable legal requirements, and the reference standards and specifications, comply with the more restrictive requirements.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to project site with manufacturer's labels intact and legible. Deliver fire-resistance-rated materials bearing testing agency label and required fire classification.

B. Handle materials with care to prevent damage.

C. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.

B. Do not install panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 GYPSUM BOARD

A. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.

1. Manufacturers and Products: Subject to compliance with requirements, provide products by one of the following:
   a. CertainTeed Corporation.
   b. Georgia-Pacific Building Products.
   c. National Gypsum Company.
   d. USG; Mold Tough Firecode X.

2. Core: 5/8 inch (15.9 mm), Type X.
3. Long Edges: Tapered.
4. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.2 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M. Provide gypsum board manufacturer's standard products.

B. Joint Tape:

1. Interior Gypsum Board: Paper.

C. Joint Compound for Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.

2.3 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Self-drilling, self-tapping, countersunk bugle head drywall screws, for use with power driven tool.
   a. Type S for gypsum board to metal application.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with Gypsum Association GA-216: Application and Finishing of Gypsum Panel Products and ASTM C 840.

B. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.

C. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

D. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

   1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
   2. Fit gypsum panels around ducts, pipes, and conduits.
   3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.

E. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.3 APPLYING GYPSUM BOARD

A. Single-Layer Application:

   1. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
      a. Stagger abutting end joints not less than one framing member in alternate courses of panels.

2. Fastening Methods: Apply gypsum panels to supports with steel drill screws. Space screws at maximum 8 inches on center around the perimeter, at 12 inches on center on the intermediate studs, and as required to meet fire-resistance-rating requirements.

3.4 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to Gypsum Association GA-214: Recommended Levels of Gypsum Board Finish and ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
   a. Set tape for joints and interior angles in joint compound. Remove excess joint compound from surface. Tool marks and ridges are acceptable.

2. Level 2: Unless otherwise indicated.
   a. Embed tape in joint compound at joints; wipe with a joint knife leaving a thin coating of joint compound over joints and interior angles. Cover fastener heads and accessories with a coat of joint compound. Remove excess joint compound from surface. Tool marks and ridges are acceptable.

3. Level 3: Where indicated on Drawings.
   a. Embed tape in joint compound at joints and interior angles, and apply one additional coat of joint compound over joints and interior angles. Cover fastener heads and accessories with two separate coats of joint compound. Leave joint compound surface smooth and free of tool marks and ridges.

3.5 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following exterior substrates:

1. Concrete.
2. Concrete block masonry
3. Steel and iron.
4. Galvanized metal.
5. Aluminum (not anodized or otherwise coated).
6. Cement plaster (Stucco).

1.3 DEFINITIONS

A. Flat: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Velvet: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Eggshell: 0 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Satin: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Semi-Gloss: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. High Gloss: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated, including manufacturer's published technical data sheets. Include preparation requirements and application instructions.

1. Indicate VOC content.

B. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

C. Certificates: Submit 2 copies of manufacturer's affidavit with each shipment of painting materials delivered to the project site, certifying that each type of material furnished complies with specified requirements.

1.5 QUALITY ASSURANCE

A. Comply with regulations of South Coast Air Quality Management District (SCAQMD) Rule 1113 - Architectural Coatings.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the project site in unopened containers bearing manufacturer's name and product description corresponding to designation on material list.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints in snow, rain, fog, or mist; where dust is being generated; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide products listed in the Painting Schedule for the paint category indicated.

1. Color: Match existing and as selected by Architect.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

B. VOC Content: For field applications, paints and coatings shall comply with VOC content limits of SCAQMD.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.

C. Verify that removable plates, machined surfaces, finish hardware, and similar items already in place that are not to be painted have been removed before proceeding with surface preparation and painting.

D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates. Provide surface-applied protection if needed.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Fill holes, pits, and other imperfections flush and smooth with substrate surface.
2. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.

F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

H. Aluminum Substrates: Remove loose surface oxidation.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
4. Paint entire exposed surface of window frames and sashes.
5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Coordinate with reinstallation of removed items under work of other Sections after painting operations are complete.

D. Remove surface-applied protection from items that were too large or heavy to be removed.

E. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

F. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Exterior Paint

1. Metal (Ferrous), Acrylic Semi-Gloss:

a. 1st Coat:
1) Dunn Edwards: BRPR00 Bloc-Rust Primer or ENPR00 Enduraprime Primer.
2) Behr: 436 Multi-Surface Primer & Sealer.
3) Sherwin-Williams: Pro Industrial Pro-Cryl Universal Primer B66 Series.

b. 2nd Coat:
1) Dunn Edwards: EVSH50 Evershield S/G.
2) Behr: 5050 Premium Plus Exterior Semi-Gloss.
3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Semi-Gloss.

c. 3rd Coat:
1) Dunn Edwards: EVSH50 Evershield S/G.
2) Behr: 5050 Premium Plus Exterior Semi-Gloss.
3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Semi-Gloss.

2. Metal (Ferrous), Acrylic Gloss:

a. 1st Coat:
1) Dunn Edwards: BRPR00 Bloc-Rust Primer or ENPR00 Enduraprime Primer.
2) Behr: 436 Multi-Surface Primer & Sealer.
3) Sherwin-Williams: Pro Industrial Pro-Cryl Universal Primer B66 Series.

b. 2nd Coat:
1) Dunn Edwards: EVSH60 Evershield Gloss.
2) Behr: 2-8050 Premium Plus Gloss.
3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Gloss.

c. 3rd Coat:
1) Dunn Edwards: EVSH60 Evershield Gloss.
2) Behr: 2-8050 Premium Plus Gloss.
3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Gloss.

3. Metal (Galvanized), Acrylic Semi-Gloss:

a. 1st Coat (Pretreatment):
1) Dunn Edwards: Supreme Chemical Metal Clean & Etch (ME01).
2) Behr: Klean Strip Phosphoric Prep & Etch.
3) Sherwin-Williams: Krud Kutter Metal Cleaner & Etch.

b. 2nd Coat:
1) Dunn Edwards: ULGM00 Ultrashield Galvanized Metal Primer.
2) Behr: 436 Multi-Surface Primer & Sealer.
3) Sherwin-Williams: Pro Industrial Pro-Cryl Universal Primer B66 Series.

c. 3rd Coat:
   1) Dunn Edwards: EVSH50 Evershield S/G.
   2) Behr: 5050 Premium Plus Exterior Semi-Gloss.
   3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Semi-Gloss.

d. 4th Coat:
   1) Dunn Edwards: EVSH50 Evershield S/G.
   2) Behr: 5050 Premium Plus Exterior Semi-Gloss.
   3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Semi-Gloss.

4. Metal (Galvanized), Acrylic Gloss:

a. 1st Coat (Pretreatment):
   1) Dunn Edwards: Supreme Chemical Metal Clean & Etch (ME01)
   2) Behr: Klean Strip Phosphoric Prep & Etch.
   3) Sherwin-Williams: Krud Kutter Metal Cleaner & Etch.

b. 2nd Coat:
   1) Dunn Edwards: ULGM00 Ultrashield Galvanized Metal Primer.
   2) Behr: 436 Multi-Surface Primer & Sealer.
   3) Sherwin-Williams: Pro Industrial Pro-Cryl Universal Primer B66 Series.

c. 3rd Coat:
   1) Dunn Edwards: EVSH50 Evershield S/G.
   2) Behr: 2-8050 Premium Plus Gloss.
   3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Gloss.

d. 4th Coat:
   1) Dunn Edwards: EVSH50 Evershield S/G.
   2) Behr: 2-8050 Premium Plus Gloss.
   3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Gloss.

5. Metal (Aluminum), Acrylic Semi-Gloss:

a. 1st Coat:
   1) Dunn Edwards: ULGM00 Ultrashield Metal Primer.
   2) Behr: 436 Multi-Surface Primer & Sealer.
   3) Sherwin-Williams: Pro Industrial Pro-Cryl Universal Primer B66 Series.

b. 2nd Coat:
   1) Dunn Edwards: EVSH50 Evershield S/G.
   2) Behr: 5050 Premium Plus Exterior Semi-Gloss.
   3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Semi-Gloss.

c. 3rd Coat:
   1) Dunn Edwards: EVSH50 Evershield S/G.
   2) Behr: 5050 Premium Plus Exterior Semi-Gloss.
   3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Semi-Gloss.

6. Metal (Aluminum), Acrylic Gloss.

a. 1st Coat:
   1) Dunn Edwards: ULGM00 Ultrashield Metal Primer.
   2) Behr: 436 Multi-Surface Primer & Sealer.
   3) Sherwin-Williams: Pro Industrial Pro-Cryl Universal Primer B66 Series.

b. 2nd Coat:
   1) Dunn Edwards: EVSH60 Evershield Gloss.
   2) Behr: 2-8050 Premium Plus Gloss.
   3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Gloss.

c. 3rd Coat:
   1) Dunn Edwards: EVSH60 Evershield Gloss
   2) Behr: 2-8050 Premium Plus Gloss.
   3) Sherwin-Williams: Pro Industrial Acrylic Coating B66 Series Gloss.

7. Concrete Block Masonry, Acrylic Flat.

a. 1st Coat:
   1) Dunn Edwards: SBPR00 Smooth BlocFil.
   2) Behr: PR50 Behr Pro Block Filler Primer.
   3) Sherwin-Williams: Loxon Block Surfacer.

b. 2nd Coat:
   1) Dunn Edwards: EVSH10 Evershield Flat.
   2) Behr: 4050 Premium Plus Exterior Flat.
   3) Sherwin-Williams: Solo 100% Acrylic Flat.

c. 3rd Coat:
   1) Dunn Edwards: EVSH10 Evershield Flat.
   2) Behr: 4050 Premium Plus Exterior Flat.
   3) Sherwin-Williams: Solo 100% Acrylic Flat.

8. Concrete, Acrylic Flat.

a. 1st Coat:
   1) Dunn Edwards: ESPR00 Eff-Stop.
   2) Behr: 436 Multi-Surface Primer & Sealer.
   3) Sherwin-Williams: Loxon Concrete & Masonry Primer.

b. 2nd Coat:
   1) Dunn Edwards: EVSH10 Evershield Flat.
   2) Behr: 4050 Premium Plus Exterior Flat.
   3) Sherwin-Williams: Solo 100% Acrylic Flat.

c. 3rd Coat:
   1) Dunn Edwards: EVSH10 Evershield Flat.
   2) Behr: 4050 Premium Plus Exterior Flat.
   3) Sherwin-Williams: Solo 100% Acrylic Flat.

9. Cement Plaster (Stucco), Acrylic Flat:

a. 1st Coat:
   1) Dunn Edwards: ESPR00 Eff-Stop.
   2) Behr: Behr Pro Concrete & Masonry Primer (PR060).
   3) Sherwin-Williams: Loxon Concrete & Masonry Primer.

b. 2nd Coat:
   1) Dunn Edwards: EVSH10 Evershield.
   2) Behr: 4700 Series Premium Plus Exterior Flat High Build Coating.
   3) Sherwin-Williams: Solo 100% Acrylic Flat.

c. 3rd Coat:
   1) Dunn Edwards: EVSH10 Evershield.
   2) Behr: 4700 Series Premium Plus Exterior Flat High Build Coating.
   3) Sherwin-Williams: Solo 100% Acrylic Flat.

END OF SECTION 099113

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Concrete.
2. Concrete masonry units (CMUs).
3. Steel and iron.
4. Galvanized metal.
5. Aluminum (not anodized or otherwise coated).
6. Gypsum board.

1.3 DEFINITIONS

A. Flat: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Velvet: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Eggshell: 0 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Satin: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Semi-Gloss: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. High Gloss: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements, manufacturer's published technical data sheets, and application instructions.

1. Indicate VOC content.

B. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 QUALITY ASSURANCE

A. Comply with regulations of South Coast Air Quality Management District (SCAQMD) Rule 1113 - Architectural Coatings.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the project site in unopened containers bearing manufacturer's name and product description corresponding to designation on material list.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds 85 percent; where dust is being generated; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide products listed in the Interior Painting Schedule for the paint category indicated.

1. Color: As selected by Architect.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

B. VOC Content: For field applications that are inside the weatherproofing system, paints and coatings shall comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 50 g/L.
3. Dry-Fog Coatings: 150 g/L.

4. Primers, Sealers, and Undercoaters: 100 g/L.
5. Rust-Preventive Coatings: 100 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 100 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Shellacs, Clear: 730 g/L.
9. Shellacs, Pigmented: 550 g/L.

C. Low-Emitting Materials: For field applications that are inside the weatherproofing system, 90 percent of paints and coatings shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

D. Colors: As selected by Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMUs): 12 percent.
3. Gypsum Board: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

E. Verify that removable plates, machined surfaces, finish hardware, and similar items already in place that are not to be painted have been removed before proceeding with surface preparation and painting.

F. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

B. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

C. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.

E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

G. Aluminum Substrates: Remove loose surface oxidation.

H. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
3. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Coordinate with reinstallation of removed items under work of other Sections after painting operations are complete.

D. Remove surface-applied protection from items that were too large or heavy to be removed.

E. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

F. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Interior:

1. Concrete, Acrylic Flat.

   a. 1st Coat:
      1) Dunn Edwards: ESPR00 Eff-Stop.
      2) Behr: 436 Multi-Surface Primer & Sealer.
      3) Sherwin-Williams: Loxon Concrete & Masonry Primer.

   b. 2nd Coat:
      1) Dunn Edwards: EVSH10 Evershield Flat.
      2) Behr: 4050 Premium Plus Exterior Flat.
      3) Sherwin-Williams: Solo 100% Acrylic Flat.

   c. 3rd Coat:
      1) Dunn Edwards: EVSH10 Evershield Flat.
      2) Behr: 4050 Premium Plus Exterior Flat.
      3) Sherwin-Williams: Solo 100% Acrylic Flat.

2. Concrete masonry units (CMUs), Acrylic Flat:

   a. 1st Coat:
      1) Dunn-Edwards: Smooth Bloc-Fil Block Filler SBPR00.
      2) Behr: Multi-Surface Int/Ext Primer & Sealer, 436.
      3) Sherwin-Williams: Harmony Interior Latex Primer, B11.

   b. 2nd Coat:
      1) Dunn-Edwards: Everest Low Odor/Zero VOC Flat EVER10.
      2) Behr: Premium Plus Zero VOC Flat, 1050.
      3) Sherwin-Williams: Superpaint Air Purifying Technology Interior Acrylic Flat.

   c. 3rd Coat:
      1) Dunn-Edwards: Everest Low Odor/Zero VOC Flat EVER10.
      2) Behr: Premium Plus Zero VOC Flat, 1050.
      3) Sherwin-Williams: SuperPaint Air Purifying Technology Interior Acrylic Flat.

3. Concrete masonry units (CMUs), Acrylic Eggshell:

   a. 1st Coat:
      1) Dunn-Edwards: Smooth Bloc-Fil Block Filler SBPR00.
      2) Behr: Multi-Surface Int/Ext Primer & Sealer, 436.
      3) Sherwin-Williams: Harmony Interior Latex Primer, B11.

b. 2nd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Eggshell EVER30.
   2) Behr: Premium Plus Zero VOC Eggshell, 2050.
   3) Sherwin-Williams: SuperPaint Air Purifying Technology Interior Acrylic Satin

c. 3rd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Eggshell EVER30.
   2) Behr: Premium Plus Zero VOC Eggshell, 2050.
   3) Sherwin-Williams: SuperPaint Air Purifying Technology Interior Acrylic Satin

4. Metal (Ferrous), Acrylic Semi-Gloss.

   a. 1st Coat:
      1) Dunn-Edwards: Enduraprime Primer ENPR00.
      2) Behr: Interior/Exterior Metal Primer, 435.
      3) Sherwin-Williams: Pro Industrial Pro-Cryl Universal Primer, B66 Series.

   b. 2nd Coat:
      1) Dunn-Edwards: Everest Low Odor/Zero VOC Semi-Gloss EVER50.
      2) Behr: Premium Plus Zero VOC Semi-Gloss, 3050.
      3) Sherwin-Williams: Solo 100% Acrylic Semi-Gloss, A76 Series.

5. 3rd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Semi-Gloss EVER50.
   2) Behr: Premium Plus Zero VOC Semi-Gloss, 3050.
   3) Sherwin-Williams: Solo 100% Acrylic Semi-Gloss, A76 Series.

6. Metal (Ferrous), Acrylic Gloss:

   a. 1st Coat:
      1) Dunn-Edwards: Enduraprime Primer ENPR00.
      2) Behr: Interior/Exterior Metal Primer, 435.
      3) Sherwin-Williams: Pro Industrial Pro-Cryl Universal Primer, B66 Series.

   b. 2nd Coat:
      1) Dunn-Edwards: EVSH60 Evershield Gloss.
      2) Behr: Premium Plus Hi-Gloss, 2-8050 (SCAQMD).
      3) Sherwin-Williams: Solo Acrylic Gloss, A77 Series.

   c. 3rd Coat:
      1) Dunn-Edwards: EVSH60 Evershield Gloss.
      2) Behr: Premium Plus Gloss, 2-8050 (SCAQMD).
      3) Sherwin-Williams: Solo Acrylic Gloss, A77 Series.

7. Metal (Galvanized), Acrylic Semi-Gloss:

   a. 1st Coat (Pretreatment):
      1) Dunn-Edwards: Supreme Chemical Metal Clean & Etch (ME01).
      2) Behr: Klean Strip Phosphoric Prep & Etch.
      3) Sherwin-Williams: Krud Kutter Metal Cleaner and Etch.

   b. 2nd Coat:
      1) Dunn-Edwards: Ultra-Grip Low Odor/Zero VOC Primer UGSL00.
      2) Behr: Interior/Exterior Metal Primer, 435.
      3) Sherwin-Williams: Pro Industrial Pro-Cryl® Universal Primer, B66 Series.

c. 3rd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Semi-Gloss EVER50.
   2) Behr: Premium Plus Zero VOC Semi-Gloss, 3050.
   3) Sherwin-Williams: Solo 100% Acrylic Semi-Gloss, A76 Series.

d. 4th Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Semi-Gloss EVER50.
   2) Behr: Premium Plus Zero VOC Semi-Gloss, 3050.
   3) Sherwin-Williams: Solo 100% Acrylic Semi-Gloss, A76 Series.

8. Metal (Galvanized), Acrylic Gloss:

a. 1st Coat (Pretreatment):
   1) Dunn-Edwards: Supreme Chemical Metal Clean & Etch (ME01).
   2) Behr: Klean Strip Phosphoric Prep & Etch.
   3) Sherwin-Williams: Krud Kutter Metal Cleaner and Etch.

b. 2nd Coat:
   1) Dunn-Edwards: Ultra-Grip Low Odor/Zero VOC Primer UGSL00.
   2) Behr: Interior/Exterior Metal Primer, 435.
   3) Sherwin-Williams: Pro Industrial Pro-Cryl® Universal Primer, B66 Series.

c. 3rd Coat:
   1) Dunn-Edwards: Evershield Gloss EVSH60.
   2) Behr: Premium Plus Hi-Gloss, 2-8050 (SCAQMD).
   3) Sherwin-Williams: Solo Acrylic Gloss, A77 Series.

d. 4th Coat:
   1) Dunn-Edwards: Evershield Gloss EVSH60.
   2) Behr: Premium Plus Hi-Gloss, 2-8050 (SCAQMD).
   3) Sherwin-Williams: Solo Acrylic Gloss, A77 Series.

9. Gypsum Board, Acrylic Flat:

a. 1st Coat:
   1) Dunn-Edwards: Ultra-Grip Low Odor/Zero VOC Primer UGSL00.
   2) Behr: Drywall Plus Interior Primer & Sealer, 73.
   3) Sherwin-Williams: Harmony Interior Latex Primer, B11.

b. 2nd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Flat EVER10.
   2) Behr: Premium Plus Zero VOC Flat, 1050.
   3) Sherwin-Williams: SuperPaint Air Purifying Technology Interior Acrylic Flat.

c. 3rd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Flat EVER10.
   2) Behr: Premium Plus Zero VOC Flat, 1050.
   3) Sherwin-Williams: SuperPaint Air Purifying Technology Interior Acrylic Flat.

10. Gypsum Board, Acrylic Eggshell:

a. 1st Coat:
   1) Dunn-Edwards: Ultra-Grip Low Odor/Zero VOC Primer UGSL00.
   2) Behr: Drywall Plus Interior Primer & Sealer, 73.
   3) Sherwin-Williams: Harmony Interior Latex Primer, B11.

b. 2nd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Eggshell EVER30.
   2) Behr: Premium Plus Zero VOC Eggshell, 2050.
   3) Sherwin-Williams: SuperPaint Air Purifying Technology Interior Acrylic Satin

c. 3rd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Eggshell EVER30.
   2) Behr: Premium Plus Zero VOC Eggshell, 2050.
   3) Sherwin-Williams: SuperPaint Air Purifying Technology Interior Acrylic Satin

11. Gypsum Board, Acrylic Semi-Gloss:

a. 1st Coat:
   1) Dunn-Edwards: ENSO Low Odor/Zero VOC Interior Primer.
   2) Behr: Drywall Plus Interior Primer & Sealer, 73.
   3) Sherwin-Williams: Harmony Interior Latex Primer, B11.

b. 2nd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Semi-Gloss EVER50.
   2) Behr: Premium Plus Zero VOC Semi-Gloss, 3050.
   3) Sherwin-Williams: SuperPaint Air Purifying Technology Interior Acrylic Semi-Gloss

c. 3rd Coat:
   1) Dunn-Edwards: Everest Low Odor/Zero VOC Semi-Gloss EVER50.
   2) Behr: Premium Plus Zero VOC Semi-Gloss, 3050.
   3) Sherwin-Williams: SuperPaint Air Purifying Technology Interior Acrylic Semi-Gloss

END OF SECTION 099123

SECTION 22 05 00 COMMON WORK RESULTS FOR PLUMBING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specifications Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:
   1. Piping materials and installation instructions common to most piping systems.
   2. Transition fittings.
   3. Dielectric fittings.
   4. Mechanical sleeve seals.
   5. Sleeves.
   6. Escutcheons.
   7. Grout.
   8. Equipment installation requirements common to equipment sections.
   9. Painting and finishing.
   10. Concrete bases.
   11. Supports and anchorages.

1.03 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contract by building occupants. Examples include above ceilings and in chases.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

F. The following are industry abbreviations for rubber materials:
   1. EPDM: Ethylene-propylene-diene terpolymer and rubber.
   2. NBR: Acrylonitrile-butadiene rubber.

1.04 SUBMITTALS

A. General:
   1. Submit Shop Drawings, penetration location, supplemental data, for all materials, Equipment in all Sections of the Division 22 Plumbing and in accordance with the Requirement of Division 01 Section 01 30 00 – Administrative Requirements.

2. Forward all submittals to Owner's Representative together, at one time. Individual or incomplete submittals are not acceptable and will be returned without review. Contractor is responsible for any resultant consequence.
3. Identify each item by manufacturer, brand, trade name, number, size, rating, or Whatever other data is necessary to properly identify and check materials and equipment. Words "as specified" are not sufficient identification.
4. Identify each submittal item by reference to Specification Section paragraph in which item is specified or Drawing and Detail number. Mark identification numbers appearing on the equipment schedule.
5. Organize submittals in same sequence as they appear in specification sections, articles and paragraphs.
6. Shop Drawings shall show physical arrangement, construction details, finishes, materials used in fabrications, provisions for piping entrance, access requirements for installation and maintenance, physical size, mechanical characteristics, foundation and support details, weight.
   a. Specifically indicate, by drawn detail or note, that equipment complies with each specifically stated requirement of the Contract Documents.
   b. Draw Drawings to scale and dimension (except piping diagrams not to scale), may be prepared by vendor but submit as instruments of Contractor, thoroughly check and stamp by Contractor before submission to Owner's Representative for review.
   c. Catalog cuts and published material may be included to supplement scale drawings.

B. Binders: Prepare submittal material in accordance with the following and Division 01 Section 01 30 00 – Administrative Requirements:
   1. Insert all literature in standard 3-ring binders for 8-1/2 inch by 11 inch pages with Individual tabs. Do not staple literature on different products together.
   2. Number all binders on the outside of the cover and indicate the specification section. Mark binder no. 1 Architect's copy and no. 2 Engineer's copy. Both these binders shall contain original manufacturer's literature.
   3. Provide an index with each binder. This index shall follow the same sequence as the Specifications.

C. Submittal literature, drawings and wiring diagrams shall be specifically applicable to this project and shall not contain extraneous material or optional choices. Clearly mark literature to indicate the proposed item. Submittals shall include, but not be limited to those items listed in individual Sections.

D. Substitutions: In accordance with Division 01 Section 01 30 00 – Administrative Requirements.

E. Resubmittals will be reviewed for compliance with comment made on the original submittal only. Clearly identify replies to comments. Mark with resubmittal number and date.

F. Coordination Shop Drawings:
   1. Comply with the requirements of Division 01 Section 01 30 00 – Administrative Requirements. Prepare and submit for review coordination drawings where work by separate entities requires fabrication of products and materials which must accurately interface or for which space provided is limited. Coordination drawings shall indicate how the work will interface and installation will be sequenced. It is the intent of this provision to find, bring forth, and resolve potential constructability problems prior to actual construction, thereby allowing

for the resolution of issues before construction cost and schedule are impacted. Sheet metal contractor maybe assigned to be the lead of the coordination.

2. Coordinating contractor (Division 22 Plumbing) will oversee preparation of Coordination drawings, assigns priority space and bring to the attention of the Architect any conflicts or interferences of an unresolved nature found during Preparation of coordination drawings. Expedite conflict or interferences and Submit solutions/recommendations for approval review.
3. Drawings: Shop drawings shall include but are not necessarily limited to the following:
   a. Submit 1/4 " = 1'-0" minimum scale, a combined, comprehensive
   b. Mechanical and electrical systems coordination drawing. Coordination
   c. Drawing shall include all ductwork, mechanical piping, plumbing, electrical,
   d. Sprinkler systems, and ceiling systems overlaid on structural frame.
   e. Criteria: Ductwork, mechanical piping, plumbing, electrical, and sprinkler
   f. System components shall be sized as shown on Drawings. Seismic
   g. Restraints shall be shown where required on systems. Nonconforming M/E
   h. work installed within designated coordination areas is subject to removal
   i. and replacement by the installing contractor at no additional cost to Owner.
4. Coordination drawings shall be signed and dated by individual trade contractors. By act of signature and submittal of singular combined coordination drawing, Each trade contractor acknowledges their coordinated portion of the work with all other mechanical, electrical, architectural, and structural work contractors.
5. After completion of coordination shop drawings signed by individual trade contractors. Submit copies to Engineer for records and provide at the job site for reference. No work will be performed without the complete coordination shop drawings.
6. No request of information will be reviewed and responded without a complete shop drawing regarding the routing of pipes, ductwork and placemen of equipment.
7. Refer to Division 01 Section 01 30 00 – Administrative Requirements, for Requirements not indicated in this Section.
8. Review is not intended to verify dimensions or quantities, or to coordinate items shown on these Drawings. Review is for general conformance with design concept of the Project and general compliance with the information given in the Contract Documents. Contractor is responsible for dimensions, which shall be confirmed and correlated at the Jobsite, for fabrication processes and techniques or construction, for coordination of his Work with that all other trades and the satisfactory performance of his work.

G. Testing and Balancing Review: Coordinate Shop Drawings to include any additional components for proper system testing and balancing.

H. Certificates: Submit final inspection certificates signed by governing authorities.

I. Commissioning Plan and Check Lists: Submit commissioning plan (s) and checklist per requirements if Division 01 Section 01 91 13 – General Commissioning Requirements. Operating and Maintenance Instructions and Manuals: In accordance with requirements of Division 01 Section 01 70 00 - Execution Requirements and follows:

1. Subsequent to completion of balancing, testing operations, this Division is responsible for instructing the Owner's representatives in all aspects of operation adjustment and maintenance of mechanical plant and other mechanical equipment. Submit three copies of certificate, signed by Owner's Representative, attesting to their having been instructed.
2. Instructions on major items such as pumps, water heaters, and medical gas equipments.

3. Six months before Owner's personnel assume operation of systems, submit eight sets of operating and maintenance instructions and manuals including the following:
   a. Names, addresses and phone numbers of contractors and subcontractors.
   b. Complete operating and maintenance instructions and parts lists of all Equipment and component parts. Data sheets to show complete internal wiring, mechanical and electrical ratings and characteristics, catalog data on component parts whether furnished by equipment manufacturer of others, names, addresses and telephone numbers of source of supply for parts subject to wear or electrical failure , and description of operating, test, adjustment, and maintenance procedures.
      1) Where data sheets included in manual cover equipment, options, or other features not part of equipment actually furnished, line out these references or otherwise clearly mark so remaining text, diagrams, drawings, schedules, and similar information shall apply specifically to equipment furnished.
   c. A lubrication chart listing each item of equipment, all points of lubrication, proper lubricant, dates lubricated, and lubrication schedule.
   d. Balancing reports.
   e. Submit drafts of instruction sheets to Owner's Representative for review before preparing final sets.
4. Provide full size copies of Record one-line system flow diagrams. Provide three control diagrams, suitably framed, with glass front. Diagrams shall show complete equipment, controls, model numbers, etc., marked to correspond to identification on equipment.

J. Welding Certificates.

1.05 QUALITY ASSURANCE

A. Review of Construction: Requirements and follows:
   1. Work may be reviewed at any time by Owner's Representative.
   2. Owner's Representative that work is ready for review at following times. Provide at least three days notice for Owner's Representative review.
      a. Prior to backfilling buried work.
      b. Prior to concealment of work in walls and above ceilings.
      c. When all requirements of Contract have been completed.
   3. Neither backfill nor conceal work without Owner's Representative consent.
   4. Maintain on job a set of Specifications and Drawings for use by Owner's Representative.
   5. Owner's Representative will assist with field review of construction, will inform the Owner regarding progress and problems related to construction, and will endeavor to guard Owner against defective materials and faulty workmanship. Owner's Representative reviews will be periodic, depending upon nature of construction. Owner's Representative is not required to perform extensive or continuous inspection, is not responsible for execution of Contract Documents by Contractor, nor is he responsible for construction methods, sequences, or safety precautions.

B. Schedule of Work:
   1. In accordance with Division 01 Section 01 30 00 – Administrative Requirements and as follows:
      a. Arrange work to conform to schedule of construction established or required to comply with Contract Documents.
      b. In scheduling, anticipate means installing equipment through available opening in structures.

C. Before making connections or doing any work which will interrupt existing services, notify Owner, in writing, twelve working days in advance and advise duration of interruption; perform such Work as quickly as possible and only at such times designated by Owner, refer to General Conditions.

D. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code – Steel".

E. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications".

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping".
2. Certify that each welder has passed AWS qualification tests for welding processes involved in that certification is current.

F. Electrical Characteristics for Plumbing Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver equipment, pumps, pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

1.07 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for plumbing installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

C. Coordinate requirements for access panels and doors for plumbing items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 08 Section 08 31 13 – Access Doors.

PART 2- PRODUCTS

2.01 MATERIALS

A. Identify materials, equipment by manufacturer's name, nameplate data. Remove unidentified materials, equipment from Site.

B. Equipment specified by manufacturer's number shall include all accessories, controls, etc., listed in catalog as standard with equipment. Furnish optional or additional accessories as specified.

C. Where no specific make of material or equipment is mentioned, any first class product of reputable manufacturer may be used, provided it conforms to requirements of system and meets with acceptance.

D. Equipment, material damaged during transportation, installation, operations is considered as totally damaged. Replace with new. Variance from this permitted only with written acceptance.

E. Provide an authorized representative to constantly supervise Work of this Division, check all materials prior to installation for conformance with Drawings, Specifications, and reviewed Shop Drawings.

F. Equipment shall be as described in the respective Sections of Division 22 Plumbing and as shown.

G. All items of materials in each category of equipment shall be one of manufacturer.

H. Access Doors: Furnish under this Division where shown, or required by Regulatory Agencies and for access of all concealed valves, union, fire dampers, etc., even though access doors are not shown for Mechanical/Plumbing Work. Doors shall be in accordance with requirements of Division 08 Section 08 31 13 – Access Doors. Doors shall all be from same manufacturer for identical appearance and keying. Sizes: 24 inches by 24 inches minimum for ceilings and 12 inches minimum for walls. Furnish fire rated doors where required. Mark each door to accurately establish its location.

I. Conform with conditions shown and specified. Coordinate with other trades for best possible assembly of combined Work. Relocated equipment when necessitated by failures to coordinate Work or to advise Owner's Representative of conflicts in writing.

J. Use printed descriptions, specifications and recommendations of manufacturers as a guide for installation of Work.

K. Design of plumbing systems is generally bases on product of one of the manufacturers cited. Where systems for product installed necessities modification of systems shown on plans, Contractor is responsible for installation of systems appropriate to product installed.

L. Material and Equipment-General Requirements:

1. In accordance with Division 01 Section 01 630 00 - Product Requirements.
2. Approved for use by State Fire Marshall and local building inspection department when applicable.
3. Testing agency labeled or with other identification wherever standards have been established.
4. Owner's Representative reserves right to reject items not in accordance with specifications either before or after installation.
5. Comprised to render complete and operable systems; provide additional items needed to complete installation to realized design.
6. Compatible with space allocated. Modifications necessary to adjust items to space limitations at Contractor's expense.
7. Installed fully operating and without objectionable noise or vibration.

2.02 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, Manufacturer offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.03 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 22 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and fittings.

2.04 JOINING MATERIALS

A. Refer to individual Division 22 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat asbestos-free, 1/8-inch (3.2-mm) maximum thickness

unless thickness or specific material is indicated.
a. Full-Face Type: For flate-face, Class 125, cast-iron and cast bronze flanges.
b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.
2. AWWA C110, rubber, flat face, 1/8-inhc (3.2 mm) thick, unless otherwise indicated; And full-face or ring type, unless otherwise indicated.

C. Flange Bolts and Nuts: ASME B18.2.1 carbon steel, unless otherwise indicated.

D. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated (to be used for sleeve purposes only).

E. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

F. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, Bag1, silver alloy for refrigerant piping, unless otherwise indicated.

G. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for

H. Wall thickness and chemical analysis of steel pipe being welded.

2.05 TRANSITION FITTINGS

A. AWWA Transition Couplings: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.
1. Manufacturers:
a. Cascade Waterworks Mfg. Co.
b. Dresser Industries, Inc.; DMD Div.
c. Ford Meter Box Company, Incorporated (The); Pipe Products Div.
d. JCM Industries.
e. Smith-Blair, Inc.
f. Viking Johnson.
2. Underground Piping NPS 1-1/2 (DN 40) and Smaller: Manufactured fitting or coupling.
3. Underground Piping NPS 2 (DN 50) and Larger: AWWA C219, metal sleeve-type coupling.
4. Aboveground Pressure Piping: Pipe fitting.

B. Flexible Transition Couplings for Underground Nonpressure Drainage Piping: ASTM C 1173 with elastromeric sleeve, ends same size as piping t be joined, and corrosion-resistant metal band on each end.
1. Manufacturers:
a. Cascade Waterworks Mfg. Co.
b. Fernco, Inc.
c. Mission Rubber Company.
d. Plastic Oddities, Inc.

2.06 DIELECTRIC FITTINGS

A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

B. Insulating Material: Suitable for system fluid, pressure, and temperature.

C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.
   1. Manufactureres:
      a. Capitol Manufacturing Co.
      b. Central Plastics Company.
      c. Eclipse, Inc.
      d. Epco Sales, Inc.
      e. Hart Industries, International Inc.
      f. Watts Industries, Inc.; Water Products Div.
      g. Zurn Industries, Inc.; Wilkins Div.

D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300- psig minimum working pressure as required to suit system pressures.
   1. Manufacturers:
      a. Capitol Manufacturing Co.
      b. Central Plastics Company.
      c. Epco Sales, Inc.
      d. Watts Industries, Inc.; Water Products Div.

E. Dielectric Flange Kits: Companion –flange assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bold sleeves, phenolic washers, and steel backing washers.
   1. Manufacturers:
      a. Advance Products & Systems, Inc.
      b. Calpico, Inc.
      c. Central Plastics Company.
      d. Pipeline Seal and Insulator, Inc.
   2. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig minimum working pressure where required to suit system pressures.

F. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 def F.
   1. Manufacturers:
      a. Calpico, Inc.
      b. Lochinvar Corp.

G. Dielectric Nipples: Electroplated steel nipple inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.
   1. Manufacturers:
      a. Perfection Corp.
      b. Precision Plumbing Products, Inc.
      c. Sioux Chief Manufacturing Co., Inc.
      d. Victaulic Co. of America

2.07 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.
   1. Manufacturers:
      a. Advance Products & Systems, Inc.
      b. Calpico, Inc.
      c. Metraflex Co.
      d. Pipeline Seal and Insulator, Inc.

e. Link Seal
2. Sealing Elements: interlocking links shaped to fir surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Include two for each sealing element.
4. Connecting Bolts and Nuts: of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.08 SLEEVES

A. Galvanized-Steel Sheet: 26 gauge up to 6" pipe, and 24 gauge to sleeves above 6".

B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

C. Cast Iron: Cast or fabricated "wall pipe: equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange.

E. Include clamping ring and bolts and nuts for membrane flashing.
1. Underdeck Clamp. Clamping ring with set screws.
2. HDPE sleeve.

2.09 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. One-Piece, Deep Pattern Type: Deep-drawn, box-shaped brass with polished chrome plated finish.

C. One-Piece, Cast-Brass Type: With set screw.
1. Finish: Polished chrome-plated and rough brass.

D. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.
1. Finish: Polished chrome-plated and rough brass.

E. One-Piece, Stamped-Steel Type: With set screw or spring clips and chrome-plated finish.

F. Split-Plate, Stamped-Steel Type: With concealed hinge, set screw or spring clips, and chrome-plated finish.

G. One-Piece, Floor-Plate Type: Cast-iron plate.

H. Split-Casting, Floor-Plate Type: Cast brass with concealed hinge and set screw.

2.10 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
1. Characteristics: Post hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

PART 3 – EXECUTION

1.01 PIPING SYSTEMS – COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 22 Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping to permit valve servicing.

G. Install piping at indicated slopes.

H. Install piping free of sags and bends.

I. Install fittings for changes in direction and branch connections.

J. Install piping to allow application of insulation.

K. Select system components with pressure rating equal to or greater than system operating pressure.

L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:
   1. New Piping:
      a. Piping with Fitting or Sleeve Protruding from Wall: Once-piece, deep-pattern type.
      b. Chrome-Plated Piping: One-piece, cast-brass type with polished chrome-plated finish.
      c. Insulated Piping: One-piece, stamped-steel type with spring clips.
      d. Bare Piping at Wall Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
      e. Bare Piping at Wall Penetrations in Finished Spaces: Once-piece, stamped-steel type.
      f. Escutcheons not required for piping above ceilings or in unfinished spaces, or mechanical rooms.

M. Sleeves are not required for core-drilled holes.

N. Permanent sleeves are not required for holes formed by removable PE sleeves.

O. Install sleeves for pipes passing through concrete and masonry walls, and concrete floor and roof slabs.
   1. Install sleeves in new slabs as new slabs are constructed, excluding slab grade.
   2. Install sleeves that are large enough to provide annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:
      a. Steel Sheet Sleeves: For pipes smaller than NPS 8 (DN 150), in concrete floor and roof slabs.
      b. Steel Pipe Sleeves: For pipe NPS 8 and larger in concrete floor and roof slab. For all pipe sizes through concrete and masonry walls.

   3. Except for underground wall penetrations, seal annular space between sleeve
   4. And pipe or pipe insulation, using joint sealants appropriate for size, depth, and location of joint. Refer to Division 07 Section 07 92 00 – Joint Sealers for materials and installation.

P. Aboveground, Exterior-Wall Pipe Penetrations: Flashing to be installed by others and sealed by division 07 thermal and moisture protection, or HDPE.

Q. Underground, Exterior-Wall Pipe Penetrations: Install steel pipe for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for annular clear space between pipe and sleeve for installing mechanical sleeve seals.
   1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

R. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 07 Section 07 84 00 –Firestopping for materials.

S. Verify final equipment locations for roughing-in.

T. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.02 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 22 Sections specify piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDS's "Copper Tube Handbook", using lead-free solder alloy complying with

E. ASTM B 32.

F. Brazed Joints: construct joints according to AWS's "Brazing Handbook", "pipe and

Tube" Chapter, using copper-phosphorus brazing filler metal complying with

G. AWS A5.8.

H. Threaded Joints: Thread pipe with tapered pipe threads according to ASME 81.20.1.

I. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs

and restore full ID. Join pipe fittings and valves as follows:
   1. Apply appropriate tape or thread compound to external pipe threads unless dry
   2. seal threading is specified.
   3. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

J. Welded Joints: Construct joints according to AWS D10.12, using qualified processes

and welding operators according to Part 1 "Quality Assurance" Article.

K. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service

application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

L. Grooved Connection (Get from Mech. Specs.).

3.03 PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:
   1. Install unions, in piping NPS 2" and smaller, at final connection to each piece of

equipment.
2. Install flanges, in piping NPS 2-1/2” and larger, and at final connection to each piece of equipment.
3. Dry and wet Piping Systems: Install dielectric unions or flanges to connect piping materials of dissimilar metals.
4. Wet and dry Piping Systems: Install dielectric coupling or nipple fittings to connect piping materials of dissimilar metals.

3.04 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install plumbing equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

E. Completely cover all plumbing fixtures and all motors and other moving machinery to prevent entry of dirt and water during construction. Effectively cap all openings into ducts and pipes to keep foreign matter out during construction.

F. Lubricate all equipment at completion of Work. Furnish Owner's Representative with a written lubrication schedule for all equipment and as specified in Division 01 Section 01 70 00 - Execution Requirements.

3.05 PAINTING

A. Painting of plumbing systems, equipment, and components is specified in Division 09 Section 09 90 00 - Painting

B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.06 CONCRETE BASES

A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.
1. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger in both directions than supported unit.
2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18 inch (450-mm) centers around the full perimeter of the base.
3. Install anchor for supported equipment per OSHPD approved documents.

4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
5. Install anchor bolts to elevations required for proper attachment to supported equipment per OSHPD approved documents.
6. Install anchor bolts according to anchor-bolt manufacture/s written instructions.
7. Use 3000-psi, 28-day compressive-strength concrete and reinforcement as specified in Division 03 Section 03 30 00 - Cast-in-Place Concrete.

3.07 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Refer to Division 05 Section 05 50 00 - Metal Fabrications for structural steel.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor plumbing materials and equipment.

C. Field Welding: Comply with AWS D1.1.

3.08 GROUTING, by others

A. Mix and install grout for plumbing equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

E. Place grout, completely filling equipment base's.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

END OF SECTION

SECTION 22 05 16 EXPANSION FITTINGS AND LOOPS FOR PLUMBING PIPING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Flexible-hose packless expansion joints.
   2. Metal-bellows packless expansion joints.
   3. Pipe loops and swing connections. -
   4. Alignment guides and anchors.

1.3 PERFORMANCE REQUIREMENTS

A. Compatibility: Products shall be suitable for piping service fluids, materials, working pressures, and temperatures.

B. Capability: Products to absorb 100 percent mm. percent of maximum axial and lateral movement between anchors.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Delegated-Design Submittal: For each anchor and alignment guide indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
   1. Design Calculations: Calculate requirements for thermal expansion of piping systems and for selecting and designing expansion joints, loops, and swing connections.
   2. Anchor Details: Detail fabrication of each anchor indicated. Show dimensions and methods of assembly and attachment to building structure.
   3. Alignment Guide Details: Detail field assembly and attachment to building structure.
   4. Schedule: Indicate type, manufacturer’s number, size, material, pressure rating, end connections, and location for each expansion joint.

C. Welding certificates.

D. Product Certificates: For each type of expansion joint, from manufacturer.

E. Maintenance Data: For expansion joints to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:
   1. AWS D1.1/D1. “Structural Welding Code - Steel”.

PART 2- PRODUCTS

2.01 PACKLESS EXPANSION JOINTS

A. Flexible-Hose Packless Expansion Joints:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide Metraflex, Inc. or comparable product by one of the following:
   a. Metra-Flex-Hose Co., Inc.
   b. Flexicraft Industries.
   c. Flex Pression Ltd.
   d. Unisource Manufacturing, Inc. -
   e. Mason Industries
3. Description: Manufactured assembly with inlet and outlet elbow fittings and two flexible- metal-hose legs joined by long-radius, 180 degree return bend or center section of flexible hose.
4. Flexible Hose: Corrugated-metal inner hoses and braided outer sheaths.
5. Expansion Joints for Copper Tubing NPS 2” and Smaller: Copper-alloy fittings with solder-joint end connections.
   a. Bronze hoses and single-braid bronze sheaths with 450 psig at 70 deg F and 340 psig at 450 deg F ratings.
   b. Bronze hoses and double-braid bronze sheaths with 700 psig at 70 deg F and 500 psig at 450 deg F ratings.
6. Expansion Joints for Copper Tubing NPS 2-1/2” to NPS 4” Copper-alloy fittings with threaded end connections.
   a. Stainless-steel hoses and single-braid, stainless-steel sheaths with 300 psig at 70 deg F and 225 psi at 450 deg F ratings.
   b. Stainless-steel hoses and double-braid, stainless-steel sheaths with 420 psig at 70 deg F and 315 psig at 450 deg F ratings.

B. Metal-Bellows Packless Expansion Joints:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following.
   2. Basis-of-Design Product: Subject to compliance with requirements, provide Badger Industries, Inc. or comparable product by one of the following:
      a. Expansion Joint Systems, Inc.
      b. Metra-Flex Pression Ltd.
      c. Flex-Weld, Inc.
      d. Hyspan Precision Products, Inc.
      e. Metraflex, Inc.
      f. Senior Flexonics Pathway
      g. Unaflex.
      h. Universal Metal Hose; a subsidiary of Hyspan Precision Products, Inc.
      i. U.S. Bellows, Inc.
      j. Wah
      k. Mason Industries

   3. Standards: ASTM F 1120 and EJMA’s “Standards of the Expansion Joint Manufacturers Association, Inc.”,
   4. Type: Circular, corrugated bellows with external tie rods.
   5. Minimum Pressure Rating: 175 psig (1200 kPa) unless otherwise indicated.
   6. Configuration: Single joint with base and double joint with base class(es) unless otherwise indicated.
   7. Expansion Joints for Copper Tubing: Single- or multi-ply phosphor-bronze bellows,
   8. copper pipe ends, and brass shrouds.
      a. End Connections for Copper Tubing NPS 2 and Smaller: Solder joint or threaded.
      b. End Connections for Copper Tubing NPS 2-1/2 to NPS 4: Solder joint or threaded.
      c. End Connections for Copper Tubing NPS Sand Larger: Flanged.
      d. GROOVED-J0INTEXPANSI0NJOINT (FOR FIRE PROTECTION SYSTEM, SEE SECTION 21-13-00)

2.02 ALIGNMENT GUIDES AND ANCHORS

A. Alignment Guides:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   2. Basis-of-Design Product: Subject to compliance with requirements, provide Hyspan Precision Products, Inc. or comparable product by one of the following:
      a. Adsco Manufacturing LLC.
      b. Advanced Thermal Systems, Inc.
      c. Flex-Hose Co., Inc.
      d. Flexicraft Industries
      e. Flex-Weld, Inc.
      f. Metraflex, Inc.
      g. Senior Flexonics Pathway
      h. Unisource Manufacturing, Inc.
      i. U.S. Bellows, Inc.
      j. Kerr Engineering
   3. Description: Steel, factory-fabricated alignment guide, with bolted two-section outer cylinder and base for attaching to structure; with two-section guiding spider for bolting to pipe.

B. Anchor Materials:
   1. Steel Shapes and Plates: ASTM A 36/A 36M.
   2. Bolts and Nuts: ASME 818.10 orASTM A 183, steel hex head.
   3. Washers: ASTM F 844, steel, plain, fiat washers.
   4. Mechanical Fa&eners: Insert-wedge-type stud with expansion plug anchor for use in hardened-portland cement concrete, with tension and shear capacities appropriate for application.
      a. Stud: Threaded, zinc-coated carbon steel.
      b. Expansion Plug: Zinc-coated steel.
      c. Washer and Nut: Zinc-coated steel.
   5. Chemical Fasteners: Insert-type-stud, bonding-system anchor for use with hardened por cement concrete, with tension and shear capacities appropriate for application.
      a. Bonding Material: ASTM C 881/C 881M, Type IV, Grade 3, two-component epoxy resin suitable for surface temperature of hardened concrete where fastener is to be installed.
      b. Stud: ASTM A 307, zinc-coated carbon steel with continuous thread on stud unless otherwise indicated.
      c. Washer and Nut: Zinc-coated steel.

PART 3 - EXECUTION

3.01 EXPANSION-JOINT INSTALLATION

A. Install expansion joints of sizes matching sizes of piping in which they are installed.

B. Install metal-bellows expansion joints according to EJMA’s Standards of the Expansion Joint Manufacturers Association, Inc.”.

C. Install rubber packless expansion joints according to FSA-NMEJ-702.

D. Install grooved-joint expansion joints to grooved-end steel piping

3.02 PIPE LOOP AND SWING CONNECTION INSTALLATION

A. Install pipe loops cold-sprung in tension or compression as required to party absorb tension or compression produced during anticipated change in temperature.

B. Connect risers and branch connections to mains with at least five pipe fittings including tee in main.

C. Connect risers and branch connections to terminal units with at least four pipe fittings including tee in riser.

D. D. Connect mains and branch connections to terminal units with at least four pipe fittings including tee in main.

3.03 ALIGNMENT-GUIDE AND ANCHOR INSTALLATION

A. Install alignment guides to guide expansion and to avoid end-loading and torsional stress.

B. Install two guide(s) on each side of pipe expansion fittings and loops. Install guides nearest to expansion joint not more than four pipe diameters from expansion joint.

C. Attach guides to pipe and secure guides to building structure.

D. Install anchors at locations to prevent stresses from exceeding those permitted by ASME B31 .9 and to prevent transfer of loading and stresses to connected equipment.

E. Anchor Attachments:
   1. Anchor Attachment to Black-Steel Pipe: Attach by welding. Comply with ASME B31 .9 and ASME Boiler and Pressure Vessel Code: Section IX, “Welding and Brazing Qualifications”.
   2. Anchor Attachment to Galvanized-Steel Pipe: Attach with pipe hangers. Use MSS SP 69, Type 42, riser clamp welded to anchor.
   3. Anchor Attachment to Copper Tubing: Attach with pipe hangers. Use MSS SP-69, Type 24, U-bolts bolted to anchor.

F. Fabricate and install steel anchors by welding steel shapes, plates, and bars. Comply with ASME B31.9 and AWS D1.1/D1.1M.
   1. Anchor Attachment to Steel Structural Members: Attach by welding.
   2. Anchor Attachment to Concrete Structural Members: Attach by fasteners. Follow fastener manufacturer’s written instructions.

G. Use grout to form flat bearing surfaces for guides and anchors attached to concrete.

END OF SECTION

SECTION 22 05 23 GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
   1. Brass ball valves.
   2. Bronze ball valves
   3. Bronze ball valves.
   4. Iron, single-flange butterfly valves.
   5. Bronze in-line check valve.
   6. Bronze swing check valves.
   7. Bronze gate valves.
   8. Bronze swing check valves.
   9. Bronze gate valves.
   10. Iron gate valves.
   11. Bronze globe valves.
   12. Lubricated plug valves.

B. Related Sections:
   1. Division 22 plumbing piping Sections for specialty valve applicable to those Sections only.
   2. Section 22 05 53 – Identification for Plumbing Piping and Equipment for valve tags and schedules.
   3. Division 2 water distribution piping Sections for general-duty and specialty valves for site construction piping.

1.03 DEFINITIONS

A. CWP: Cold working pressure.

B. EPDM: Ethylene propylene copolymer rubber.

C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.

D. NRS: Nonrising stem.

E. OS&Y: Outside screw and yoke.

F. RS: Rising stem.

G. MWP: Maximum working pressure.

1.04 SUBMITTALS

A. Product Data: For each type of valve indicated.

1.05 QUALITY ASSURANCE

A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.

B. ASME Compliance:
   1. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
   2. ASME B31.1 for power piping valves.
   3. ASME B31.9 for building services piping valves.

C. NSF Compliance: NSF 61 for valve materials lead free for potable-water service.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:
   1. Protect internal parts against rust and corrosion.
   2. Protect threads, flange faces, grooves, and weld ends.
   3. Set angle, gate, and globe valves closed to prevent rattling.
   4. Set ball and plug valves open to minimize exposure of functional surfaces.
   5. Set butterfly valves closed or slightly open.
   6. Block check valves in either closed or open position.

B. Use the following precautions during storage:
   1. Maintain valve end protection.
   2. Store valves indoors and maintain at higher than ambient dew point temperature.
   3. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

C. Use sling to handle large valves; rig sling to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS FOR VALVES

A. Refer to valve schedule articles for applications of valves.

B. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

C. Valve Sizes: Same as upstream piping unless otherwise indicated.

D. Valve Actuater Types:
   1. Handwheel: For valves other than quarter-turn types.
   2. Handlever: For quarter-turn valves NPS 6” and smaller except plug valves.
   3. Wrench: for plug valves with square heads. Furnish owner with 1 wrench for every 10 plug valves with square heads.
   4. Chainwheel: Device for attachment to valve handwheel, stem, or other actuator; of size and with chain for mounting height, as indicated in the “Valve Installation” Article.

E. Valves in Insulated Piping: With stem extensions and the following features:
   1. Gate Valves: With rising stem.
   2. Ball Valves: With extended operating handle of non-thermal-conductive material, and protective sleeve that allows operation of valve without breaking the vapor of seal or disturbing insulation. For domestic hot water only.
   3. Butterfly Valves: With extended neck.

F. Valve-End Connections:
   1. Flanges: With flanges according to ASME B16.1 for iron valves.
   2. Grooved: With grooves according to AWWA C606.

3. Solder Joint: With sockets according to ASME B16.18.
4. Threaded: With threads according to ASME B1.20.1.

G. Valve Bypass and Drain Connections: MSS SP-45.

2.02 BRONZE ANGLES VALVES

A. Class 125, Bronze Angle Valves with Bronze Disc, lead free:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Hammond Valve
      b. Milwaukee Valve Company
   2. Description:
      a. Standard: MSS SP-80, Type 1
      b. CWP Rating: 200 psig.
      c. Body Material: ASTM B 62, Bronze with integral seat and screw-in bonnet.
      d. Ends: Threaded or soldered
      e. Stem and Disc: Bronze
      f. Packing: Asbestos free.
      g. Handwheel: Malleable iron, bronze, or aluminum.

2.03 BRASS BALL VALVES LEAD FREE:

A. Two-Piece, Full Port, Brass Ball Valves with Brass Trim:
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. Hammond Valve
      b. Apollo-Conbraco
      c. Milwaukee Valve Company
      d. NIBCO Inc.

   2. Description:
      a. Standard: MSS SP-110.
      b. SWP Rating: 150 psig.
      c. CWP Rating: 600 psig.
      d. Body Design: Two piece.
      e. Body Material: Forged brass.
      f. Ends: Threaded or soldered.
      g. Seats: PTFE or TFE.
      h. Stem: Brass.
      i. Ball: Chrome-plated brass.
      j. Port: Full.

   3. Two-Piece, Full Port, Brass Ball Valves with Stainless-Steel Trim:
   4. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. Hammond Valve
      b. Apollo-Conbraco
      c. Milwaukee Valve Company
      d. NIBCO Inc.

   5. Description:
      a. Standard: MSS SP-110.
      b. SWP Rating: 150 psig.
      c. CWP Rating: 600 psig.

d. Body Design: Two piece.
e. Body Material: Forged brass.
f. Ends: Threaded or soldered.
g. Seats: PTFE or TFE.
h. Stem: Stainless steel.
i. Ball: Stainless steel, vented.
j. Port: Full.

2.04 BRONZE BALL VALVES LEAD FREE

A. Two-Piece, Full Port, Bronze Ball Valves with Bronze Trim:
1. Manufacturers: Subject to compliance with requirements, provide products by the following:
a. NIBCO Inc.
b. Conbraco Industries Inc.; Apollo Valves
c. Hammond Valve
d. Milwaukee Valve Company
e. NIBCO Inc.
f. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2. Description:
a. Standard: MSS SP-110.
b. SWP Rating: 150 psig.
c. CWP Rating: 600 psig.
d. Body Design: Two piece.
e. Body Material: Bronze.
f. Ends: Threaded or soldered.
g. Seats: PTFE or TFE.
h. Stem: Bronze.
i. Ball: Chrome-plated brass.
j. Port: Full.

B. Two-Piece, Full Port, Bronze Ball Valves with Stainless-Steel Trim:
1. Manufacturers: Subject to compliance with requirements, provide products by the following:
a. Conbraco Industries Inc.; Apollo Valves
b. Hammond Valve
c. Milwaukee Valve Company
d. NIBCO Inc.
e. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
2. Description:
a. Standard: MSS SP-110.
b. SWP Rating: 150 psig.
c. CWP Rating: 600 psig.
d. Body Design: Two piece.
e. Body Material: Bronze.
f. Ends: Threaded or soldered.
g. Seats: PTFE or TFE.
h. Stem: Stainless Steel.
i. Ball: Stainless Steel, vented.
j. Port: Full.

2.05 IRON, SINGLE-FLANGE BUTTERFLY VALVES

A. 200 CWP, Iron, Single-Flange Butterfly Valves with EPDM Seat and Aluminum-Bronze Disc:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Conbraco Industries, Inc.; Apollo Valves
      b. Crane Co.; Crane Valve Group; Stockham Division
      c. DeZurik Water Controls
      d. Hammond Valve
      e. Milwaukee Valve Company
      f. NIBCO Inc.
      g. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

   2. Description:
      a. Standard: MSS SP-67, Type I.
      b. CWP Rating: 200 psig.
      c. Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.
      d. Body Material: ASTM A 126, cast iron or ASTM A 536, ductile iron.
      e. Seat: EPDM.
      f. Stem: One – or two-piece stainless steel.
      g. Disc: Aluminum bronze.

B. 200 CWP, Iron, Single-Flange Butterfly Valves with NBR Seat and Aluminum-Bronze Disc:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Conbraco Industries, Inc.; Apollo Valves
      b. Crane Co.; Crane Valve Group; Stockham Division
      c. DeZurik Water Controls
      d. Hammond Valve
      e. Milwaukee Valve Company
      f. NIBCO Inc.
      g. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

   2. Description;
      a. Standard: MSS SP-67, Type I.
      b. CWP Rating: 200 psig
      c. Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.
      d. Body Material: ASTM A 126, cast iron or ASTM A 536, ductile iron.
      e. Seat: NBR
      f. Stem: One or two-piece stainless steel.
      g. Disc: Aluminum bronze.

2.06 NOT USED/IRON, GROOVED-END BUTTERFLY VALVES

2.07 BRONZE IN-LINE CHECK VALVES LEAD FREE

A. Class 125, In-line Check Valves with Bronze Disc:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Crane Co.: Crane Valve Group; Stockham Division
      b. Nibco Inc.
      c. Appollo-Conbraco

2. Description:
   a. Standard: MSS SP-80, Type 1.
   b. CWP Rating: 400 psig.
   c. Body Design: Horizontal & vertical flow.
   d. Body Material: ASTM B 61 OR ASTM B 62, bronze.
   e. Ends: Soldered.
   f. Disc: Bronze.
   g. Max. Temperature 350ºF

2.08 BRONZE SWING CHECK VALVES LEAD FREE

A. Class 125, Bronze Swing Check Valves with Bronze Disc:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. American Valve, Inc.
      b. Crane Co.; Crane Valve Group; Stockham Division
      c. Hammond Valve
      d. Appollo – Conbraco
      e. Milwazukee Valve Company
      f. NIBCO Inc.
      g. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

   2. Description:
      a. Standard: MSS SP-80, Type 3
      b. CWP Rating: 200 psig.
      c. Body Design: Horizontal flow.
      d. Body Material: ASTM B 62, bronze.
      e. Ends: Threaded or soldered.
      f. Disc: Bronze.

B. Class 150, Bronze Swing Check Valves with Bronze Disc:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Crane Co.; Crane Valve Group; Stockham Division
      b. Milwaukee Valve Company
      c. NIBCO Inc.

   2. Description:
      a. Standard: MSS SP-80, Type 3
      b. CWP Rating: 300 psig.
      c. Body Design: Horizontal flow.
      d. Body Material: ASTM B 62, bronze.
      e. Ends: Threaded or soldered.
      f. Disc: Bronze.

2.09 NOT USED/ IRON SWING CHECK VALVES
2.10 NOT USED/ IRON SWING CHECK VALVES WITH CLOSURE CONTROL
2.11 NOT USED/ IRON GROOVED-END SWING CHECK VALVES
2.12 NOT USED/ IRON CENTER GUIDED CHECK VALVES
2.13 NOT USED/ IRON, PLATE-TYPE CHECK VALVES

2.14 BRONZE GATE VALVES LEAD FREE

A. Class 125, NRS Bronze Gate Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. American Valve, Inc.
   b. Crane Co.; Crane Valve Group; Stockham Division
   c. Hammond Valve
   d. Milwaukee Valve Company
   e. NIBCO Inc.
   f. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
2. Description:
   a. Standard: MSS SP-80, Type 1.
   b. CWP Rating: 200 psig.
   c. Body Material: ASTM B 62, bronze with integral seat and screw-in bonnet.
   d. Ends: Threaded or solder joint.
   e. Stem: Bronze.
   f. Disc: Solid wedge; bronze.
   g. Packing: Asbestos free.
   h. Handwheel: Malleable iron.

2.15 IRON GATE VALVES

A. Class 125, NRS, Iron Gate Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Crane Co.; Crane Valve Group; Stockham Division
   b. Hammond Valve
   c. Milwaukee Valve Company
   d. NIBCO Inc.
   e. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2. Description:
   a. Standard: MSS SP-70, Type I.
   b. CWP Rating: 200 psig.
   c. Body Material: ASTM A 126, gray iron with bolted bonnet.
   d. Ends: Flagged.
   e. Trim: Bronze.
   f. Disc: Solid wedge.
   g. Packing and Gasket: Asbestos free.

B. Class 250, OS&Y, Iron Gate Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Crane Co.; Crane Valve Group; Stockham Division
   b. Hammond Valve
   c. Milwaukee Valve Company
   d. NIBCO Inc.
   e. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
2. Description:
   a. Standard: MSS SP-70, Type I.

b. CWP Rating: 500 psig.
c. Body Material: ASTM A 126, gray iron with bolted bonnet.
d. Ends: Flanged
e. Trim: Bronze.
f. Disc: Solid wedge.
g. Packing and Gasket: Asbestos free.

2.16 BRONZE GLOBE VALVES LEAD FREE

A. Class 125, Bronze Globe Valves, with Bronze Disc:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Hammond Valve
b. Milwaukee Valve Company
c. NIBCO Inc.
d. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2. Description:
a. Standard: MSS SP-80, Type 1.
b. CWP Rating: 200 psig.
c. Body Material: ASTM B 62, bronze with integral seat and screw-in bonnet.
d. Ends: Threaded or solder joint.
e. Stem and Disc: Bronze.
f. Packing: Asbestos free.
g. Handwheel: Malleable iron.

2.17 NOT USED/IRON GLOBE VALVES

2.18 LUBRICATED PLUG VALVES

A. Class 125, Regular-Gland, Lubricated Plug Valves with Threaded Ends:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Nordstrom Valves, Inc.
2. Description:
a. Standard: MSS SP-78, Type II
b. CWP Rating: 200 psig.
c. Body Material: ASTM 4 48/A 48M or ASTM A 126, cast iron with lubrication-sealing system.
d. Pattern: Regular or short
e. Plug: cast iron or bronze with sealant grove.

B. Class 125, Regular-Gland, Lubricated Plug Valves with Flanged Ends:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Nordstrom Valves, Inc.
2. Description:
a. Standard: MSS SP-78, Type II.
b. CWP Rating: 200 psig.
c. Body Material: ASTM A 48/A 48M or ASTM A 126, cast iron lubrication-sealing system.
d. Pattern: Regular or short

e. Plug: Cast iron or bronze with sealant groove.

2.19 NOT USED/ CHAINWHEELS

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion.

B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.

C. Examine threads on valve and mating pipe for form and cleanliness.

D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.

E. Do not attempt to repair defective valves; replace with new valves.

3.02 VALVE INSTALLATION

A. Install valves with unions or flanges at each pipe of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.

B. Locate valves for easy access and provide separate support where necessary. Where ever possible, install valves accessible from floor level. Install valves only in accessible location. Provide adequate clearance for easy operation.

C. Install valves in horizontal piping with stem at or above center of pipe.

D. Install valves in position to allow full stem movement.

E. Install chainwheels on operators for ball butterfly gate globe and plug valves (NPS 4) and larger and more than 96 inches above floor in exposed area. Extend chains to 84 inches above finished floor.

F. Install check valves for proper direction of flow and as follows:
   1. Swing Check Valves: In horizontal position with hinge pin level.
   2. Center-Guided and Plate-Type Check Valves: In horizontal or vertical position, between flanges.
   3. Lift Check Valves: With stem upright and plumb.

3.03 ADJUSTING

A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

3.04 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

A. If valve applications are not indicated, use the following:
   1. Shutoff Service: Ball, butterfly, gate, or plug valves.
   2. Butterfly Valve Dead-End Service: Single-flange (lug) type.
   3. Throttling Service: Globe, angle or butterfly valves.
   4. Pump-Discharge Check Valves:

a. NPS 2” and Smaller: Bronze swing check valves with bronze or nonmetallic disc.
b. NPS 2-1/2” and Larger for Domestic Water. Iron swing check valves with lever and weight or with spring or iron, center-guided, metal or resilient-seat check valves.
c. NPS 2-1/2” and Larger for Sanitary Waste and Storm Drainage: Iron swing check valves with lever and weight or spring.

B. If valves with specified MWP classes or CWP ratings are not available, the same types of valves with higher MWP classes or CWP ratings may be substituted.

C. Select valves, except water types, with the following end connections:
1. For Copper Tubing, NPS 2” and Smaller: Threaded ends except where solder-joint valve-end option is indicated in valve schedules below.
2. For Copper Tubing, NPS 2-1/2” to NPS 4”: Flanged ends except where threaded valve-end option is indicated in valve schedules below.
3. For Copper Tubing, NPS 5” and Larger: Flanged ends.
4. For Steel Piping, NPS 2” and Smaller: Threaded ends.
5. For Steel Piping, NPS 2 -1/2 to NPS 4”: Flanged ends except where threaded valve-end option is indicated in valve schedules below.
6. For Steel Piping, NPS 5” and Larger: Flanged ends.

3.05 LOW-PRESSURE, COMPRESSED-AIR VALVE SCHEDULE (150 PSIG OR LESS)

A. Pipe NPS 2” and Smaller:
1. Bronze and Brass Valves: May be provided with solder-joint ends instead of threaded ends.
2. Ball Valves: Two or Three piece, full port, brass or bronze with brass bronze or stainless-steel trim.
3. Bronze Lift Check Valves: Class 125, bronze disc.
4. Bronze Swing Check Valves: Class 125, Class 150 Bronze disc.
5. Bronze Gate Valves: Class 125 Class 150, NRS.

B. Pipe NPS 2-1/2” and Larger:
1. Iron Valves, NPS 2-1/2” to NPS 4: May be provided with threaded ends instead of flanged ends.
2. Iron, Single-Flanged Butterfly Valves: 200 CWP, NBR seat, ductile-iron stainless-steel disc.
3. Iron, Grooved-End Butterfly Valves: 300 CWP.
4. Iron Swing Check Valves: Class 250, metal seats.
5. Iron, Groove-End Swing Check Valves: 300 CWP.
6. Iron, Center-Guided Check Valves: Class 300, compact-wafer, metal seat.

3.06 NOT USED/ HIGH-PRESSURE, COMPRESSED-AIR VALVE SCHEDULE (150 to 200 PSIG)

3.07 DOMESTIC, HOT- AND COLD-WATER VALVE SCHEDULE

A. Pipe NPS 2” and Smaller:
a. Bronze and Brass Valves: May be provided with solder-joint ends instead of threaded ends.
b. Bronze Angle Valves: Class 150, bronze disc.
c. Ball Valves: Two, or Three piece, full port, brass or bronze with stainless-steel trim.

d. Bronze Swing Check Valves: Class 150, bronze disc.
e. Bronze Gate Valves: Class 150, NRS.
f. Bronze Globe Valves: Class 150, bronze disc.

B. Pipe NPS 2-1/2" and Larger:
1. Iron Valves, NPS 2-1/2" to NPS 4": May be provided with threaded ends instead of flanged ends.
2. Iron Ball Valves: Class 150.
3. Iron, Single-Flanged Butterfly Valves: 200 CWP, NBR seat, aluminum-bronze Stainless-steel disc.
4. Iron Swing Check Valves: Class 250, metal seats.
5. Iron Swing Check Valves with Closure Control: Class 125, lever and weight.
6. Iron Gate Valves: Class 250, NRS.

3.08 SANITARY-WASTE AND STORM-DRAINAGE VALVE SCHEDULE

A. Pipe NPS 2 and Smaller:
1. Bronze and Brass Valves: May be provided with solder-joint ends instead of threaded ends.
2. Bronze Angle Valves: Class 125, stainless-steel disc.
3. Ball Valves: Two, or Three piece, full port, brass or bronze with stainless-steel trim.
4. Bronze Swing Check Valves: Class 125, bronze disc.
5. Bronze Gate Valves: Class 125, NRS.
6. Bronze Globe Valves: Class 125, bronze disc.

B. Pipe NPS 2-1/2 and Larger:
1. Iron Valves, NPS 2-1/2 to NPS 4: May be provided with threaded ends instead of flanged ends.
2. Iron Ball Valves: Class 125.
3. Iron Swing Check Valves: Class 125 metal seats.
4. Iron Swing Check Valves with Closure Control: Class 125, lever and weight.
5. Iron Gate Valves: Class 125, NRS.
6. Iron Globe Valves: Class 125.
7. Lubricated Plug Valves: Class 125, regular gland.

END OF SECTION

SECTION 22 05 29 HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

SUMMARY

B. This Section includes the following hangers and supports for plumbing system Piping and equipment:

1. Steel pipe hangers and supports.
2. Trapeze pipe hangers.
3. Metal framing systems.
4. Thermal-hanger shield inserts.
5. Fastener systems.
6. Pipe stands.
7. Pipe positioning systems.
8. Equipment supports.

C. Related Sections include the following:

1. Division 05 Section 05 50 00 - Metal Fabrications for structural-steel shapes and plates for trapeze hangers for pipe and equipment supports.
2. Section 22 05 16 - Expansion Fittings and Loops for Plumbing Piping for pipe guides and anchors.
3. Section 22 05 48 - Vibration and Seismic Controls for Plumbing Piping and Equipment for vibration isolation devices.

DEFINITIONS

A. MSS: Manufacturers Standardization Society for The Valve and Fittings Industry Inc.

B. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports".

PERFORMANCE REQUIREMENTS

D. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.

E. Design equipment supports capable of supporting combined operating weight of

supported equipment and connected systems and components.

F. Design seismic-restraint hangers and supports for piping and equipment and obtain approval from authorities having jurisdiction.

SUBMITTALS

G. Product Data: For the following:
   1. Steel pipe hangers and supports.
   2. Thermal-hanger shield inserts.
   3. Fastener systems.
   4. Pipe positioning systems.
   5. Pipe stands
   6. Trapeze pipe hangers
   7. Equipment support

H. Shop Drawings: Details approved by OSHPD.

I. Welding certificates.

QUALITY ASSURANCE

J. Welding: Qualify procedures and personnel according to ASME B31.9.

PART 2 - PRODUCTS

MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
   1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

STEEL PIPE HANGERS AND SUPPORTS

B. Description:. MSS SP-58, Types 1 through 58, factory-fabricated to Part 3 "Hanger and Support Applications" Article for where to and support types.

C. Manufacturers:
   1. Tolco Inc.
   2. B-Line
   3. Unistrut
   4. Superstrut

D. Galvanized, Metallic coatings: Pregalvanized or hot dipped.

E. Nonmetallic Coatings: Plastic coating, jacket, or liner.

F. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

TRAPEZE PIPE HANGERS

G. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

METAL FRAMING SYSTEMS

A. Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.

B. Manufacturers:
   1. B-Line Systems, lnc.; a division of Cooper lndustries
   2. ERICO/Michigan Hanger Co.; ERISTRUT Div.
   3. GS Metals Corp.
   4. Power-Strut Div.; Tyco lnternational, Ltd.
   5. Thomas & Betts Corporation 6. Tolco lnc.
   6. Unistrut Corp.; Tyco lnternational, Ltd.

H. Coatings: Manufacturer's standard finish unless bare metal surfaces are indicated.

I. Nonmetallic Coatings: Plastic coating, jacket, or liner.
   1. Seasafe, lnc.

FASTENER SYSTEMS

J. Powder-Actuated Fasteners: threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
   1. Manufacturers:
      a. Hilti, lnc.
      b. ITW Ramse/Red Head
      c. Masterset Fastening Systems, lnc.
      d. MKT Fastening, LLC.
      e. Powers Fasteners

K. Mechanical-Expansion Anchors: Insert-wedge-type, zinc coated steel for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
   1. Manufacturers:
      a. B-Line Systems, Inc.; a division of Cooper Industries
      b. Empire Industries, Inc.
      c. Hilti, Inc.
      d. ITW Ramset/Red Head
      e. MKT Fastening, LLC.
      f. Powers Fasteners

L. Embeded Anchors
   1. Manufacturers:
      a. Tolco Fig. 1094
      b. Blue Banger

PIPE STAND FABRICATION

M. Pipe Stands, General: Shop or field-fabricated assemblies made of manufactured

N. corrosion-resistant components to support roof-mounted piping.

O. Compact Pipe Stand: One-piece plastic unit with integral-rod-roller, pipe clamps, or V shaped cradle to support pipe, for roof installation without membrane penetration.
   1. Manufacturers:
      a. ERICO/Michigan Hanger Co
      b. MIRO Industries

P. Low-Type, Single-Pipe Stand: one-piece stainless-steel base unit with plastic roller, for roof installation without membrane penetration.
   1. Manufacturers:
      a. MIRO Industries

Q. High-Type, Single-Pipe Stand: Assembly of base, vertical and horizontal members, and pipe support, for roof installation without membrane penetration.
   1. Manufacturers:
      a. ERICO/Michigan Hanger Co.
      b. MIRO Industries
      c. Portable Pipe Hangers
   2. Base: Stainless steel.
   3. Vertical Members: Two or more continuous cadmium-plated-steel or stainless-steel, continuous-thread rods.
   4. Horizontal Member: Cadmium-plated-steel or stainless steel rod with plastic or stainless-steel, roller-type pipe support.

R. High-Type, Multiple-Pipe Stand: Assembly of bases, vertical and horizontal members, and pipe supports, for roof installation without membrane penetration.
   1. Manufacturers:
      a. Portable pipe Hangers
   2. Bases: One or more plastic.
   3. Vertical Members: Two or more protective-coated-steel channels.
   4. Horizontal Member: protective-coated-steel channel.
   5. Pipe Supports: Galvanized-steel, clevis-type pipe hangers.

S. Curb-Mounting-Type Pipe Stands: Shop- or field-fabricated pipe support made from structural-steel shape, continuous-thread rods, and rollers for mounting on permanent stationary roof curb.

T. Pipe stand for non roof applications
   1. Tolco

2. B-Line

PIPE POSITIONING SYSTEMS

U. Description: IAPMO PS 42, system of metal brackets, clips, and straps for positioning piping in pipe spaces for plumbing fixtures for commercial applications.

V. Manufacturers:
1. C & S Mfg. Corp.
2. HOLDRITE Corp.; Hubbard Enterprises
3. Samco Stamping, Inc.
4. Erico
5. Sioux Chief

EQUIPMENT SUPPORTS

W. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

2.09 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/,4 36M, steel plates, shapes, and bars; black and galvanized.

B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
1. Properties: Nonstaining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.01 HANGER AND SUPPORT APPLICATIONS

A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not

C. specified in piping system Sections.

C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments or preformed plastic pipe protectors for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use felt lined hangers for electrolytic protection where hangers are in direct contact with copper tubing.

F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30.
2. Yoke-Type Pipe clamps (MSS Type 2): For suspension of 12 to 450 deg F pipes, NPS 4" to NPS 16", requiring up to 4 inches of insulation.
3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes, NPS ¾" to NPS 24', requiring clamp flexibility and up to 4 inches of insulation.
4. Steel Pipe clamps (MSS Type 4): For suspension of cord and hot pipes,
5. NPS ½" to NPS 24", if little or no insulation is required.
6. Pipe Hangers (MSS Type 5): For suspension of pipes, Nps ½" to Nps 4", to allow off-center closure for hanger installation before pipe erection.
7. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of stationary pipes, NPS ¾" to NPS 8".
8. Adjustable, Steel Band Hangers (MSS Type 7): For suspension pipes, NPS ½" to NPS 8'.of stationary
9. Adjustable Band Hangers (MSS Type 9): For suspension of stationary pipes,NPS ½" to NPS 8". L Adjustable, swivel-Ring Band Hangers (MSS Type 10): For suspension of stationary pipes, NPS 1/2 to NPS 2.
10. Split Pipe-Ring with or without Turnbuckle-Adjustment Hangers (MSS Type 11): For suspension of-stationary pipes, NPS 3" to NPS 8".
11. Extension Hinged or 2-Bolt Split Pipe Clamps (MSS Type 12): For suspension of stationary pipes, NPS 3/8" to NPS 3".
12. U-Bolts (MSS Type 24): For support of heavy pipes, NPS ½" to NPS 30". 13. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.
13. Pipe saddle supports (MSS Type 36): For support of pipes, NPS 4" to NPS 36", with steel pipe base stanchion support.
14. Pipe stanchion saddles (MSS Type 37): For support of pipes, NPS 4" to NPS 36", with steel pipe base stanchion support with U-bolt to retain pipe.
15. Adjustable, Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes, NPS 2-1/2" to NPS 36", if vertical adjustment is required, with steel pipe base stanchion support.
16. Single Pipe Rolls (MSS Type 41): For suspension of pipes, NPS 1" to NPS 30", from 2 rods if longitudinal movement caused by expansion and contraction might occur.
17. Adjustable Roller Hangers (MSS Type 43). For suspension of pipes, NPS 2-1/2" to NPS 20", from single rod if horizontal movement caused by expansion and contraction might occur.
18. Complete Pipe Rolls (MSS Type 44): For support of pipes, NPS 2" to NPS 42", if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.
19. Pipe Roll and Plate Units (MSS Type 45): For support of pipes, NPS 2" to
20. NPS 24", if small horizontal movement caused by expansion and contraction might occur and vertical adjustment is not necessary.
21. Adjustable Pipe Roll and Base units (MSS Type 46): For support of pipes,
22. NPS 2" to NPS 30", if vertical and lateral adjustment during installation might be required in addition to expansion and contraction.

D. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS ¾" to NPS 20".
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS ¾" to NPS 20", if longer ends are required for riser clamps.

E. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
   2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
   3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 1, split pipe rings.
   4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
   5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.
   6. Rod Coupling
   7. Swivel type rod coupling

F. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
   2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar joist construction to attach to top flange of structural shape.
   3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
   4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
   5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
   6. C-Clamps (MSS Type 23): For structural shapes.
   7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
   8. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
   9. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
   10. Linked-steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions'
   11. Malleable Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
   12. Welded-Steel Brackets: For support of pipes from below, for suspending from above by using clip and rod. Use one of the following for indicated loads:
       a. Light (MSS Type 31): 750 lb.
       b. Medium (MSS Type 32): 1500 lb.
       c. Heavy (MSS Type 33): 3000 lb.
   13. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
   14. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
   15. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.

G. Spring Hangers and Supports: where specified in piping systems Sections, install the following types:
   1. Restraint-Control Devices (MSS Type 47): Where indicated to control piping movement.
   2. Spring Cushions (MSS Type 48): for light loads if vertical movement does not exceed 1-114 inches.
   3. Spring Sway Braces (MSS Type 50): To retard sway, shock, vibration, or thermal expansion in piping systems.

4. Variable-Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from hanger.
5. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from base support.
6. Variable-Spring Trapeze Hangers (MSS Type 53): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from trapeze support.

H. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

I. Use pipe-positioning systems in pipe spaces behind plumbing fixtures to support supply piping for plumbing fixtures.

3.02 HANGER AND SUPPORT INSTALLATION

A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS Sp-Bg. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

B. Trapeze Pipe Hanger Installation: Comply with MSS SP-69 and MSS Sp-89. Arrange for grouping of parallel runs of horizontal piping and support together on field-fabricated trapeze pipe hangers.
1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to AWS D1.1.

C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.

D. Arrange for grouping of parallel runs of piping on fiberglass struts.

E. Fastener System Installation:
1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer.
2. Install fasteners according to powder-actuated tool manufacture/s operating manual.
3. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
4. Install embedded anchors per manufacturer's written instruction.

F. Pipe Stand Installation:
1. Pipe Stand Types except Curb-Mounting Type: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.
2. Curb-Mounting-Type Pipe Stands: Assemble components or fabricate pipe stand and mount on permanent, stationary roof curb. Refer to Division 07
3. Section 07 72 00 - Roof Accessories for curbs.

G. Pipe Positioning System Installation: Install support devices to make rigid supply piping connections to each plumbing fixture. Refer to Section 22 43 00 – Healthcare Plumbing Fixtures for plumbing fixtures.

H. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

I. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

J. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

K. Install lateral bracing with pipe hangers and supports as per OSHPD approved seismic installation. Coordinate with structural contractor and SEOR..

L. Install building attachments within concrete slabs or attach to structural steel per

M. California plumbing code. Install concrete inserts before concrete is placed; fasten inserts to forms.

N. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

O. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.9 (for building services piping) are not exceeded.

P. Insulated Piping: Comply with the following:

1. Attach clamps to Piping. a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.

3.03 EQUIPMENT SUPPORTS

A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.

B. Grouting: Place grout under supports for equipment and make smooth bearing surface.

C. Provide lateral bracing, for equipment supports. As indicated by seismic drawings. OSPD approved

3.04 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWSD1.1 procedures for shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work, and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so no roughness shows after finishing and contours of welded surfaces match adjacent contours.

3.05 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

3.06 PAINTING

A. Touch Up: Clean field welds and abraded areas of shop paint. paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting, lead-free. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces, by others.
   1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Touch Up: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal are specified in Division 0g painting Sections.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 22 05 48 VIBRATION AND SEISMIC CONTROLS FOR PLUMBING PIPING AND EQUIPMENT

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 the following:
   1. Isolation pads.
   2. Isolation mounts.
   3. Restrained elastomeric isolation mounts.
   4. Freestanding and restrained spring isolators.
   5. Housed spring mounts.
   6. Elastomeric hangers.
   7. Spring hangers.
   8. Spring hangers with vertical-limit stops.
   9. Pipe riser resilient supports.
   10. Resilient pipe guides.
   11. Seismic snubbers.
   12. Restraining braces and cables.
   13. Steel and inertia, vibration isolation equipment bases.

1.3 DEFINITIONS

A. IBC: International Building Code.

B. ICC-ES: ICC-Evaluation Service.

C. OSHPD: Office of Statewide Health Planning and Development for the State of California.

D. CPC California Plumbing Code.

E. CBC California Building Code.

1.4 SUBMITTALS

A. Product Data: For the following:
   1. Include rated load, rated deflection, and overload capacity for each vibration isolation device.
   2. Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of seismic-restraint component used.
      a. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by OSHPD.
      b. Annotate to indicate application of each product submitted and compliance with requirements.
   3. Interlocking Snubbers: Include ratings for horizontal, vertical, and combined loads.

B. Delegated-Design Submittal: For vibration isolation and seismic-restraint details indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
   1. Design Calculations: Calculate static and dynamic loading due to equipment weight and operation, seismic forces required to select vibration isolator's seismic restraints, and for designing vibration isolation bases.
   2. Riser Supports: Include riser diagrams and calculations showing anticipated expansion and contraction at each support point, initial and final load on building structure, spring deflection changes, and seismic loads. Include certification that riser system has been examined for excessive stress and that none will exist.
   3. Vibration Isolation Base Details: Detail overall dimensions, including anchorages and attachments to structure and to supported equipment. Include auxiliary motor slides and rails, base weights, equipment static loads, power transmission, component misalignment and cantilever loads.
   4. Seismic-Restraint Details:
      a. Design Analysis: To support selection and arrangement of seismic restraints. Include calculations of combined tensile and hear loads.
      b. Details: Indicate fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods, and spacings. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events. Indicate association with vibration isolation devices.
      c. Preapproval and Evaluation Documentation: by OSHPD, showing maximum ratings of restraint items and the basis for approval (tests or calculations).

C. Coordination Drawings: Show coordination of seismic bracing for plumbing piping and equipment with other systems and equipment in the vicinity,-including oilier supports and seismic restraints.

D. Welding certificates.

E. Qualification Data: For professional engineer and testing agency.

F. Field quality-control test reports.

G. Operation and Maintenance Data: For air-mounting systems to include in operation and maintenance manuals.

1.5 QUALITY ASSURRANCE

A. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.

B. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel".

C. Seismic-restraint devices shall have horizontal and vertical load testing and analysis and shall bear anchorage preapproval OPA number from OSHPD, preapproved by ICC-ES. Calculations (including combining shear and tensile loads) to support seismic-restraint designs must be signed and sealed by a qualified professional engineer.

PART 2 - PRODUCTS

2.01 VIBRATION ISOLATIORS

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:

C. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
   1. Ace Mountings Co., Inc.
   2. AmberBooth Company, Inc.
   3. California Dynamics Corporation
   4. Isolation Technology, Inc.
   5. Kinetics Noise Control
   6. Mason Industries
   7. M.W. Sausse & Co. Inc.
   8. Vibration Isolation
   9. Vibration Mountings & Controls, Inc.
   10. Isat
   11. Sioux Chief

D. Pads: Arranged in single or multiple layers of sufficient stiffness for uniform loading over pad area, molded with a nonslip pattern and galvanized-steel base plates, and factory cut to sizes that match requirements of supported equipment.
   1. Resilient Material: Oil- and water-resistant neoprene.

E. Mounts: Double-deflection type, with molded, oil resistant rubber, hermetically sealed compressed fiberglass, or neoprene isolator elements with factory-drilled, encapsulated top plate for bolting to equipment and with base plate for bolting to structure. Color-code or otherwise identify to indicate capacity range.
   1. Materials: Cast-ductile-iron or welded steel housing containing two separate and opposing, oil-resistant rubber or neoprene elements that prevent central threaded element and attachment hardware from contacting the housing during normal operation.
   2. Neoprene: Shock-absorbing materials compounded according to the standard for bridge-bearing neoprene as defined by AASHTO.

F. Restrained Mounts: All-directional mountings with seismic restraint.
   1. Materials: Cast-ductile-iron or welded steel housing containing
   2. two separate and opposing, oil-resistant rubber or neoprene elements that prevent central threaded element and attachment hardware from contacting the housing during normal operation.
   3. Neoprene: Shock-absorbing materials compounded according to the standard for bridge-bearing neoprene as defined by AASHTO.

G. Spring Isolators: Freestanding, laterally stable, open-spring isolators.
   1. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
   2. Minimum Additional Travel: 50 percent of the required deflection at rated load.
   3. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
   4. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

5. Baseplates: Factory drilled for bolting to structure and bonded to 1/4-inch thick, rubber isolator pad attached to baseplate underside. Baseplates shall limit floor load to 500 psig.
6. Top Plate and Adjustment Bolt: Threaded top plate with adjustment bolt and cap screw to fasten and level equipment.

H. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with seismic or limit-stop restraint.
1. Housing: Steel with resilient vertical-limit stops to prevent spring extension due to weight being removed; factory-drilled baseplate bonded to 1/4-inch thick, neoprene or rubber isolator pad attached to baseplate underside; and adjustable equipment mounting and leveling bolt that acts as blocking during installation.
2. Restraint: Seismic or limit-stop as required for equipment and authorities having jurisdiction.
3. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
4. Minimum Additional Travel: 50 percent of the required deflection at rated load.
5. Lateral stiffness. More than 80 percent of rated vertical stiffness.
6. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

I. Housed Spring Mounts: Housed spring isolator with integral seismic snubbers.
1. Housing: Ductile-iron or steel housing to provide all-directional seismic restraint.
2. Base: Factory drilled for bolting to structure.
3. Snubbers: Vertically adjustable to allow a maximum of 114-inch travel up or down before contacting a resilient collar.

J. Elastomeric Hangers: Single or double-deflection type, fitted with molded, oil-resistant elastomeric isolator elements bonded to steel housings with threaded connections for hanger rods. color-code or otherwise identify to indicate capacity range.

K. Spring Hangers: combination coil-spring and elastomeric-insert and insert in compression.
1. Frame: Steel, fabricated for connection to threaded hanger rods and to allow for a maximum of .30 degrees of angular hanger-rod misalignment without binding or reducing isolation efficiency.
2. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
3. Minimum Additional Travel: 50 percent of the required deflection at rated load.
4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
6. Elastomeric Element: Molded, oil-resistant rubber or neoprene. Steel-washer reinforced cup to support spring and bushing projecting through bottom of frame.
7. Self-centering hanger rod cap to ensure concentricity between hanger rod and support spring coil.

L. Spring Hangers with Vertical-Limit Stop: Combination coil-spring and elastomeric insert hanger with spring and insert in compression and with a vertical-limit stop.
1. Frame: Steel, fabricated for connection to threaded hanger rods and to allow for a maximum of 30 degrees of angular hanger-rod misalignment without binding or reducing isolation efficiency.
2. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
3. Minimum Additional Travel: 50 percent of the required deflection at rated load.
4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
6. Elastomeric Element: Molded, oil-resistant rubber or neoprene.

7. Adjustable Vertical Stop: Steel washer with neoprene washer "up-stop" on lower threaded rod.
8. Self-centering hanger rod cap to ensure concentricity between hanger rod and support spring coil.

M. Spring Hangers and Vertical-Limit Stop: Combination coil-spring and elastomeric-insert hanger with spring and insert in compression and with a vertical-limit stop.
1. Frame: Steel, fabricated for connection to threaded hanger rods and to allow for a maximum of 30 degrees of angular hanger-rod misalignment without binding or reducing isolation efficiency.
2. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
3. Minimum Additional Travel: 50 percent of the required deflection at rated load.
4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
6. Elastomeric Element: Molded, oil-resistant rubber or neoprene.
7. Adjustable Vertical Stop: Steel washer with neoprene washer “up stop” on lower threaded rod.
8. Self-centering hanger rod cap to ensure concentricity between hanger rod and support spring coil.

N. Pipe Riser Resilient Support: All-directional, acoustical pipe anchor consisting of 2 steel tubes separated by a minimum of 112-inch- thick neoprene. Include steel and neoprene vertical-limit stops arranged to prevent vertical travel in both directions. Design support for a maximum load on the isolation material of 500 psig and for equal resistance in all directions.

O. Resilient Pipe Guides: Telescopic arrangement of 2 steel tubes or post and sleeve arrangement separated by a minimum of 112-inch thick neoprene. Where clearances are not readily visible, a factory-set guide height with a shear pin to allow vertical motion due to pipe expansion and contraction shall be fitted. Shear pin shall be removable and reinsertable to allow for selection of pipe movement. Guides shall be capable of motion to meet location requirements.

2.02 VIBRATION ISOLATION EQUIPMENT BASES

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:

C. Basis-of-Design Product: Subject to compliance with requirements, provide the

product indicated on Drawings or a comparable product by one of the following:

1. Amber/Booth Company, Inc.
2. CaliforniaDynamicsCorporation
3. Isolation Technology, Inc.
4. Kinetics Noise Control
5. Mason Industries
6. M.W. Sausse & Co. Inc.
7. Vibration Isolation
8. Vibration Mountings & Controls, Inc.
9. Isat

D. Steel Base: Factory-fabricated, welded, structural-steel bases and rails.
1. Design Requirements: Lowest possible mounting height with not less than inch clearance above the floor. Include equipment anchor bolts and auxiliary motor slide bases or rails.
a. Include supports for suction and discharge elbows for pumps.

2. Structural steel: steer shapes, plates, and bars complying with ASTM A 36/A 36M. Bases shall have shape to accommodate supported equipment.
3. Support Brackets: Factory-welded steel brackets on frame for outrigger isolation
4. Fabrication: Fabricated steel templates to hold equipment anchor-bolt sleeves templates from supported equipment manufacturer.

E. Inertia Base: Factory-fabricated, welded, structural-steel bases and rails ready for placement of cast-in-place concrete.
1. Design Requirements: Lowest possible mounting height with not less than 1 inch clearance above the floor. Include equipment anchor bolts and auxiliary motor slide bases or rails.
a. Include supports for suction and discharge elbows for pumps.
2. Structural Steel: Steel shapes, plates, and bars complying with ASTM A 36/A 36M/. Bases shall have shape to accommodate supported equipments.
3. Support Brackets: Factory-welded steel brackets on frame for outrigger isolation mountings and to provide for anchor bolts and equipment support.
4. Fabrication: Fabricate steel templates to hold equipment anchor-bolt sleeves and anchors in place during placement of concrete. Obtain anchor-bolt templates from supported equipment manufacturer.

2.03 SEISMIC-RESTRIANT DEVICES

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:

C. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
1. Amber/Booth Company, Inc.
2. California Dynamics Corporation
3. Copper B-Line,Inc.; a division Cooper Industries.
4. Hilti, Inc.
5. Kinetics Noise Control
6. Loos & Co.; Cableware Division
7. Mason Industries
8. TOLCO Incorporated; a brand of NIBCO Inc.
9. Unistrut; Tyco International, Ltd.
10. Isat

D. General Requirements for Restraint Components: Rated strengths, features, and applications shall be as defined in reports by OSHPD.
1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum seismic forces to which they will be subjected.

E. Snubbers: Factory fabricated using welded structural-steel shapes and plates, anchor bolts, and replaceable resilient isolation washers and bushings.
1. Anchor bolts for attaching to concrete shall be seismic-rated, drill-in, and stud wedge or female-wedge type.
2. Resilient Isolation Washers and Bushings: Oil- and water-resistant neoprene.
3. Maximum 1|4-inch air gap, and minimum 1/4-inch- thick resilient cushion.

F. Channel Support System: MFMA-3, shop- or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.

G. Restraint Cables: ASTM A 603 galvanized-steel cables with end connections made of steel assemblies with thimbles, brackets, swivel, and bolts designed for restraining cable service; and with a minimum of two clamping bolts for cable engagement.

H. Hanger Rod Stiffener: Reinforcing steel angle clamped to hanger rod.

I. Bushings for Floor-Mounted Equipment Anchor Bolts: Neoprene bushings designed for rigid equipment mountings, and matched to type and size of anchor bolts and studs.

J. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings, and matched to type and size of attachment devices used.

K. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.

L. Mechanical Anchor Bolts: Drilled-in and stud-wedge or female-wedge type in zinc coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488. Minimum length of eight times diameter.

M. Adhesive Anchor Bolts: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts strength required for anchor and as tested accoioing to ASTM E 488.

2.04 FACTORY FINISHES

A. Finish: Manufacturer's standard prime-coat finish ready for field painting.

B. Finish: Manufacturer's standard paint applied to factory-assembled and -tested equipment before shipping.
   1. Powder coating on springs and housings.
   2. All hardware shall be galvanized. Hot-dip galvanize metal components for exterior use.
   3. Baked enamel or powder coat for metal components on isolators for interior use. 4. Color-code or otherwise mark vibration isolation and seismic-control devices to indicate capacity range.

PART 3 - EXECUTION

3.01 EXAMINATION

C. Examine areas and equipment to receive vibration isolation and seismic-control devices for compliance with requirements for installation tolerances and other conditions affecting performance.

D. Examine roughing-in of reinforcement and cast-in-place anchors to verify actual locations before installation.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 APPLICATIONS

A. Multiple Pipe Supports: Secure pipes to trapeze member with clamps approved for application by OSHPD.

B. Hanger Rod Stiffeners: Install hanger rod stiffeners where indicated or scheduled on Drawings to receive them and where required to prevent buckling of hanger rods due to seismic forces.

C. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits.

3.03 VIBRATION-CONTROLAND SEISMIC-RESTRAINT DEVICE INSTALLATION

A. Equipment Restraints:
   1. Install seismic snubbers on plumbing equipment mounted on vibration isolators. Locate snubbers as close as possible to vibration isolators and bolt to equipment base and supporting structure.
   2. Install resilient bolt isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface per designed systems.
   3. Install seismic-restraint devices using methods approved by OSHPD providing required submittals for component.

B. Piping Restraints:
   1. Comply with requirements in MSS SP-127.
   2. Space lateral supports a maximum of 40 feet o.c., and longitudinal supports a maximum of 80 feet o.c.,
   3. Brace a change of direction longer than 12feet.

C. Install cables so they do not bend across edges of adjacent equipment or building structure.

D. Install seismic-restraint devices using methods approved by OSHPD providing required submittals for component.

E. Install bushing assemblies for anchor bolts for floor-mounted equipment, arranged to provide resilient media between anchor bolts and mounting hole in concrete base.

F. Install busing assemblies for anchor bolts for floor-mounted equipment, arranged to provide resilient media between anchor bolts and mounting hole in concrete base.

G. Drilled-in Anchors:
   1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling.
   2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
   3. Wedge Anchors: Protect threads from damage during anchor installation.
      Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
   4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
   5. Set anchors to manufacturer's recommended torque, using a torque wrench.
   6. Install zinc-coated steel anchors for interior and stainless steel anchors for exterior applications.

3.04 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

A. Install flexible connections in piping where they cross seismic joints, where adjacent sections or branches are supported by different structural elements, and where the connections terminate with connection to equipment that is anchored to a different structural element from the one supporting the connections as they approach equipment. Comply with requirements in Section 22 11 16 - Domestic Water Piping for piping flexible connections.

3.05 FIELD QUALITY CONTROL

B. Perform inspections. Per OSHPD approved documents

C. Tests and Inspections: Per TIO form and CPC “07.

D. Prepare test and inspection reports.

3.06 ADJUSTING

A. Adjust isolators after piping system is at operating weight.

B. Adjust limit stops on restrained spring isolators to mount equipment at normal

operating height. After equipment installation is complete, adjust limit stops so that they are out of contact during normal operation.

C. Adjust active height of sprint isolators.

D. Adjust restraints to permit free movement of equipment within normal mode of operation.

END OF SECTION

SECTION 22 05 53 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 – GENERAL

RELATED DOCUMENTS

A. Drawings and general provisions of the Contract; including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

SUMMARY

B. Section Includes:
   1. Equipment labels.
   2. Warning signs and labels.
   3. Pipe labels.
   4. Stencils.
   5. Valve tags.
   6. Warning tags.

SUBMITTALS

C. Product Data: For each type of product indicated.

D. Samples: For color, letter style, and graphic representation required for each identification material and device.

E. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.

F. Valve numbering scheme.

G. Valve Schedules: For each piping system to include in maintenance manuals.

COORDINATION

H. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

I. Coordinate installation of identifying devices with locations of access panels and doors.

J. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.01 EQUIPMENT LABELS

A. Metal Labels for Equipment:

1. Material and Thickness: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
2. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2by 3/4-inch.
3. Minimum Letter Size: 1/4-inch for name of units if viewing distance is less than 24 inches, 1/2-inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two thirds to three-fourths the size of principal lettering.
4. Fasteners: Stainless-steel rivets or self tapping screws.
5. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

B. Plastic Labels for Equipment:

1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16-inch thick, and having predrilled holes for attachment hardware.
2. Letter Color: Black.
3. Background Color: Yellow.
4. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2by 3/4-inch.
5. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2-inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
6. Fasteners: Stainless-steel rivets or self-tapping screws.

C. Label Content: Include equipment's tag ID from Drawing schedule

2.02 WARNING SIGNS AND LABELS

A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8-inch thick, and having predrilled holes for attachment hardware.

B. Letter Color: Black.

C. Background Color: Yellow.

D. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4-inch.

E. Minimum Letter Size: 1/4-inch for name of units if viewing distance is less than 24 inches, 1/2-inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three fourths the size of principal lettering.

F. Fasteners: Stainless-steel rivets or self tapping screws.

G. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

2.03 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Pretensioned Pipe Labels: Pre-coiled, semi rigid plastic formed to partially cover

C. circumference of pipe and to attach to pipe without fasteners or adhesive.

D. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive

E. backing.

F. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.
   1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
   2. Lettering Size: At least 1-1/2 inches high, or adjust per pipe size and mfg
   3. standards.

2.04 VALVE TAGS

A. Valve Tags: tag size minimum 1-1/2inch diameter Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch numbers.
   1. Tag Material: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
   2. Fasteners: Brass beaded chain S-hook.

B. Valve Schedules: For each piping system, on 8-1/2 by 11 inch bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification.
   1. Valve tag schedule shall be included in operation and maintenance data.

2.05 WARNING TAGS

A. Warning Tags: Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with matte finish suitable for writing.
   1. Size: 3 by 5-1/4 inches minimum.
   2. Fasteners: Brass grommet and wire.
   3. Nomenclature: Large-size primary caption such as "DANGER", "CAUTION", or “DO NOT OPERATE”.
   4. Color: Yellow background with black lettering.

B. Warning Signs
   1. Warning signs shall be provided when dangerous for patients and personnel may but not limited to fixtures exceeding 125 Degrees F, warning sign shall be posted as required per CPC Section 613.7.

PART 3 - EXECUTION

3.01 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.02 EQUIPMENT LABEL INSTALLATION

A. Install or permanently fasten labels on each major item of mechanical equipment.

B. Located equipment labels where accessible and visible.

3.03 PIPE LABEL INSTALLATION

A. Piping Color Coding: Painting of piping is specified in Division 09.

B. Stenciled Pipe Label Option: Stenciled labels may be provided instead of manufactured pipe labels, at Installer's option. Install stenciled pipe labels, complying with ASME 13.1, on each piping system.
   1. Identification Paint: Use for contrasting background
   2. Stencil Paint: Use for pipe marketing.

C. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
   1. Mark each pipe at branch.
   2. Near major equipment items and other points of origination and termination.
   3. Spaced at maximum intervals of 20 feet after run and on each side of walls or partitions.
   4. On piping above removable acoustical ceilings.

D. Pipe Label Color Schedule:
   1. Low-Pressure, Compressed-Air Piping:
      a. Background Color: Blue.
      b. Letter Color: White.
   2. Medium-Pressure, Compressed-Air Piping:
      a. Background Color: Blue.
      b. Letter Color: White.
   3. Domestic Water Piping:
      a. Background Color: Green.
      b. Letter Color: White.
   4. Sanitary Waste and Storm Drainage piping:
      a. Background Color: Yellow.
      b. Letter Color: Black.
   5. Industrial Hot, Cold water, hot water return, RO water piping, soft water piping and gas piping:
      a. Per California Plumbing code section 601.2.2.

3.04 VALVE-TAG I INSTALLATION

A. Install tags on valves and control devices in piping systems, except check valves; valves within factory-fabricated equipment units; shutoff valves; faucets; convenience and lawn-watering hose connections; and similar roughing-in connections of end-use fixtures and units. List tagged valves in a valve schedule.

B. Valve-Tag Application Schedule: Tag valves according to size, shape, and color scheme and with captions similar to those indicated in the following subparagraphs:
   1. Valve-Tag Size and Shape:
      a. Cold Water: 1-1/2 inches, round.
      b. Hot Water: 1-1/2inches, round.
      c. Low-Pressure Compressed Air: 1-1/2inches, round.
      d. High-Pressure Compressed Air: 1-1/2inches, round.

3.05 WARNING-TAG INSTALLATION

A. Write required message on, and attach warning tags to, equipment and other items where required.

3.06 CONCEALED IDENTIFICATION

A. Provide color-coded ceiling tacks to locate coils, valves, control devices, etc. or other approved label on each T-bar suspended ceiling grid. Locate on grid closest to equipment. Submit samples for Architect / Engineers approval.

B. The access doors in the hard ceiling shall be provided with the label to identify the equipment / device it serves. Submit samples for Architect / Engineers approval.

END OF SECTION

SECTION 22 07 00 PLUMBING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. CCR Title 24, Part 6 Energy Code

1.2 SUMMARY

A. Section Includes:
   1. Insulation Materials:
      a. Calcium silicate.
      b. Cellular glass.
      c. Flexible elastomeric.
      d. Phenolic.
      e. Polyisocyanurate.
      f. Polyolefin.
      g. Polystyrene.
   2. Insulating cements.
   3. Adhesives.
   4. Mastics.
   5. Lagging adhesives.
   6. Sealants.
   7. Factory-applied jackets.
   8. Field-applied fabric-reinforcing mesh.
   9. Field-applied cloths.
   10. Field-applied jackets.
   11. Tapes.
   12. Securements.
   13. Corner angles.

B. Related Sections include the following:
   1. Division 23 Section 23 07 19 – HVAC Piping Insulation.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include thermal conductivity, thickness, and jackets (both factory and field applied, if any).

B. LEED Submittal:

C. Product Data for Credit EQ 4.1: For adhesives and sealants, including printed statement of VOC content.

D. Qualification Data: For qualified Installer.

E. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.

F. Field quality-control reports.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.

B. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.
   1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
   2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.6 COORDINATION

A. Coordinate size and location of supports, hangers, and insulation shields specified in Section 22 05 29 – Hangers and Supports for Plumbing Piping and Equipment.

B. Coordinate clearance requirements with piping Installer for piping insulation application and equipment Installer for equipment insulation application. Before preparing piping Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

C. Coordinate installation and testing of heat tracing.

1.7 SCHEDULING

A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.

B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

C. Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.

D. Products shall not contain asbestos, lead, mercury, or mercury compounds.

E. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

F. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

G. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

H. Calcium Silicate:
   1. Products: Subject to compliance with requirements, provide the following:
      a. Industrial Insulation Group (The); Thermo-12 Gold.
   2. Preformed Pipe Sections: Flat-, curved-, and grooved-block sections of noncombustible, inorganic, hydrous calcium silicate with a non-asbestos fibrous reinforcement. Comply with ASTM C 533, Type I.
   3. Flat-, curved-, and grooved-block sections of noncombustible, inorganic, hydrous calcium silicate with a non-asbestos fibrous reinforcement. Comply with ASTM C 533, Type I.
   4. Prefabricated Fitting Covers: Comply with ASTM C 450 and ASTM C 585 for dimensions used in preforming insulation to cover valves, elbows, tees, and flanges.

I. Cellular Glass: Inorganic, incombustible, foamed or cellulated glass with annealed, rigid, hermetically sealed cells. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Cell-U-Foam Corporation; Ultra-CUF.
      b. Pittsburgh Corning Corporation; Foamglas Super K.
   2. Block Insulation: ASTM C 552, Type I.
   3. Special-Shaped Insulation: ASTM C 552, Type III.
   4. Board Insulation: ASTM C 552, Type IV.
   5. Preformed Pipe Insulation without Jacket: Comply with ASTM C 552, Type II, Class 1.
   6. Preformed Pipe Insulation with Factory-Applied ASJ: Comply with ASTM C 552, Type II, Class 2.
   7. Factory fabricates shapes according to ASTM C 450 and ASTM C 585.

J. Flexible Elastomeric: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Aeroflex USA Inc.; Aerocel.
      b. Armacell LLC; AP Armaflex.
      c. RBX Corporation; Insul-Sheet 1800 and Insul-Tube 180.

K. High-Temperature, Blanket Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type V, without factory-applied jacket.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Johns Manville; HTB 23 Spin-Glas.
      b. Owens Corning; High Temperature Flexible Batt Insulations.

L. Board Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IA or Type IB. For equipment applications, provide insulation with factory-applied ASJ. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. CertainTeed Corp.; Commercial Board.
      b. Fibrex Insulations Inc.; FBX.
      c. Johns Manville; 800 Series Spin-Glas.
      d. Manson Insulation Inc.; AK Board.
      e. Owens Corning; Fiberglas 700 Series.

M. High-Temperature, Board Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type III, without factory-applied jacket.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Fibrex Insulations Inc.; FBX.
      b. Johns Manville; 1000 Series Spin-Glas.
      c. Owens Corning; High Temperature Industrial Board Insulations.
      d. Rock Wool Manufacturing Company; Delta Board.

e. Roxul Inc.; Roxul RW.
f. Thermafiber; Thermafiber Industrial Felt.

N. Glass-Fiber, Preformed Pipe Insulation:
1. Products: Subject to compliance with requirements, provide one of the following:
a. Fibrex Insulations Inc.; Coreplus 1200.
b. Johns Manville; Micro-Lok.
c. Manson Insulation Inc.; Alley-K.
d. Owens Corning; Fiberglas Pipe Insulation.
2. Type I, 850 deg F Materials: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A, with factory-applied ASJ. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

O. Glass-Fiber, Pipe and Tank Insulation: Glass fibers bonded with a thermosetting resin. Semirigid board material with factory-applied ASJ complying with ASTM C 1393, Type II or Type IIIA Category 2, or with properties similar to ASTM C 612, Type IB. Nominal density is 2.5 lb/cu. ft. or more. Thermal conductivity (k-value) at 100 deg F is 0.29 Btu x in./h x sq. ft. x deg F or less. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
1. Products: Subject to compliance with requirements, provide one of the following:
a. CertainTeed Corp.; CrimpWrap.
b. Johns Manville; MicroFlex.
c. Manson Insulation Inc.; AK Flex.
d. Owens Corning; Fiberglas Pipe and Tank Insulation.

P. Phenolic:
1. Products: Subject to compliance with requirements, provide the following:
a. Kingspan Corp.; Koolphen K.
2. Preformed pipe insulation of rigid, expanded, closed-cell structure. Comply with ASTM C 1126, Type III, Grade 1.
3. Block insulation of rigid, expanded, closed-cell structure. Comply with ASTM C 1126, Type II, Grade 1.
4. Factory fabricate shapes according to ASTM C 450 and ASTM C 585.
5. Factory-Applied Jacket: Requirements are specified in "Factory-Applied Jackets" Article.
a. Preformed Pipe Insulation: ASJ.
b. Board for Equipment Applications: ASJ.

Q. Polyisocyanurate: Unfaced, preformed, rigid cellular polyisocyanurate material intended for use as thermal insulation.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Apache Products Company; ISO-25.
b. Dow Chemical Company (The); Trymer.
c. Duna USA Inc.; Corafoam.
d. Elliott Company; Elfoam.
2. Comply with ASTM C 591, Type I or Type IV, except thermal conductivity (k-value) shall not exceed 0.19 Btu x in./h x sq. ft. x deg F at 75 deg F after 180 days of aging.
3. Flame-spread index shall be 25 or less and smoke-developed index shall be 50 or less for thickness up to 1-1/2 inches as tested by ASTM E 84.
4. Fabricate shapes according to ASTM C 450 and ASTM C 585.
5. Factory-Applied Jacket: Requirements are specified in "Factory-Applied Jackets" Article.
a. Pipe Applications: PVDC.
b. Equipment Applications: PVDC.

R. Polyolefin: Unicellular, polyethylene thermal plastic insulation. Comply with ASTM C 534 or ASTM C 1427, Type I, Grade 1 for tubular materials and Type II, Grade 1 for sheet materials.
1. Products: Subject to compliance with requirements, provide one of the following:

a. Armacell LLC; Tubolit.
b. Nomaco Inc.; IMCOLOCK, IMCOSHEET, NOMALOCK, and NOMAPLY.
c. RBX Corporation; Therma-cell.

S. Polystyrene: Rigid, extruded cellular polystyrene intended for use as thermal insulation. Comply with ASTM C 578, Type IV or Type XIII, except thermal conductivity (k-value) shall not exceed 0.26 Btu x in./h x sq. ft. x deg F after 180 days of aging. Fabricate shapes according to ASTM C 450 and ASTM C 585.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Dow Chemical Company (The); Styrofoam.
b. DUNA USA Inc.

2.2 INSULATING CEMENTS

A. Fiber Insulating Cement: Comply with ASTM C 195.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Insulco, Division of MFS, Inc.; Triple I.
b. P. K. Insulation Mfg. Co., Inc.; Super-Stik.

B. Expanded or Exfoliated Vermiculite Insulating Cement: Comply with ASTM C 196.
1. Products: Subject to compliance with requirements, provide the following:
a. P. K. Insulation Mfg. Co., Inc.; Thermal-V-Kote.
2. Fiber, Hydraulic-Setting Insulating and Finishing Cement: Comply with ASTM C 449/C 449M.
3. Products: Subject to compliance with requirements, provide one of the following:
a. Insulco, Division of MFS, Inc.; SmoothKote.
b. P. K. Insulation Mfg. Co., Inc.; PK No. 127, and Quik-Cote.
c. Rock Wool Manufacturing Company; Delta One Shot.

2.3 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

B. Calcium Silicate Adhesive: Fibrous, sodium-silicate-based adhesive with a service temperature range of 50 to 800 deg F.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-97.
b. Foster Products Corporation, H. B. Fuller Company; 81-27/81-93.
c. Marathon Industries, Inc.; 290.
d. Mon-Eco Industries, Inc.; 22-30.
e. Vimasco Corporation; 760.
2. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Cellular-Glass, Phenolic, Polyisocyanurate, and Polystyrene Adhesive: Solvent-based resin adhesive, with a service temperature range of minus 75 to plus 300 deg F.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-96.
b. Foster Products Corporation, H. B. Fuller Company; 81-33.
2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. Flexible Elastomeric and Polyolefin Adhesive: Comply with MIL-A-24179A, Type II, Class I.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Aeroflex USA Inc.; Aeroseal.
b. Armacell LCC; 520 Adhesive.

c. Foster Products Corporation, H. B. Fuller Company; 85-75.
d. RBX Corporation; Rubatex Contact Adhesive.

2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

E. Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-82.
b. Foster Products Corporation, H. B. Fuller Company; 85-20.
c. ITW TACC, Division of Illinois Tool Works; S-90/80.
d. Marathon Industries, Inc.; 225.
e. Mon-Eco Industries, Inc.; 22-25.
2. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

F. Polystyrene Adhesive: Solvent- or water-based, synthetic resin adhesive with a service temperature range of minus 20 to plus 140 deg F.

1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-96.
b. Foster Products Corporation, H. B. Fuller Company; 97-13.

G. ASJ Adhesive, and FSK and PVDC Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-82.
b. Foster Products Corporation, H. B. Fuller Company; 85-20.
c. ITW TACC, Division of Illinois Tool Works; S-90/80.
d. Marathon Industries, Inc.; 225.
e. Mon-Eco Industries, Inc.; 22-25.
2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

H. PVC Jacket Adhesive: Compatible with PVC jacket.

1. Products: Subject to compliance with requirements, provide one of the following:
a. Dow Chemical Company (The); 739, Dow Silicone.
b. Johns-Manville; Zeston Perma-Weld, CEEL-TITE Solvent Welding Adhesive.
c. P.I.C. Plastics, Inc.; Welding Adhesive.
d. Speedline Corporation; Speedline Vinyl Adhesive.
2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4 MASTICS

A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-C-19565C, Type II.

1. For indoor applications, use mastics that have a VOC content of 2 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Vapor-Barrier Mastic: Water based; suitable for indoor and outdoor use on below ambient services.

1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-35.
b. Foster Products Corporation, H. B. Fuller Company; 30-90.
c. ITW TACC, Division of Illinois Tool Works; CB-50.
d. Marathon Industries, Inc.; 590.
e. Mon-Eco Industries, Inc.; 55-40.

f. Vimasco Corporation; 749.
2. Water-Vapor Permeance: ASTM E 96, Procedure B, 0.013 perm at 43-mil dry film thickness.
3. Service Temperature Range: Minus 20 to plus 180 deg F.
4. Solids Content: ASTM D 1644, 59 percent by volume and 71 percent by weight.
5. Color: White.

C. Vapor-Barrier Mastic: Solvent based; suitable for indoor use on below ambient services.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-30.
b. Foster Products Corporation, H. B. Fuller Company; 30-35.
c. ITW TACC, Division of Illinois Tool Works; CB-25.
d. Marathon Industries, Inc.; 501.
e. Mon-Eco Industries, Inc.; 55-10.
2. Water-Vapor Permeance: ASTM F 1249, 0.05 perm at 35-mil dry film thickness.
3. Service Temperature Range: 0 to 180 deg F.
4. Solids Content: ASTM D 1644, 44 percent by volume and 62 percent by weight.
5. Color: White.

D. Vapor-Barrier Mastic: Solvent based; suitable for outdoor use on below ambient services.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; Encacel.
b. Foster Products Corporation, H. B. Fuller Company; 60-95/60-96.
c. Marathon Industries, Inc.; 570.
d. Mon-Eco Industries, Inc.; 55-70.
2. Water-Vapor Permeance: ASTM F 1249, 0.05 perm at 30-mil dry film thickness.
3. Service Temperature Range: Minus 50 to plus 220 deg F.
4. Solids Content: ASTM D 1644, 33 percent by volume and 46 percent by weight.
5. Color: White.

E. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-10.
b. Foster Products Corporation, H. B. Fuller Company; 35-00.
c. ITW TACC, Division of Illinois Tool Works; CB-05/15.
d. Marathon Industries, Inc.; 550.
e. Mon-Eco Industries, Inc.; 55-50.
f. Vimasco Corporation; WC-1/WC-5.
2. Water-Vapor Permeance: ASTM F 1249, 3 perms at 0.0625-inch dry film thickness.
3. Service Temperature Range: Minus 20 to plus 200 deg F.
4. Solids Content: 63 percent by volume and 73 percent by weight.
5. Color: White.

2.5 LAGGING ADHESIVES

A. Description: Comply with MIL-A-3316C, Class I, Grade A, and shall be compatible with insulation materials, jackets, and substrates.
1. For indoor applications, use lagging adhesives that have a VOC content of 0.05 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-52.
b. Foster Products Corporation, H. B. Fuller Company; 81-42.
c. Marathon Industries, Inc.; 130.
d. Mon-Eco Industries, Inc.; 11-30.
e. Vimasco Corporation; 136.

3. Fire-resistant, water-based lagging adhesive and coating for use indoors to adhere fire-resistant lagging cloths over equipment and pipe insulation.
4. Service Temperature Range: Minus 50 to plus 180 deg F.
5. Color: White.

2.6 SEALANTS

A. Joint Sealants:
1. Joint Sealants for Cellular-Glass, Phenolic, and Polyisocyanurate Products: Subject to compliance with requirements, provide one of the following:
   a. Childers Products, Division of ITW; CP-76.
   b. Foster Products Corporation, H. B. Fuller Company; 30-45.
   c. Marathon Industries, Inc.; 405.
   d. Mon-Eco Industries, Inc.; 44-05.
   e. Pittsburgh Corning Corporation; Pittseal 444.
   f. Vimasco Corporation; 750.
2. Joint Sealants for Polystyrene Products: Subject to compliance with requirements, provide one of the following:
   a. Childers Products, Division of ITW; CP-70.
   b. Foster Products Corporation, H. B. Fuller Company; 30-45/30-46.
   c. Marathon Industries, Inc.; 405.
   d. Mon-Eco Industries, Inc.; 44-05.
   e. Vimasco Corporation; 750.
3. Materials shall be compatible with insulation materials, jackets, and substrates.
4. Permanently flexible, elastomeric sealant.
5. Service Temperature Range: Minus 100 to plus 300 deg F.
6. Color: White or gray.
7. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. FSK and Metal Jacket Flashing Sealants:
1. Products: Subject to compliance with requirements, provide one of the following:
   a. Childers Products, Division of ITW; CP-76-8.
   b. Foster Products Corporation, H. B. Fuller Company; 95-44.
   c. Marathon Industries, Inc.; 405.
   d. Mon-Eco Industries, Inc.; 44-05.
   e. Vimasco Corporation; 750.
2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: Aluminum.
6. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. ASJ Flashing Sealants, and Vinyl, PVDC, and PVC Jacket Flashing Sealants:
1. Products: Subject to compliance with requirements, provide the following:
   a. Childers Products, Division of ITW; CP-76.
2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: White.
6. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.7 FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:
   1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
   2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
   3. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.
   4. PVDC Jacket for Indoor Applications: 4-mil- thick, white PVDC biaxially oriented barrier film with a permeance at 0.02 perms when tested according to ASTM E 96 and with a flame-spread index of 5 and a smoke-developed index of 20 when tested according to ASTM E 84.
      a. Products: Subject to compliance with requirements, provide the following:
         1) Dow Chemical Company (The); Saran 540 Vapor Retarder Film and Saran 560 Vapor Retarder Film.
   5. PVDC Jacket for Outdoor Applications: 6-mil- thick, white PVDC biaxially oriented barrier film with a permeance at 0.01 perms when tested according to ASTM E 96 and with a flame-spread index of 5 and a smoke-developed index of 25 when tested according to ASTM E 84.
      a. Products: Subject to compliance with requirements, provide the following:
         1) Dow Chemical Company (The); Saran 540 Vapor Retarder Film and Saran 560 Vapor Retarder Film.
   6. PVDC-SSL Jacket: PVDC jacket with a self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip.
      a. Products: Subject to compliance with requirements, provide the following:
         1) Dow Chemical Company (The); Saran 540 Vapor Retarder Film and Saran 560 Vapor Retarder Film.

2.8 FIELD-APPLIED JACKETS

A. Field-applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.

B. PVC Jacket: High-impact-resistant, UV-resistant PVC complying with ASTM D 1784, Class 16354-C; thickness as scheduled; roll stock ready for shop or field cutting and forming. Thickness is indicated in field-applied jacket schedules.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Johns Manville; Zeston.
      b. P.I.C. Plastics, Inc.; FG Series.
      c. Proto PVC Corporation; LoSmoke.
      d. Speedline Corporation; SmokeSafe.
   2. Adhesive: As recommended by jacket material manufacturer.
   3. Color: White.
   4. Factory-fabricated fitting covers to match jacket if available; otherwise, field fabricate.
      a. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, unions, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories.
   5. Factory-fabricated tank heads and tank side panels.

C. Metal Jacket:
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Childers Products, Division of ITW; Metal Jacketing Systems.
      b. PABCO Metals Corporation; Surefit.
      c. RPR Products, Inc.; Insul-Mate.
   2. Aluminum Jacket: Comply with ASTM B 209, Alloy 3003, 3005, 3105 or 5005, Temper H-14.
      a. Sheet and roll stock ready for shop or field sizing.
      b. Finish and thickness are indicated in field-applied jacket schedules.

c. Moisture Barrier for Indoor Applications: 1-mil thick, heat-bonded polyethylene and kraft paper.
d. Moisture Barrier for Outdoor Applications: 3-mil thick, heat-bonded polyethylene and kraft paper.
e. Factory-Fabricated Fitting Covers:
1) Same material, finish, and thickness as jacket.
2) Preformed 2-piece or gore, 45- and 90-degree, short- and long-radius elbows.
3) Tee covers.
4) Flange and union covers.
5) End caps.
6) Beveled collars.
7) Valve covers.
8) Field fabricate fitting covers only if factory-fabricated fitting covers are not available.

3. Stainless-Steel Jacket: ASTM A 167 or ASTM A 240/A 240M.
a. Sheet and roll stock ready for shop or field sizing.
b. Material, finish, and thickness are indicated in field-applied jacket schedules.
c. Moisture Barrier for Indoor Applications: 1-mil thick, heat-bonded polyethylene and kraft paper.
d. Moisture Barrier for Outdoor Applications: 3-mil thick, heat-bonded polyethylene and kraft paper.
e. Factory-Fabricated Fitting Covers:
1) Same material, finish, and thickness as jacket.
2) Preformed 2-piece or gore, 45- and 90-degree, short- and long-radius elbows.
3) Tee covers.
4) Flange and union covers.
5) End caps.
6) Beveled collars.
7) Valve covers.
8) Field fabricate fitting covers only if factory-fabricated fitting covers are not available.

D. Underground Direct-Buried Jacket: 125-mil thick vapor barrier and waterproofing membrane consisting of a rubberized bituminous resin reinforced with a woven-glass fiber or polyester scrim and laminated aluminum foil.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Pittsburgh Corning Corporation; Pittwrap.
b. Polyguard; Insulrap No Torch 125.

2.9 TAPES

A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0835.
b. Compac Corp.; 104 and 105.
c. Ideal Tape Co., Inc., an American Biltrite Company; 428 AWF ASJ.
d. Venture Tape; 1540 CW Plus, 1542 CW Plus, and 1542 CW Plus/SQ.
2. Width: 3 inches
3. Thickness: 11.5 mils.
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0827.
   b. Compac Corp.; 110 and 111.
   c. Ideal Tape Co., Inc., an American Biltrite Company; 491 AWF FSK.
   d. Venture Tape; 1525 CW, 1528 CW, and 1528 CW/SQ.
2. Width: 3 inches.
3. Thickness: 6.5 mils.
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

C. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive. Suitable for indoor and outdoor applications.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0555.
      b. Compac Corp.; 130.
      c. Ideal Tape Co., Inc., an American Biltrite Company; 370 White PVC tape.
      d. Venture Tape; 1506 CW NS.
      e. Width: 2 inches.
   2. Thickness: 6 mils.
   3. Adhesion: 64 ounces force/inch in width.
   4. Elongation: 500 percent.
   5. Tensile Strength: 18 lbf/inch in width.

D. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0800.
      b. Compac Corp.; 120.
      c. Ideal Tape Co., Inc., an American Biltrite Company; 488 AWF.
      d. Venture Tape; 3520 CW.
   2. Width: 2 inches.
   3. Thickness: 3.7 mils.
   4. Adhesion: 100 ounces force/inch in width.
   5. Elongation: 5 percent.
   6. Tensile Strength: 34 lbf/inch in width.

E. PVDC Tape: White vapor-retarder PVDC tape with acrylic adhesive.
   1. Products: Subject to compliance with requirements, provide the following:
      a. Dow Chemical Company (The); Saran 540 Vapor Retarder Tape.
   2. Width: 3 inches.
   3. Film Thickness: 4 mils.
   4. Adhesive Thickness: 1.5 mils.
   5. Elongation at Break: 145 percent.
   6. Tensile Strength: 55 lbf/inch in width.

2.10 SECUREMENTS

A. Bands:
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Childers Products; Bands.
      b. PABCO Metals Corporation; Bands.
      c. RPR Products, Inc.; Bands.
   2. Stainless Steel: ASTM A 167 or ASTM A 240/A 240M, Type 304; 0.015-inch thick, 1/2-inch wide with wing or closed seal.

3. Aluminum: ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020-inch thick, 1/2-inch wide with wing or closed seal.
4. Springs: Twin spring set constructed of stainless steel with ends flat and slotted to accept metal bands. Spring size determined by manufacturer for application.

B. Insulation Pins and Hangers:

1. Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch diameter shank, length to suit depth of insulation indicated.
   a. Products: Subject to compliance with requirements, provide one of the following:
      1) AGM Industries, Inc.; CWP-1.
      2) GEMCO; CD.
      3) Midwest Fasteners, Inc.; CD.
      4) Nelson Stud Welding; TPA, TPC, and TPS.
2. Cupped-Head, Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch-diameter shank, length to suit depth of insulation indicated with integral 1-1/2 inch galvanized carbon-steel washer.
   a. Products: Subject to compliance with requirements, provide one of the following:
      1) AGM Industries, Inc.; CWP-1.
      2) GEMCO; Cupped Head Weld Pin.
      3) Midwest Fasteners, Inc.; Cupped Head.
      4) Nelson Stud Welding; CHP.
3. Metal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:
   a. Products: Subject to compliance with requirements, provide one of the following:
      1) AGM Industries, Inc.; Tactoo Insul-Hangers, Series T.
      2) GEMCO; Perforated Base.
      3) Midwest Fasteners, Inc.; Spindle.
   b. Baseplate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
   c. Spindle: Zinc-coated, low carbon steel, fully annealed, 0.106-inch diameter shank, length to suit depth of insulation indicated.
   d. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.
4. Nonmetal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate fastened to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:
   a. Products: Subject to compliance with requirements, provide one of the following:
      1) GEMCO; Nylon Hangers.
      2) Midwest Fasteners, Inc.; Nylon Insulation Hangers.
   b. Baseplate: Perforated, nylon sheet, 0.030 inch thick by 1-1/2 inches in diameter.
   c. Spindle: Nylon, 0.106-inch diameter shank, length to suit depth of insulation indicated, up to 2-1/2 inches.
   d. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.
5. Self-Sticking-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:
   a. Products: Subject to compliance with requirements, provide one of the following:
      1) AGM Industries, Inc.; Tactoo Insul-Hangers, Series TSA.
      2) GEMCO; Press and Peel.

3) Midwest Fasteners, Inc.; Self Stick.
b. Baseplate: Galvanized carbon-steel sheet, 0.030-inch thick by 2 inches square.
c. Spindle: Zinc-coated, low carbon steel, fully annealed, 0.106-inch diameter shank, length to suit depth of insulation indicated.
d. Adhesive-backed base with a peel-off protective cover.

6. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch thick, galvanized-steel sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.
   a. Products: Subject to compliance with requirements, provide one of the following:
      1) AGM Industries, Inc.; RC-150.
      2) GEMCO; R-150.
      3) Midwest Fasteners, Inc.; WA-150.
      4) Nelson Stud Welding; Speed Clips.
   b. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in exposed locations.
7. Nonmetal Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch thick nylon sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.
   a. Products: Subject to compliance with requirements, provide one of the following:
      1) GEMCO.
      2) Midwest Fasteners, Inc.

C. Staples: Outward-clinching insulation staples, nominal 3/4-inch wide, stainless steel or Monel.

D. Wire: 0.062-inch soft-annealed, galvanized steel.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. C & F Wire
   b. Childers Products
   c. PABCO Metals Corporation
   d. RPR Products, Inc.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.
1. Verify that systems and equipment to be insulated have been tested and are free of defects.
2. Verify that surfaces to be insulated are clean and dry.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

B. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.

3.3 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment and piping including fittings, valves, and specialties.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment and pipe system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Keep insulation materials dry during application and finishing.

H. Install insulation with tight longitudinal seams and end joints. Bond joints with factory applied SSL Lap with adhesive recommended by insulation material manufacturer.

I. Install insulation with least number of joints practical.

J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
   1. Install insulation continuously through hangers and around anchor attachments.
   2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
   3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
   4. LAP inserts with 1 inch TAPE (ASJ) jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.

K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

L. Install insulation with factory-applied jackets as follows:
   1. Draw jacket tight and smooth.
   2. Cover circumferential joints with 3 inch wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
   3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches o.c.
      a. For below ambient services, apply vapor-barrier mastic over staples.
   4. Cover joints and seams with tape as recommended by insulation material manufacturer to maintain vapor seal.
   5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to pipe flanges and fittings.

M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

P. For above ambient services, do not install insulation to the following:

1. Vibration-control devices.
2. Testing agency labels and stamps.
3. Nameplates and data plates.
4. Manholes.
5. Handholes.
6. Cleanouts.

3.4 PENETRATIONS

A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.
   1. Seal penetrations with flashing sealant.
   2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
   3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
   4. Seal jacket to roof flashing with flashing sealant.

B. Insulation Installation at Underground Exterior Wall Penetrations: Terminate insulation flush with sleeve seal. Seal terminations with flashing sealant.

C. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.
   1. Seal penetrations with flashing sealant.
   2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
   3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
   4. Seal jacket to wall flashing with flashing sealant.

D. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

E. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
   1. Comply with requirements in Division 07 Section 07 84 00 – Penetration Firestopping and fire-resistive joint sealers.

F. Insulation Installation at Floor Penetrations:
   1. Pipe: Install insulation continuously through floor penetrations.
   2. Seal penetrations through fire-rated assemblies. Comply with requirements in Division 07 Section 07 84 00 – Penetration Firestopping.

3.5 EQUIPMENT, TANK, AND VESSEL INSULATION INSTALLATION

A. Fiber, Pipe and Tank Insulation Installation for Tanks and Vessels: Secure insulation with adhesive and anchor pins and speed washers.
   1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of tank and vessel surfaces.
   2. Groove and score insulation materials to fit as closely as possible to equipment, including contours. Bevel insulation edges for cylindrical surfaces for tight joints. Stagger end joints.
   3. Protect exposed corners with secured corner angles.

4. Install adhesively attached or self-sticking insulation hangers and speed washers on sides of tanks and vessels as follows:
   a. Do not weld anchor pins to ASME-labeled pressure vessels.
   b. Select insulation hangers and adhesive that are compatible with service temperature and with substrate.
   c. On tanks and vessels, maximum anchor-pin spacing is 3 inches from insulation end joints, and 16 inches o.c. in both directions.
   d. Do not overcompress insulation during installation.
   e. Cut and miter insulation segments to fit curved sides and domed heads of tanks and vessels.
   f. Impale insulation over anchor pins and attach speed washers.
   g. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
5. Secure each layer of insulation with stainless-steel or aluminum bands. Select band material compatible with insulation materials.
6. Where insulation hangers on equipment and vessels are not permitted or practical and where insulation support rings are not provided, install a girdle network for securing insulation. Stretch prestressed aircraft cable around the diameter of vessel and make taut with clamps, turnbuckles, or breather springs. Place one circumferential girdle around equipment approximately 6 inches from each end. Install wire or cable between two circumferential girdles 12 inches o.c. Install a wire ring around each end and around outer periphery of center openings, and stretch prestressed aircraft cable radially from the wire ring to nearest circumferential girdle. Install additional circumferential girdles along the body of equipment or tank at a minimum spacing of 48 inches o.c. Use this network for securing insulation with tie wire or bands.
7. Stagger joints between insulation layers at least 3 inches.
8. Install insulation in removable segments on equipment access doors, manholes, handholes, and other elements that require frequent removal for service and inspection.
9. Bevel and seal insulation ends around manholes, handholes, ASME stamps, and nameplates.
10. For equipment with surface temperatures below ambient, apply mastic to open ends, joints, seams, breaks, and punctures in insulation.

B. Flexible Elastomeric Thermal Insulation Installation for Tanks and Vessels: Install insulation over entire surface of tanks and vessels.
   1. Apply 100 percent coverage of adhesive to surface with manufacturer's recommended adhesive.
   2. Seal longitudinal seams and end joints.

C. Insulation Installation on Pumps:
   1. Fabricate mineral fiber board with ASJ finish.

3.6 GENERAL PIPE INSULATION INSTALLATION

A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.

B. Insulation Installation on Fittings, Valves, Flanges, and Unions:
   1. Install insulation over fittings, valves, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity, unless otherwise indicated.
   2. Insulate pipe elbows using 2 piece pvc fitting covers stuffed with fiber blanket. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.

3. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts.
4. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.

C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes, vessels, and equipment. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.

D. Install insulation covers at locations indicated. Installation shall conform to the following:
1. Make flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.
3. Construct valve insulation covers in same manner as for flanges except divide the two-part section on the vertical center line of valve body.
4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.
5. Unless a PVC jacket is indicated in field-applied jacket schedules, finish exposed surfaces with an ASJ jacket.

3.7 CALCIUM SILICATE INSULATION INSTALLATION

A. Insulation Installation on Domestic Water Boiler Breechings:
1. Secure single-layer insulation with stainless-steel bands at 12 inch intervals and tighten bands without deforming insulation material.
2. Install 2-layer insulation with joints tightly butted and staggered at least 3 inches. Secure inner layer with wire spaced at 12 inch intervals. Secure outer layer with stainless-steel bands at 12 inch intervals.
3. On exposed applications without metal jacket, finish insulation surface with a skim coat of mineral-fiber, hydraulic-setting cement. When cement is dry, apply flood coat of lagging adhesive and press on one layer of glass cloth. Overlap edges at least 1 inch. Apply finish coat of lagging adhesive over glass cloth. Thin finish coat to achieve smooth, uniform finish.

B. Insulation Installation on Straight Pipes and Tubes:
1. Secure single-layer insulation with stainless-steel bands at 12 inch intervals and tighten bands without deforming insulation materials.
2. Install 2-layer insulation with joints tightly butted and staggered at least 3 inches. Secure inner layer with wire spaced at 12 inch intervals. Secure outer layer with stainless-steel bands at 12 inch intervals.
3. Apply a skim coat of mineral-fiber, hydraulic-setting cement to insulation surface. When cement is dry, apply flood coat of lagging adhesive and press on one layer of glass cloth or tape. Overlap edges at least 1 inch. Apply finish coat of lagging adhesive over glass cloth or tape. Thin finish coat to achieve smooth, uniform finish.

C. Insulation Installation on Pipe Flanges:

1. Install preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of block insulation of same material and thickness as pipe insulation.
4. Finish flange insulation same as pipe insulation.

D. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed sections of same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.
2. When preformed insulation sections of insulation are not available, install mitered sections of calcium silicate insulation. Secure insulation materials with wire or bands.
3. Finish fittings insulation same as pipe insulation.

E. Insulation Installation on Valves and Pipe Specialties:

1. Install mitered segments of calcium silicate insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
2. Install insulation to flanges as specified for flange insulation application.
3. Finish valve and specialty insulation same as pipe insulation.

3.8 CELLULAR-GLASS INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
3. For insulation with factory-applied jackets on above ambient services, secure laps with outward clinched staples at 6 inches o.c.
4. For insulation with factory-applied jackets on below ambient services, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Flanges:

1. Install preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of cellular-glass block insulation of same thickness as pipe insulation.
4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch, and seal joints with flashing sealant.

C. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed sections of same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.
2. When preformed sections of insulation are not available, install mitered sections of cellular-glass insulation. Secure insulation materials with wire or bands.

D. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed sections of cellular-glass insulation to valve body.
2. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
3. Install insulation to flanges as specified for flange insulation application.

3.9 FLEXIBLE ELASTOMERIC INSULATION INSTALLATION

A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

B. Insulation Installation on Pipe Flanges:
   1. Install pipe insulation to outer diameter of pipe flange.
   2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
   3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
   4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

C. Insulation Installation on Pipe Fittings and Elbows:
   1. Install mitered sections of pipe insulation.
   2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

D. Insulation Installation on Valves and Pipe Specialties:
   1. Install preformed valve covers manufactured of same material as pipe insulation when available.
   2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
   3. Install insulation to flanges as specified for flange insulation application.
   4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.10 FIBER INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:
   1. All factory manufactured fiberglass pipe insulation is to have factory applied ASJ jacket and sealed with SSL Lap.
   2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
   3. For insulation with factory-applied jackets on above ambient surfaces, secure with factory applied SSL lap.
   4. For insulation with factory-applied jackets on below ambient surfaces, do not staple longitudinal tabs but secure tabs with factory applied SSL lap.

B. Insulation Installation on Pipe Flanges:
   1. Install preformed pipe insulation to outer diameter of pipe flange.
   2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
   3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.
   4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch, and seal joints with flashing sealant.

C. Insulation Installation on Pipe Fittings and Elbows:
   ~~1.~~ Install pre-molded PVC fitting covers with fiberglass stuffing material.

D. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed sections are not available, install mitered sections of pipe insulation to valve body.
3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
4. Install insulation to flanges as specified for flange insulation application.

3.11 PHENOLIC INSULATION INSTALLATION

A. General Installation Requirements:
   1. Secure single-layer insulation with stainless-steel bands at 12 inch intervals and tighten bands without deforming insulation materials.
   2. Install 2-layer insulation with joints tightly butted and staggered at least 3 inches. Secure inner layer with 0.062-inch wire spaced at 12 inch intervals. Secure outer layer with stainless-steel bands at 12 inch intervals.

B. Insulation Installation on Straight Pipes and Tubes:
   1. Secure each layer of insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
   2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
   3. For insulation with factory-applied jackets on above ambient services, secure laps with outward clinched staples at 6 inches o.c.
   4. For insulation with factory-applied jackets with vapor retarders on below ambient services, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

C. Insulation Installation on Pipe Flanges:
   1. Install preformed pipe insulation to outer diameter of pipe flange.
   2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
   3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of block insulation of same material and thickness as pipe insulation.

D. Insulation Installation on Pipe Fittings and Elbows:
   1. Install preformed insulation sections of same material as straight segments of pipe insulation. Secure according to manufacturer's written instructions.

E. Insulation Installation on Valves and Pipe Specialties:
   1. Install preformed insulation sections of same material as straight segments of pipe insulation. Secure according to manufacturer's written instructions.
   2. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
   3. Install insulation to flanges as specified for flange insulation application.

3.12 POLYISOCYANURATE INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:
   1. Secure each layer of insulation to pipe with tape or bands and tighten without deforming insulation materials. Orient longitudinal joints between half sections in 3 and 9 o'clock positions on the pipe.

2. For insulation with factory-applied jackets with vapor barriers, do not staple longitudinal tabs but secure tabs with additional adhesive or tape as recommended by insulation material manufacturer and seal with vapor-barrier mastic.
3. All insulation shall be tightly butted and free of voids and gaps at all joints. Vapor barrier must be continuous. Before installing jacket material, install vapor-barrier system.

B. Insulation Installation on Pipe Flanges:
1. Install preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, same thickness of adjacent pipe insulation, not to exceed 1-1/2 inch thickness.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of polyisocyanurate block insulation of same thickness as pipe insulation.

C. Insulation Installation on Fittings and Elbows:
1. Install preformed sections of same material as straight segments of pipe insulation. Secure according to manufacturer's written instructions.

D. Insulation Installation on Valves and Pipe Specialties:
1. Install preformed sections of polyisocyanurate insulation to valve body.
2. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
3. Install insulation to flanges as specified for flange insulation application.

3.13 POLYOLEFIN INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:
1. Seal split-tube longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

B. Insulation Installation on Pipe Flanges:
1. Install pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of polyolefin sheet insulation of same thickness as pipe insulation.
4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

C. Insulation Installation on Pipe Fittings and Elbows:
1. Install mitered sections of polyolefin pipe insulation.
2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

D. Insulation Installation on Valves and Pipe Specialties:
1. Install cut sections of polyolefin pipe and sheet insulation to valve body.
2. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
3. Install insulation to flanges as specified for flange insulation application.
4. Secure insulation to valves and specialties, and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.14 POLYSTYRENE INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:
   1. Secure each layer of insulation with tape or bands and tighten bands without deforming insulation materials. Orient longitudinal joints between half sections in 3 and 9 o'clock positions on the pipe.
   2. For insulation with factory-applied jackets with vapor barriers, do not staple longitudinal tabs but secure tabs with additional adhesive or tape as recommended by insulation material manufacturer and seal with vapor-barrier mastic.
   3. All insulation shall be tightly butted and free of voids and gaps at all joints. Vapor barrier must be continuous. Before installing jacket material, install vapor-barrier system.

B. Insulation Installation on Pipe Flanges:
   1. Install preformed pipe insulation to outer diameter of pipe flange.
   2. Make width of insulation section same as overall width of flange and bolts, same thickness of adjacent pipe insulation, not to exceed 1-1/2 inch thickness.
   3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of polystyrene block insulation of same thickness as pipe insulation.

C. Insulation Installation on Pipe Fittings and Elbows:
   1. Install preformed insulation sections of same material as straight segments of pipe insulation. Secure according to manufacturers written instructions.

D. Insulation Installation on Valves and Pipe Specialties:
   1. Install preformed section of polystyrene insulation to valve body.
   2. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
   3. Install insulation to flanges as specified for flange insulation application.

3.15 FIELD-APPLIED JACKET INSTALLATION

A. Where glass-cloth jackets are indicated, install directly over bare insulation or insulation with factory-applied jackets.
   1. Draw jacket smooth and tight to surface with 2-inch overlap at seams and joints.
   2. Embed glass cloth between two 0.062-inch- thick coats of lagging adhesive.
   3. Completely encapsulate insulation with coating, leaving no exposed insulation.

B. Where FSK jackets are indicated, install as follows:
   1. Draw jacket material smooth and tight.
   2. Install lap or joint strips with same material as jacket.
   3. Secure jacket to insulation with manufacturer's recommended adhesive.
   4. Install jacket with 1-1/2 inch laps at longitudinal seams and 3 inch wide joint strips at end joints.
   5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.

C. Where PVC jackets are indicated, install with 1 inch overlap at longitudinal seams and end joints; for horizontal applications, install with longitudinal seams along top and bottom of tanks and vessels. Seal with manufacturers recommended adhesive.
   1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.

D. Where metal jackets are indicated, install with 2 inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches o.c. and at end joints.

E. Where PVDC jackets are indicated, install as follows:

1. Apply three separate wraps of filament tape per insulation section to secure pipe insulation to pipe prior to installation of PVDC jacket.
2. Wrap factory-pre-sized jackets around individual pipe insulation sections with one end overlapping the previously installed sheet. Install pre-sized jacket with an approximate overlap at butt joint of 2 inches over the previous section. Adhere lap seal using adhesive or SSL, and then apply 1-1/4 circumferences of appropriate PVDC tape around overlapped butt joint.
3. Continuous jacket can be spiral wrapped around a length of pipe insulation. Apply adhesive or PVDC tape at overlapped spiral edge. When electing to use adhesives, refer to manufacturer's written instructions for application of adhesives along this spiral edge to maintain a permanent bond.
4. Jacket can be wrapped in cigarette fashion along length of roll for insulation systems with an outer circumference of 33-1/2 inches or less. The 33-1/2 inch circumference limit allows for 2 inch overlap seal. Using the length of roll allows for longer sections of jacket to be installed at one time. Use adhesive on the lap seal. Visually inspect lap seal for "fish- mouthing", and use PVDC tape along lap seal to secure joint.
5. Repair holes or tears in PVDC jacket by placing PVDC tape over the hole or tear and wrapping a minimum of 1-1/4 circumferences to avoid damage to tape edges.

3.16 FINISHES

A. Equipment and Pipe Insulation with ASJ, Glass-Cloth, or Other Paintable Jacket Material: Paint jacket with paint system identified below and as specified in Division 09 painting Sections.
   1. Flat Acrylic Finish: Two finish coats over a primer that is compatible with jacket material and finish coat paint. Add fungicidal agent to render fabric mildew proof.
      a. Finish Coat Material: Interior, flat, latex-emulsion size.

B. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating, only exposed to weather

C. Color: Final color as selected by Architect. Vary first and second coats to allow visual inspection of the completed Work.

D. Do not field paint aluminum or stainless-steel jackets.

3.17 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Perform tests and inspections.

C. Tests and Inspections:
   1. Inspect field-insulated equipment, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location for each type of equipment defined in the "Equipment Insulation Schedule" Article. For large equipment, remove only a portion adequate to determine compliance.
   2. Inspect pipe, fittings, strainers, and valves, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to three locations of straight pipe, three locations of threaded fittings, three locations of welded fittings, two locations of threaded strainers, two locations of welded strainers, three locations of threaded valves, and three locations of flanged valves for each pipe service defined in the "Piping Insulation Schedule, General" Article.

D. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.18 EQUIPMENT INSULATION SCHEDULE

A. Insulation materials and thicknesses are identified below. If more than one material is listed for a type of equipment, selection from materials listed is Contractor's option.

B. Insulate indoor and outdoor equipment in paragraphs below that is not factory insulated.

C. Heat-exchanger (water-to-water for domestic water heating service) insulation shall be one of the following:
   1. Calcium Silicate: 3 inches thick.
   2. Cellular Glass: 3 inches thick.
   3. Fiber Board: 2 inches thick and 2-lb/cu. ft. nominal density.
   4. Fiber Pipe and Tank: 2 inches thick.

D. Domestic hot-water pump insulation shall be one of the following:
   1. Cellular Glass: 2 inches thick.
   2. Mineral-Fiber Board: 1 inch thick and 2-lb/cu. ft. nominal density.
   3. Phenolic: 1 inch thick.
   4. Polyisocyanurate: 1 inch thick.

E. Domestic water, domestic chilled-water (potable), and domestic hot-water hydro-pneumatic tank insulation shall be one of the following:
   1. Cellular Glass: 1-1/2 inches thick.
   2. Flexible Elastomeric: 1 inch thick.
   3. Fiber Board: 1 inch thick and 2-lb/cu. ft nominal density.
   4. Fiber Pipe and Tank: 1 inch thick.
   5. Phenolic: 1 inch thick.
   6. Polyisocyanurate: 1 inch thick.
   7. Polyolefin: 1 inch thick.

F. Domestic hot-water storage tank insulation shall be one of the following, of thickness to provide an R-value of 12.5:
   1. Cellular glass.
   2. Fiber Board: 2-lb/cu. ft. nominal density.
   3. Fiber pipe and tank.
   4. Phenolic.

G. Domestic chilled-water (potable) storage tank insulation shall be one of the following:
   1. Cellular Glass: 2 inches thick.
   2. Flexible Elastomeric: 1 inch thick.
   3. Fiber Board: 1 inch thick and 2-lb/cu. ft. nominal density.
   4. Fiber Pipe and Tank: 1 inch thick.
   5. Phenolic: 1 inch thick.
   6. Polyisocyanurate: 1 inch thick.
   7. Polyolefin: 1 inch thick.

3.19 PIPING INSULATION SCHEDULE, GENERAL

A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.

B. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:
   1. Drainage piping located in crawl spaces.
   2. Underground piping.
   3. Chrome-plated pipes and fittings unless there is a potential for personnel injury.

3.20 INDOOR PIPING INSULATION SCHEDULE

A. Domestic Cold Water: Not used.

B. Domestic Hot and Recirculated Hot Water:
   1. NPS 1-1/4 and Smaller: Insulation shall be one of the following:
      a. Cellular Glass: 1-1/2 inches thick.
      b. Flexible Elastomeric: 1 inch thick.
      c. Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
      d. Phenolic: 1 inch hick.
      e. Polyisocyanurate: 1 inch thick.
      f. Polyolefin: 1 inch thick.
   2. NPS 1-1/2 and Larger: Insulation shall be one of the following:
      a. Cellular Glass: 1-1/2 inches thick.
      b. Flexible Elastomeric: 1 inch thick.
      c. Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
      d. Phenolic: 1 inch thick.
      e. Polyisocyanurate: 1 inch thick.
      f. Polyolefin: 1 inch thick.

C. Domestic Chilled Water (Potable):
   1. All Pipe Sizes: Insulation shall be one of the following:
      a. Cellular Glass: 1-1/2 inches thick.
      b. Flexible Elastomeric: 1 inch thick.
      c. Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
      d. Phenolic: 1 inch thick.
      e. Polyisocyanurate: 1 inch thick.
      f. Polyolefin: 1 inch thick.

D. Exposed Sanitary Drains, Domestic Water, Domestic Hot Water, and Stops for Plumbing Fixtures for People with Disabilities:
   1. All Pipe Sizes: Insulation shall be one of the following:
      a. Flexible Elastomeric: 1 inch thick.
      b. Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
      c. Polyolefin: 1 inch thick.

E. Sanitary Waste Piping Where Heat Tracing Is Installed:
   1. All Pipe Sizes: Insulation shall be one of the following:
      a. Cellular Glass: 2 inches thick.
      b. Fiber, Preformed Pipe Insulation, Type I: 1-1/2 inches thick.
      c. Phenolic: 1-1/2 inches thick.
      d. Polyisocyanurate: 1-1/2 inches thick.

F. Condensate and Equipment Drain Water below 60 deg F, excluding exterior drains on roof.
   1. All Pipe Sizes: Insulation shall be one of the following:
      a. Cellular Glass: 1-1/2 inches thick.
      b. Flexible Elastomeric: 1 inch thick.
      c. Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
      d. Phenolic: 1 inch thick.
      e. Polyisocyanurate: 1 inch thick.
      f. Polyolefin: 1 inch thick.

G. Floor Drains, Traps, and Sanitary Drain Piping within 10 Feet of Drain Receiving Condensate and Equipment Drain Water below 60 deg F.
   1. All Pipe Sizes: Insulation shall be one of the following:
      a. Cellular Glass: 1-1/2 inches thick.
      b. Flexible Elastomeric: 1 inch thick.

c. Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
d. Phenolic: 1 inch thick.
e. Polyisocyanurate: 1 inch thick.
f. Polyolefin: 1 inch thick.

3.21 OUTDOOR, ABOVEGROUND PIPING INSULATION SCHEDULE

A. Domestic Hot and Recirculated Hot Water:
1. All Pipe Sizes: Insulation shall be one of the following:
a. Cellular Glass: 2 inches thick.
b. Flexible Elastomeric: 2 inches thick.
c. Fiber, Preformed Pipe Insulation, Type I: 2 inches thick.
d. Phenolic: 2 inches thick.
e. Polyisocyanurate: 2 inches thick.
f. Polyolefin: 2 inches thick.

3.22 INDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Equipment, Concealed:
1. None.
2. PVC: 20 mils thick.
3. Aluminum, Smooth: 0.016-inch thick.

D. Equipment, Exposed, up to 48 Inches in Diameter or with Flat Surfaces up to 72 Inches:
1. None.

E. Equipment, Exposed, Larger Than 48 Inches in Diameter or with Flat Surfaces Larger Than 72 Inches:
1. None.

F. Piping, Concealed:
1. None.

G. Piping, Exposed:
1. None.

3.23 OUTDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Equipment, Concealed:
1. None.

D. Piping, Concealed:
1. None.

E. Piping, Exposed:
1. PVC: .016 mils thick aluminum Jacket.

3.24 UNDERGROUND, FIELD-INSTALLED INSULATION JACKET

A. For underground direct-buried piping applications, install underground direct-buried jacket over insulation material.

END OF SECTION

SECTION 22 11 16 DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Under-building slab and aboveground domestic water & natural gas pipes, tubes, fittings, and specialties inside the building.
   2. Encasement for piping.
   3. Specialty valves.
   4. Flexible connectors.
   5. Water meters furnished by General Contractor for installation by Plumbing Contractor.
   6. Escutcheons.
   7. Sleeves and sleeve seals.
   8. Wall penetration systems.

B. Related Section:
   1. Division 2 – Facility Water, Natural Gas Distribution Piping for water & gas-service piping outside the building from source to the point where water-service piping enters the building.

1.3 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Domestic water & natural gas piping and support and installation shall withstand effects of earthquake motions determined according to ASCE/SEI 7.

1.4 SUBMITTALS

A. Product Data: For the following products:
   1. Transition fittings.
   2. Dielectric fittings.
   3. Flexible connectors.
   4. Escutcheons.
   5. Sleeves and sleeve seals.
   6. Water penetration systems.
   7. Copper tube piping & fittings.
   8. SCH 40 Black Steel & fittings.

B. Water Samples: Specified in "Cleaning" Article.

C. Coordination Drawings: For piping in equipment rooms and other congested areas, drawn to scale, on which the following items are shown on related system, using input from Installers of the items involved:
   1. Domestic water piping.
   2. Sanitary Waste & Vent piping.
   3. Storm drain piping.
   4. Natural gas piping.
   5. Fire Protection piping.
   6. HVAC ductwork & hydronic piping.

D. QUALITY ASSURANCE

E. Piping materials shall bear label, stamp, or other markings of specified testing agency.

F. Comply with NSF 61 for potable domestic water piping and components.

1.5 PROJECT CONDITIONS

A. Interruption of Existing Water Service: Do not interrupt water service to any facilities and buildings occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:
   1. Notify Architect no fewer than two days in advance of proposed interruption of water service.
   2. Do not proceed with interruption of water service without Architect's written permission.

B. COORDINATION

C. Coordinate sizes and locations of concrete bases with actual equipment provided.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.2 COPPER TUBE AND FITTINGS

A. Hard Copper Tube: ANSI/NSF 61, ASTM B 88, Type L (above grade), Type K (buried within building) water tube, drawn temper.
   1. Cast-Copper Solder-Joint Fittings: ASME B16.18, pressure fittings.
   2. Wrought-Copper Solder-Joint Fittings: Lead-free, ASME B16.22, wrought-copper and bronze pressure fittings.
   3. Bronze Flanges: ANSI/ASME B16.24, Class 150, with solder-joint ends.
   4. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.
   5. Copper-Tube Wrought Fitting and T's Connections:
      a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
         1) T-DRILL Industries Inc.
         2) Mueller Industries
         3) NISCO
         4) Cambridge-Lee
   6. T-Drill or Extruded not acceptable.

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B. Soft Copper Tube: ASTM B 88, Type K water tube, annealed temper.
   1. Copper Solder-Joint Fittings: Lead-free silver brazed, ANSI/ ASME B16.22, wrought-copper pressure fittings.

2.3 DUCTILE-IRON PIPE AND FITTINGS

A. Mechanical-Joint, Ductile-Iron Pipe: ASTM D 3139/ AWWA C151, with mechanical-joint bell and plain spigot end unless flanged ends are indicated.
   1. Standard-Pattern, Mechanical-Joint Fittings: AWWA C110, ductile or gray iron.
   2. Compact-Pattern, Mechanical-Joint Fittings: AWWA C153, ductile iron.
      a. Glands, Gaskets, and Bolts: AWWA C111/A21.11, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

B. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end unless flanged ends are indicated.
   1. Standard-Pattern, Push-on-Joint Fittings: AWWA C110, ductile or gray iron.
      a. Gaskets: ASTM F 477/ AWWA C111, rubber.
   2. Compact-Pattern, Push-on-Joint Fittings: AWWA C153, ductile iron.
      a. Gaskets: AWWA C111, rubber.

C. Plain-End, Ductile-Iron Pipe: AWWA C151.
   1. Flange-Joint, Ductile-Iron-Pipe Appurtenances:
      a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
         1) Anvil International
         2) Shurjoint Piping Products
         3) Star Pipe Products
         4) Victaulic Company
      b. Flange-End, Ductile-Iron Fittings: ASTM A 47/A 47M, malleable-iron castings or ASTM A 536, ductile-iron castings with dimensions matching pipe.
      c. Flange-End, Ductile-Iron-Pipe Couplings: AWWA C606 for ductile-iron-pipe dimensions. Include ferrous housing sections, EPDM-rubber gaskets suitable for hot and cold water, and bolts and nuts.

2.04 PVC FOR WATER PIPING OUTDOOR UNDERGROUND

A. PVC Pipe: ASTM D 1784, Cell Class 12454B.
   1. Push on ASTMD 3139 Joints
   2. Sleeve-type mechanical joints

B. Piping System: AWWA C900 Class 200 (DR14) with cast iron pipe equivalent OD..

C. CPVC Tubing System: ASTM D 2657, tube and socket fittings.

2.05 NATURAL GAS PIPING

A. Pipe: Schedule 40 black steel, ASTM A53/A SME B16.3/ NFPA 54.

B. Fittings:
   1. 2 inch and smaller: threaded malleable iron ANSI B31.1 Class ISO Malleable Iron
   2. 2-1/2 inch and larger: welded. ANSI B31.8 Class ISO Forged Steel Flange
   3. Natural gas shall be installed per 2013 edition of the California Plumbing Code.

C. Unions: Malleable iron railroad type – 250 psi brass to iron seat, ground joints, flanges and gaskets.

D. Natural gas pipe, for outside of building.
   1. Polyethylene (PE) ASTM D2513/D1248. SDR 11.5 at 76psi and 73ºF - 4 inches and larger and SDR 11 at 80psi and 73ºF – 3 inches and smaller butt or socket fittings joint by heat fusion.
   2. (PE) pipe and fitting Plexco PE2406 with #12 insulated type UF and copper trace wire terminate at each end of non-metallic gas pipe above ground.
   3. Transitions to anodeless steel mains and meters on regulators.
   4. (PE) fitting ASTM D3261/D2683.

2.06 SPECIALTY VALVES

A. Comply with requirements in Section 22 05 23 – General-Duty Valves for Plumbing Piping for general-duty metal valves.

B. Comply with requirements in Section 22 11 19 – Domestic Water Piping Specialties for balancing valves, drain valves, backflow preventers, and vacuum breakers.

2.07 TRANSITION FITTINGS

A. General Requirements:
   1. Same size as pipes to be joined.
   2. Pressure rating at least equal to pipes to be joined.
   3. End connections compatible with pipes to be joined.

B. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.

C. Sleeve-Type Transition Coupling: AWWA C900.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Cascade Waterworks Manufacturing
      b. Dresser, Inc.; Dresser Piping Specialties
      c. Ford Meter Box Company, Inc. (The)
      d. JCM Industries
      e. Romac Industries, Inc.
      f. Smith-Blair, Inc; a Sensus company
      g. Viking Johnson; c/o Mueller Co.
      h. C900 Ind.
   2. Plastic-to-Metal Transition Fittings:
      a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
         1) Charlotte Pipe and Foundry Company
         2) Harvel Plastics, Inc.
         3) Spears Manufacturing Company
         4) C900 Ind.

   3. Description: CPVC or PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert and one solvent-cement-socket or threaded end.

D. Plastic-to-Metal Transition Unions:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Colonial Engineering, Inc.
      b. NIBCO Inc.
      c. Spears Manufacturing Company
   2. Description: CPVC or PVC four-part union. Include brass or stainless-steel threaded end, solvent-cement-joint or threaded plastic end, rubber O-ring, and union nut.

2.07 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials or ferrous material body with separating nonconductive insulating material suitable for system fluid, pressure, and temperature.

B. Dielectric Unions:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
      b. Zurn Plumbing Products Group; Wilkins Water Control Products
   2. Description:
      a. Pressure Rating: 250 psig at 180 deg F.

b. End Connections: Solder-joint copper alloy and threaded ferrous.

C. Dielectric Flanges:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Capitol Manufacturing Company
b. Central Plastics Company
c. EPCO Sales, Inc.
d. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
e. CTS Fabrication
2. Description:
a. Factory-fabricated, bolted, companion-flange assembly.
b. Pressure Rating: 175 psig minimum.
c. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Kits:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Central Plastics Company
d. NIBCO Inc.
e. Pipeline Seal and Insulator, Inc.
f. CTS fabrication
2. Description:
a. Nonconducting materials for field assembly of companion flanges.
b. Pressure Rating: 150 psig.
c. Gasket: Neoprene or phenolic.
d. Bolt Sleeves: Phenolic or polyethylene.
e. Washers: Phenolic with steel backing washers.

E. Dielectric Couplings:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Calpico, Inc.
b. Lochinvar Corporation
2. Description:
a. Galvanized-steel coupling.
b. Pressure Rating: 300 psig at 225 deg F.
c. End Connections: Female threaded.
d. Lining: Inert and noncorrosive, thermoplastic.

F. Dielectric Nipples:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Perfection Corporation; a subsidiary of American Meter Company
b. Precision Plumbing Products, Inc.
c. Victaulic Company
2. Description:
a. Electroplated steel nipple complying with ASTM F 1545.
b. Pressure Rating: 300 psig at 225 deg F.
c. End Connections: Male threaded or grooved.
d. Lining: Inert and noncorrosive, propylene.

2.08 FLEXIBLE CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Flex-Hose Co., Inc.
   2. Flex-Weld, Inc.
   3. Hyspan Precision Products, Inc.
   4. Metraflex, Inc.
   5. Universal Metal Hose; a Hyspan company
   6. Mason

B. Bronze-Hose Flexible Connectors: Corrugated-bronze tubing with bronze wire-braid covering and ends brazed to inner tubing.
   1. Working-Pressure Rating: Minimum 250 psig.
   2. End Connections NPS 2 and Smaller: Threaded copper pipe or plain-end copper tube.
   3. End Connections NPS 2-1/2 and Larger: Flanged copper alloy.

C. Stainless-Steel-Hose Flexible Connectors: Corrugated-stainless-steel tubing with stainless-steel wire-braid covering and ends welded to inner tubing.
   1. Working-Pressure Rating: Minimum 250 psig.
   2. End Connections NPS 2 and Smaller: Threaded steel-pipe nipple.
   3. End Connections NPS 2-1/2 and Larger: Flanged steel nipple.

2.09 ESCUTCHEONS

A. General: Manufactured ceiling, floor, and wall escutcheons and floor plates.

B. One Piece, Cast Brass: Polished, chrome-plated finish with setscrews.

C. One Piece, Deep Pattern: Deep-drawn, box-shaped brass with chrome-plated finish.

D. One Piece, Stamped Steel: Chrome-plated finish with setscrew.

E. Split Casting, Cast Brass: Polished, chrome-plated finish with concealed hinge and setscrew.

F. Split Plate, Stamped Steel: Chrome-plated finish with concealed hinge, setscrew.

G. One-Piece Floor Plates: Cast-iron flange with holes for fasteners.

H. Split-Casting Floor Plates: Cast brass with concealed hinge.

2.10 SLEEVES

A. Cast-Iron Wall Pipes: Fabricated of cast iron, and equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Galvanized-Steel-Sheet Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

C. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc-coated, with plain ends.

D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.
   1. Underdeck Clamp: Clamping ring with setscrews.

E. HDPE Sleeves - SCH 80

2.11 SLEEVE SEALS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Advance Products & Systems, Inc.
   2. Calpico, Inc.
   3. Metraflex, Inc.

4. Pipeline Seal and Insulator, Inc.
5. Thunder Line Modular Seals (Link Seals)

B. Description: Modular sealing element unit, designed for field assembly, used to fill annular space between pipe and sleeve.
   1. Sealing Elements: EPDM-rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
   2. Pressure Plates: Carbon steel.
   3. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, or Stainless steel of length required to secure pressure plates to sealing elements.

2.12 GROUT

A. Standard: ASTM C 1107, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

B. Characteristics: Nonshrink; recommended for interior and exterior applications.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.13 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufactures offering gas piping system products which may be incorporated in the work include, but are not limited to, the following:
   1. Gas Cocks: Jenkins Bros., Lunkenheimer CO., NIBCO, Inc. Appollo, Stockham

2.14 PIPE AND TUBING MATERIALS

A. General: Refer to Part 3, Article “PIPE APPLICATION” for identification of systems where the below specified type and fitting materials are used.

B. Steep Pipe: Above ground, ASTM A53, Schedule 40, seamless, black steel pipe, beveled ends by US Steel, approved equal.

2.15 FITTINGS

A. Malleable-Iron Threaded Fittings: Above ground, ANSI B16.3, Class 150, standard pattern, for threaded joints. Threads shall conform to ANSI B1.20.1.

B. Joint Stockham or Approved Equal: 2-incehs and smaller treaded and for 2 ½” inches and larger welded.

2.16 PIPING SPECIALTIES

A. Unions: ANSI B16.39, Class 150, black malleable iron; female pattern; brass to iron seat; ground joint.

B. Dielectric Unions: ANSI B16.39, Class 250; malleable iron and cast bronze; with end connections suitable for pipe to be joined; designed to isolate galvanic and stray current corrosion.

C. Protective Coating: When metal piping will be in contact with material or atmosphere exerting a corrosion action, pipe and fittings shall be machine re-fabricated applied coated plus polyethylene tape, having the following properties:

1. Overall thickness: 20 mils; synthetic adhesive; water vapor transmission rate, gallons per 100 square inch: 0.10 or less; water absorption, percent: 0.02 or less.

D. Prime pipe and fittings with a compatible primer prior to application of tape.

2.17 VALVES

A. General Duty Valves (i.e. gate, globe, check, ball and butterfly valves) are specified in Division -15 Section “Valves.” Special duty valves are specified in this Article by their generic name; refer to Part 3 below, Article “VALVE APPLICATION” for specific uses and applications for each valve specified.

B. Gas Cocks 2 Inch and Smaller: 150 psi WOG, bronze body, straightaway pattern, square head, threaded ends.

C. Gas Line Pressure Regulators: Single stage, spring-loaded, steel jacketed, corrosion-resistant gas pressure regulators; with atmospheric vent, elevation compensator, with threaded ends for 2 inch and smaller, flanged ends for 2 ½” inch and larger; for inlet and outlet gas pressures, specific gravity, and volume flow indicated.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Comply with requirements in Division 3 Earthwork for excavating, trenching, and backfilling.

3.2 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to the layout are approved on Coordination Drawings.

B. Install copper tubing under building slab according to CDA's "Copper Tube Handbook".

C. Install ductile-iron piping under building slab with restrained joints according to AWWA C600 and AWWA M41.

D. Install underground copper tube and ductile-iron pipe in PE encasement according to ASTM A 674, AWWA C105 or AWWA C900.

E. Install shutoff valve, hose-end drain valve, strainer, pressure gage, and test tee with valve, inside the building at each domestic water service entrance. Comply with requirements in Section 22 05 19 – Meters and Gages for Plumbing Piping for pressure gages.

F. Install domestic water piping level without pitch and plumb.

G. Rough-in domestic water piping for water-meter installation according to utility company's requirements, and comply with Division 2 requirements.

H. Install seismic restraints on piping. Comply with requirements in Section 22 05 48 – Vibration and Seismic Controls for Plumbing Piping and Equipment for seismic-restraint devices.

I. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.

J. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

K. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space.

L. Install piping adjacent to equipment and specialties to allow service and maintenance.

M. Install piping to permit valve servicing.

N. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than system pressure rating used in applications below unless otherwise indicated.

O. Install piping free of sags and bends.

P. Install wrought fittings for changes in direction and branch connections.

Q. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.

R. Install pressure gages on suction and discharge piping from each plumbing equipment. Comply with requirements in Section 22 05 19 – Meters and Gages for Plumbing Piping for pressure gages.

S. Install thermostats in hot-water circulation piping. Comply with requirements in Section 22 11 24 – Domestic Water Heater for thermostats.

T. Install thermometers on inlet and outlet piping from each water heater. Comply with requirements in Section 22 05 19 – Meters and Gages for Plumbing Piping for thermometers.

U. Install piping to allow for expansion and contraction without stressing pipe, fitting, joints or equipment connections.

V. Excavate and backfill in accordance with Division 3.

W. Seismic anchorage and bracing with structural engineer and OSPHD approvals.

3.3 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
   1. Apply appropriate tape or thread compound to external pipe threads.
   2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

D. Brazed Joints: Join copper tube and fittings according to CDA's "Copper Tube Handbook", "Brazed Joints" Chapter.

E. Soldered Joints: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook".

F. Ductile-Iron-Piping Flange Joints: Flange end of pipe. Assemble coupling with housing, gasket, lubricant, and bolts. Join ductile-iron pipe and flange-end fittings according to AWWA C606 for ductile-iron-pipe, joints.

G. Steel-Piping Flange Joints: Flange end of pipe. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe joints.

H. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.

I. Dissimilar-Material Piping Joints: Provide non-conducing dielectric connections and make joints using adapters compatible with materials of both piping systems.

3.4 VALVE INSTALLATION

A. General-Duty Valves: Comply with requirements in Section 22 05 23 – General-Duty Valves for Plumbing Piping for valve installations.

B. Install shutoff valve close to water main serving plumbing fixtures or equipment, as needed, on each water supply to equipment, and on each water supply to plumbing fixtures that do not have supply stops. Use ball or gate valves for piping NPS 2" and smaller. Use butterfly or gate valves for piping NPS 2-1/2" and larger.

C. Install drain valves for equipment at base of each water riser, unless provided as part of equipment skid, and where required to drain water piping. Drain valves are specified in Section 22 11 19 – Domestic Water Piping Specialties.
   1. Hose-End Drain Valves: At low points in water mains, risers, and branches.
   2. Stop-and-Waste Drain Valves: Instead of hose-end drain valves where indicated.

D. Install calibrated balancing valves in each hot-water circulation return branch and discharge side of each pump and circulator. Set calibrated balancing valves partly open to restrict but not stop flow. Comply with requirements in Section 22 11 19 – Domestic Water Piping Specialties for calibrated balancing valves.

3.5 TRANSITION FITTING INSTALLATION

A. Install transition couplings at joints of dissimilar piping.

B. Transition Fittings in Underground Domestic Water Piping:
   1. NPS 1-1/2" and Smaller: Fitting-type coupling.
   2. NPS 2" and Larger: Sleeve-type coupling.

C. Transition Fittings in Aboveground Domestic Water Piping NPS 2 and Smaller: Plastic-to-metal transition [fittings] [or] [unions].

3.6 DIELECTRIC FITTING INSTALLATION

A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

B. Dielectric Fittings for NPS 2" and Smaller: Use dielectric unions or couplings.

C. Dielectric Fittings for NPS 2-1/2" to NPS 4": Use dielectric flanges.

D. Dielectric Fittings for NPS 5" and Larger: Use dielectric flange kits.

3.7 FLEXIBLE CONNECTOR INSTALLATION

A. Install flexible connectors in suction and discharge manifold piping connections to each domestic water pump .

B. Install bronze-hose flexible connectors in copper domestic water tubing.

C. Install stainless-steel-hose flexible connectors in steel domestic water piping.

3.8 HANGER AND SUPPORT INSTALLATION

A. Comply with requirements in Section 22 05 48 – Vibration and Seismic Controls for Plumbing Piping and Equipment for seismic-restraint devices.

B. Comply with requirements in Section 22 05 29 – Hangers and Supports for Plumbing Piping and Equipment for pipe hanger and support products and installation.
   1. Vertical Piping: MSS Type 8 or 42, clamps.
   2. Individual, Straight, Horizontal Piping Runs:
      a. MSS Type 1, adjustable, steel hangers.
   3. Multiple, Straight, Horizontal Piping Runs Support pipe on trapeze.
   4. Base of Vertical Piping: Riser clamps.

5. Seismic Anchorage and Bracing

C. Support vertical piping and tubing at base and at each floor.

D. Rod diameter may be reduced one size for double-rod hangers, to a minimum of 3/8-inch.

E. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters: Per CPC Tables 3-1 and 3-2.

3.9 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment and machines to allow service and maintenance.

C. Connect domestic water piping to exterior water-service piping. Use transition fitting to join dissimilar piping materials.

D. Connect domestic water piping to water-service piping with shutoff valve; extend and connect to the following:

1. Water Heaters: Cold-water inlet and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
2. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Comply with requirements in Division 22 plumbing fixture Sections for connection sizes.
3. Equipment: Cold- and hot-water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 and larger.

3.10 ESCUTCHEON INSTALLATION

A. Install escutcheons for penetrations of walls, ceilings, and floors.

B. Escutcheons for New Piping:

1. Piping with Fitting or Sleeve Protruding from Wall: One piece, deep pattern.
2. Bare Piping at Wall in Finished Spaces: One-piece, cast brass with polished chrome-plated finish.

3.11 SLEEVE INSTALLATION

A. General Requirements: Install sleeves for pipes and tubes passing through penetrations in floors, and roof slabs.

B. Sleeves are not required for core-drilled holes.

C. Permanent sleeves are not required for holes formed by removable PE sleeves.

D. Install sleeves in slabs, as they are built. , excluding slab on grade.

E. For interior rated wall penetrations, seal annular space between pipe or pipe insulation and opening using joint sealants appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section 07 48 00 – Joint Sealers for joint sealants.

F. For exterior wall penetrations below grade, seal annular space between sleeve and pipe using sleeve seals specified in this Section.

G. Install sleeve materials according to the following applications:

1. Sleeves for Piping Passing through Concrete Floor Slabs excluding slab on grade: Steel pipe or steel sheet
2. Sleeves for Piping Passing through Concrete Roof Slabs: Steel pipe or steel sheet.
3. Sleeves for Piping Passing through Exterior Concrete Walls:
   a. Steel pipe sleeves.

b. Cast Iron: Install sleeves that are large enough to provide adequate annular clear space between sleeve and pipe or pipe insulation when sleeve seals are used.
c. Do not use sleeves when wall penetration systems are used.

4. Sleeves for Piping Passing through Interior Concrete Walls:
   a. Steel pipe sleeves.

H. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with fire stop materials. Comply with requirements in Division 07 Section 07 84 00 – Fire stopping for fire stop materials and installations.

3.12 SLEEVE SEAL INSTALLATION

A. Install sleeve seals in sleeves in exterior concrete walls at water-service piping entries into building.

B. Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble sleeve seal components and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.13 IDENTIFICATION

A. Identify system components. Comply with requirements in Section 22 05 53 – Identification for Plumbing Piping and Equipment for identification materials and installation.

3.14 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Piping Inspections:

1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
2. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
   a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
   b. Final Inspection: Arrange final inspection for authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
3. Re-inspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for re inspection.

C. Piping Tests:

1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
2. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
3. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
4. Cap and subject piping to static water pressure of 1-1/2 times above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
5. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
6. Natural Gas piping and fittings shall be tested to AGA guidelines.

D. Domestic water piping will be considered defective if it does not pass tests and inspections.

3.15 ADJUSTING

A. Perform the following adjustments before operation:
   1. Close drain valves, hydrants, and hose bibbs.
   2. Open shutoff valves to fully open position.
   3. Open throttling valves to proper setting.
   4. Adjust balancing valves in hot-water-circulation return piping to provide adequate flow.
      a. Adjust calibrated balancing valves to flows indicated.
   5. Remove plugs used during testing of piping and for temporary sealing of piping during installation.
   6. Remove and clean strainer screens. Close drain valves and replace drain plugs.
   7. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.
   8. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.16 CLEANING

A. Clean and disinfect potable domestic water piping as follows:
   1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
   2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:
      a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
      b. Fill and isolate system according to either of the following:
         1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
         2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
      c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
      d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.

B. Prepare and submit reports of purging and disinfecting activities.

C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

3.17 PIPING SCHEDULE

A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.
   1. Under-building-slab, domestic water, building service piping, NPS 2” and smaller shall be one of the following:
   2. Hard copper tube, ASTM B 88, Type K; wrought-copper; and brazed joints.

C. Under-building-slab, domestic water, building-service piping, NPS 2 1/2” to NPS 8” and larger, shall be one of the following:
   1. Soft copper tube, ASTM B 88, Type L; wrought-copper and brazed joints.
   2. Mechanical-joint, ductile-iron pipe; standard-pattern mechanical-joint fittings; and mechanical joints.

D. Aboveground domestic water piping, NPS 2” and smaller shall be one of the following:
   1. Galvanized-steel pipe and nipples; galvanized, gray-iron threaded fittings; and threaded joints.
   2. Hard copper tube, ASTM B 88, Type L cast or wrought-copper solder-joint fittings; and soldered joints.

E. Aboveground domestic water piping, NPS 2-1/2" to NPS 3", shall be one of the following:
   1. Hard copper tube, ASTM B 88, Type L cast or wrought-copper; and brazed, solder and welded

F. Aboveground domestic water piping, NPS 4" to NPS 8", shall be one of the following:
   1. Hard copper tube, ASTM B 88, Type L cast or wrought-copper; and brazed, welded.

G. Aboveground, combined domestic-water-service piping, NPS 6 to NPS 12, shall be one of the following:
   1. Plain-end, ductile-iron pipe; flange-joint, ductile-iron-pipe appurtenances; and flange joints.

3.18 VALVE SCHEDULE

A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
   1. Shutoff Duty: Use ball or gate valves for piping NPS 2" and smaller. Use butterfly, ball, or gate valves with flanged ends for piping NPS 2-1/2" and larger.
   2. Throttling Duty: Use ball or globe valves for piping NPS 2 and smaller. Use butterfly or ball valves with flanged ends for piping NPS 2-1/2" and larger.
   3. Hot-Water Circulation Piping, Balancing Duty: Calibrated balancing valves.
   4. Drain Duty: Hose-end drain valves.

B. Use check valves to maintain correct direction of domestic water flow to and from equipment.

C. Iron flange-end valves may be used with flange-end piping.

D. CPVC valves matching piping materials may be used.

3.19 SERVICE CONNECTIONS

A. Provide new water service complete with approved backflow preventer and water return and main shut-off valve. Refer to civil drawing for exact location.

B. Provide new natural gas service complete with gas meters, regulator and seismic earthquake valve. The gas service distribution piping to have initial medium pressure gas service.

3.20 GAS SERVICE

A. Above Grade Service: Pipe shall be steel, hammered, free of dirt and scale, and blown out with oil-free air or nitrogen to a clean, dry condition. Piping shall not be installed in or through a ventilation duct or plenum.

B. Underground Service, Plastic Pipe: Refer to Section 15010: Basic Mechanical Requirements and 15055 Basic Piping Material and Methods.
   1. Where connected steel pipe passes directly into a structure, double swing or double-offset joint shall be furnished. Pipe shall pass into structure above grade and through a sleeve with a minimum one inch clearance. Provide anode less steel riser to grade.
   2. Pipes shall be joined to one another and to polyethylene fittings by thermal butt fusion, socket fusion or saddle fusion in accordance with procedures recommended by pipe manufacturer.
   3. Plastic pipe shall be installed not less than 48 inches below grade, unless otherwise indicted on drawings. Risers to grade shall be prefabricated anode less type for installation with polyethylene pipe.
   4. Plastic pipe shall not be installed in or under a building or structure. Pipe shall be installed under bituminous surfacing or compacted soil area, free from large stones. Pipe may be installed sidewalks or driveways, as long as no point occurs. Pipe installed under paved covered areas wider than 40 feet shall be installed in ventilated conduits extending 2 feet past paving.
   5. Piping shall be installed on 6 inches of deep sand bed. After required pressure-leak test, pipe shall be covered with sand not less than 6 inches thick.

6. Piping shall not support weight of valves, metal fittings or other items. Pipe shall be installed strain free.
7. Plastic pipe fittings shall not be stored or left exposed to sunlight. Pipe in open trenches shall be shielded. Sand envelope may be placed around pipe, with provided when necessary to leave pipe exposed overnight.

3.21 PREPARATION - NATURAL GAS SYSTEM

A. Conform with the requirements in NFPA 54, for the prevention of accidental ignition.

3.22 PIPE APPLICATIONS

A. Use steel pipe above ground with threaded joints and fittings for 2 inch and smaller, and with welded joints for 2 ½" inch and larger. Use polyethylene pipe and fittings below ground from meter to building.

3.23 PIPING INSTALLATIONS

A. General: Install piping to conform with requirements of NFPA 54 – National Fuel Gas Code and California Plumbing Code.

B. Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of piping systems. Design locations and arrangement of piping take into consideration pipe sizing, flow direction, slope of pipe, expansion, and other design considerations. Install piping as indicated.

3.24 ABOVE GROUND

A. Concealed Locations: Except as specified below, install concealed gas piping in an air-tight sleeves.

B. Above-Ceiling Locations: Gas piping may be installed in accessible above-ceiling spaces (subject to the approval of the authority having jurisdiction), except where such spaces are used as a plenum. Valves shall not be located in such spaces.

C. Piping in Partitions: Concealed piping shall not be located in solid partitions.

D. Prohibited Locations: Do not install gas piping in or through a circulating air duct, clothes chute, gas, ventilation duct, dumb water or elevator shaft.

E. Install pipe sleeve seals at foundation penetrations, as specified in Division 22 Section "Basic Piping Materials and Methods."

F. Seal pipe penetrations of fire barriers using fire barrier penetration sealers specified in Division 7 Section: " Joint Sealers."

G. Hanger, supports and anchors are specified in Division 22 Section 22-05-29 "Supports and Anchors." Conform to the table for maximum spacing of supports as per CPC Chapter 12.

H. Piping 2 ½" and larger shall be welded.

I. Install gas piping at a uniform grade of ¼ inch in 15 feet, upward to risers, and from the risers to the meter (or service regulator when meter is not provided), or the equipment.

J. Make reductions in pipe sizes using eccentric reducer fittings installed with the level side down.

K. Make changes in directions and branch connections using fittings.

L. Install unions in pipes 2 inch and smaller, adjacent to each valve, at final connections of each piece of equipment; and elsewhere as indicated. Unions are not required on flanged divides.

M. Install dielectric unions where piping of dissimilar metals are joined.

N. Install flanges on valves, apparatus and equipment having 2 ½" and larger connections.

O. Install strainer on the supply side of each control valve, pressure reducing valve, pressure regulating valve, solenoid valve, and elsewhere as indicated.

P. Anchor piping to ensure proper direction of expansion and contraction.

3.25 BELOW GROUND

A. General: Install piping in conformance with IAPMO Installation Standards IS 12-85 and local authorities having jurisdiction. Provide 1 - #12 bare copper trace wire.

3.26 PIPE JOINTS

A. Welded Joints: Comply with the requirements in ASME Boiler and Pressure Vessel Code, Section IX.

B. Threaded Joints: Conform to ANSI B1.20.1, tapered pipe threads for field cut threads. Join pipe, fittings, and valves as follows.

C. Note the internal length of threads and fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint. Refer to CPC Chapter 12 and NFPA 43, for guide for number and length of field threading steel pipe.

D. Align threads at point of assembly.

E. Apply appropriate tape or thread compound to the external pipe threads.

F. Assemble joint to appropriate thread depth. When using a wrench on valves, place the wrench on the valve end into which the pipe is being threaded.

G. Damaged Threads: Do not use pipe with threads which are stripped, chipped, corroded, or otherwise damaged. If a weld opens during cutting or threading operations, that portion of pipe shall not be used.

H. (PE) Polyethylene Joints: Heat fused joints shall be made as recommended by the manufacturer. Transition from below to above ground shall be made by a single transition sweep fitting. Metal pipe shall be stainless steel or protected as here in before specified under “Protective Coating.”

3.27 VALVE APPLICATIONS

A. General: The Drawings indicate valve types, locations, and arrangements.

B. Shut-Off Duty: Use gas cocks specified in Part 2 above.

3.28 VALVE INSTALLATIONS

A. Install valves in accessible locations, protected from physical damage. Tag valves with a metal tag attached with a metal chain indicating the piping systems supplied.

B. Install a gas cock upstream of each gas pressure regulator. Where two gas pressure regulators.

C. Install pressure relief or pressure limiting devices so the can be readily operated to determine if the valve is free; so they can be tested to determine the pressure at which they will operate; and examined for leakage when in the closed position.

3.29 TERMINAL EQUIPMENT CONNECTIONS

A. Install gas cock upstream and within six (6) feet of gas appliance. Install a union o r flanged connection downstream from the gas cock to permit removal of controls.

B. Sediment Traps: install a tee fitting with the bottom outlet plugged or capped as close to the inlet of the gas appliance as practical. Drip leg shall be a minimum of 3 pipe diameters in length.

3.30 ELECTRICAL BONDING AND GROUNDING

A. Install above ground portions of gas piping systems, upstream from equipment shutoff valves, electrically continuous and bonded to a grounding electrode, in accordance with NFPA 70-“National Electrical Code.”

B. Do not use gas piping as a grounding electrode.

C. Conform to NFPA 70 – “National Electrode Code,” for electrical connections between wiring and electrically operated control devices.

3.31 FIELD QUALITY CONTROL

A. Piping Tests: Inspect, test, and purge natural gas systems in accordance with CPC Chapter 12 and NFPA 54 and

END OF SECTION

SECTION 22 13 16 SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following for soil, waste, and vent piping inside the building:
   1. Pipe, tube, and fittings.
   2. Special pipe fittings.
   3. Encasement for underground metal piping.

B. Related Sections include the following:
   1. Storm Drain system similar as per this section 221316

1.3 DEFINITIONS

A. ABS: Acrylonitrile-butadiene-styrene plastic.

B. EPDM: Ethylene-propylene-dyne-ter-polymer rubber.

C. LLDPE: Linear, low-density polyethylene plastic.

D. NBR: Acrylonitrile-butadiene rubber.

E. PE: Polyethylene plastic.

F. PVC: Polyvinyl chloride plastic.

G. TPE: Thermoplastic elastomer.

1.4 PERFORMANCE REQUIREMENTS

A. Components and installation shall be capable of withstanding the following minimum working pressure, unless otherwise indicated:
   1. Soil, Waste, and Vent Piping: 10-foot head of water.
   2. Sanitary Sewer, Force-Main Piping: 10-foot head of water.

B. Seismic Performance: Soil, waste, and vent piping and support and installation shall be capable of withstanding the effects of seismic events determined according to ASCE 7, "Minimum Design Loads for Buildings and Other Structures".

1.5 SUBMITTALS

A. Product Data: For pipe, tube, fittings, and couplings.

B. LEED Submittal:
   1. Product Data for Credit EQ 4.1: For solvent cements and adhesive primers, including printed statement of VOC content.

C. Shop Drawings:
   1. Design Calculations: Signed and sealed by a qualified professional engineer for selecting seismic restraints.
   2. Include plans, elevations.

D. Field quality-control inspection and test reports.

1.6 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

B. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials", for plastic piping components. Include marking with "NSF-dwv" for plastic drain, waste, and vent piping; "NSF-drain" for plastic drain piping; "NSF-tubular" for plastic continuous waste piping; and "NSF-sewer" for plastic sewer piping.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
   1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 PIPING MATERIALS

A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.

2.3 HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 74, Service Weight, Must bear the CI collaborative trademark.

B. Gaskets: ASTM C 564, rubber.

C. Calking Materials: ASTM B 29, pure lead and oakum or hemp fiber.

2.4 HUBLESS CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 888 or CISPI 301. Must bear the CI collaborative trademark.

B. Sovent Stack Fittings: ASME B16.45 or ASSE 1043, hubless, cast-iron aerator and deaerator drainage fittings.

C. Shielded Couplings: ASTM C 1277 assembly of metal shield or housing, corrosion-resistant fasteners, and rubber sleeve with integral, center pipe stop.
   1. Standard, Shielded, Stainless-Steel Couplings: CISPI 310, with stainless-steel corrugated shield; stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve. For vents only.
      a. Manufacturers:
         1) Mission Rubber Co.
         2) Husky
         3) Clamp-All Corp.
         4) Tyler Pipe; Soil Pipe Div.
   2. Heavy-Duty, Shielded, Stainless-Steel Couplings: With stainless-steel shield, stainless-steel bands and tightening devices, and ASTM C 564, rubber sleeve. Shall meet FM 1680.
      a. Manufacturers:
         1) Mission Rubber Co.

2) Husky
3) Clamp-All Corp.
4) Tyler Pipe; Soil Pipe Div.

D. Rigid, Unshielded Couplings: ASTM C 1461, sleeve-type, reducing- or transition-type mechanical coupling molded from ASTM C 1440, TPE material with corrosion-resistant-metal tension band and tightening mechanism on each end.
   1. Manufacturers:
      a. Clamp All
      b. Husky
      c. Mission Rubber Co.

E. All underground waste and water piping shall be protected from hot soil conditions. Provide PVC sleeve or ASTM A 74 and ASTM 674 or AWWA C105, high-density, cross laminated PE film of 0.004-inch or LLDPE film of 0.008-inch minimum thickness.

2.5 STEEL PIPE AND FITTINGS

A. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade A or B, Standard Weight or Schedule 40, galvanized. Include ends matching joining method.

B. Drainage Fittings: ASME B16.12 threaded, cast-iron drainage pattern.

C. Pressure Fittings:
   1. Steel Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M or ASTM A 106, Schedule 40, galvanized, seamless steel pipe. Include ends matching joining method.
   2. Malleable-Iron Unions: ASME B16.39; Class 150; hexagonal-stock body with ball-and-socket, metal-to-metal, bronze seating surface; and female threaded ends.
   3. Gray-Iron, Threaded Fittings: ASME B16.4, Class 125, standard pattern.
   4. Cast-Iron Flanges: ASME B16.1, Class 125.
   5. Cast-Iron, Flanged Fittings: ASME B16.1, Class 125.

2.6 DUCTILE-IRON PIPE AND FITTINGS

A. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell and plain spigot end, unless grooved or flanged ends are indicated.
   1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
   2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

B. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end, unless grooved or flanged ends are indicated.
   1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
   2. Gaskets: AWWA C111, rubber.

C. Grooved-Joint Systems:
   1. Manufacturers:
      a. Victaulic Company.
   2. Grooved-End, Ductile-Iron Fittings: ASTM A 47/A 47M, malleable-iron castings or ASTM A 536, ductile-iron castings with dimensions matching pipe.
   3. Grooved-End, Ductile-Iron-Piping Couplings: AWWA C606, for ductile-iron-pipe dimensions. Include ferrous housing sections, gasket suitable for water, and bolts and nuts.

D. Flanges: ASME 16.1, Class 125, cast iron.

2.7 COPPER TUBE AND FITTINGS

A. Copper DWV Tube: ASTM B 306, drainage tube, drawn temper.
   1. Copper Drainage Fittings: ASME B16.23, cast copper or ASME B16.29, wrought copper, solder-joint fittings.

B. Hard Copper Tube: ASTM B 88, Types L and M, water tube, drawn temper.
   1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
   2. Copper Flanges: ASME B16.24, Class 150, cast copper with solder-joint end.
   3. Copper Unions: MSS SP-123, copper-alloy, hexagonal-stock body with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

C. Soft Copper Tube: ASTM B 88, Type L, water tube, annealed temper.
   1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.

2.8 ABS PIPE AND FITTINGS (FOR UNDERGROUND EXTERIOR /SLEEVE USE)

A. Solid-Wall ABS Pipe: ASTM D 2661, Schedule 40.

B. Cellular-Core ABS Pipe: ASTM F 628, Schedule 40.

C. ABS Socket Fittings: ASTM D 2661, made to ASTM D 3311, drain, waste, and vent patterns.

D. Solvent Cement and Adhesive Primer:
   1. Use ABS solvent cement that has a VOC content of 325 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
   2. Use adhesive primer that has a VOC content of 550 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.9 PVC PIPE AND FITTINGS (FOR UNDERGROUND EXTERIOR/SLEEVE USE)

A. Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent.
   1. PVC Socket Fittings: ASTM D 2665, socket type, made to ASTM D 3311, drain, waste, and vent patterns.

B. Cellular-Core PVC Pipe: ASTM F 891, Schedule 40.
   1. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe.

C. Cellular-Core, Sewer and Drain Series, PVC Pipe: ASTM F 891, Series PS 100.
   1. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Series PS 100 sewer and drain pipe.

D. Solvent Cement and Adhesive Primer:
   1. Use PVC solvent cement that has a VOC content of 510 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
   2. Use adhesive primer that has a VOC content of 550 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.10 SPECIAL PIPE FITTINGS

A. Flexible, Nonpressure Pipe Couplings: Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition pattern. Include shear ring, ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.
   1. Manufacturers:

a. Dallas Specialty & Mfg. Co.
b. Fernco, Inc.
c. Logan Clay Products Company (The)
d. Mission Rubber Co.
e. NDS, Inc.
f. Plastic Oddities, Inc.

2. Sleeve Materials:
a. For Cast-Iron Soil Pipes: ASTM C 564, rubber.
b. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
c. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

B. Shielded Nonpressure Pipe Couplings: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

1. Manufacturers:
a. Cascade Waterworks Mfg. Co.
b. Mission Rubber Co.

C. Rigid, Unshielded, Nonpressure Pipe Couplings: ASTM C 1461, sleeve-type reducing- or transition-type mechanical coupling molded from ASTM C 1440, TPE material with corrosion-resistant-metal tension band and tightening mechanism on each end.

1. Manufacturers:
a. ANACO

D. Pressure Pipe Couplings: AWWA C219 metal, sleeve-type same size as, with pressure rating at least equal to, and ends compatible with, pipes to be joined.

1. Manufacturers:
a. Cascade Waterworks Mfg. Co.
b. Dresser, Inc.; DMD Div.
c. EBAA Iron Sales, Inc.
d. Ford Meter Box Company, Inc. (The); Pipe Products Div.
e. JCM Industries, Inc.
f. Romac Industries, Inc.
g. Smith-Blair, Inc.
h. Viking Johnson
2. Center-Sleeve Material: Manufacturer's standard.
3. Gasket Material: Natural or synthetic rubber.
4. Metal Component Finish: Corrosion-resistant coating or material.

2.11 ENCASEMENT FOR UNDERGROUND METAL PIPING

A. Description: ASTM A 674 or AWWA C105, high-density, cross laminated PE film of 0.004-inch or LLDPE film of 0.008-inch minimum thickness.

B. Form: Sheet.

C. Color: Natural.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Refer to Division 31 Earthwork for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

A. Flanges and unions may be used on aboveground pressure piping, unless otherwise indicated.

B. Aboveground, soil and waste piping NPS 4 and smaller shall be any of the following:
   1. Service class, cast-iron soil pipe and fittings; gaskets; and gasketed joints.
   2. Hubless cast-iron soil pipe and fittings heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.
   3. Steel pipe, drainage fittings, and threaded joints.
   4. Stainless-steel pipe and fittings, gaskets, and gasket joints.
   5. Copper DWV tube, copper drainage fittings, and soldered joints.
   6. Dissimilar Pipe-Material Couplings: Flexible, shielded, nonpressure pipe couplings for joining dissimilar pipe materials with small difference in OD.

C. Aboveground, soil and waste piping NPS 5 and larger shall be any of the following:
   1. Service class, cast-iron soil pipe and fittings; gaskets; and gasket joints.
   2. Hubless cast-iron soil pipe and fittings heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.
   3. Steel pipe, drainage fittings, and threaded joints.
   4. Dissimilar Pipe-Material Couplings: Shielded, nonpressure pipe couplings for joining dissimilar pipe materials with small difference in OD.

D. Aboveground, vent piping NPS 4 and smaller shall be any of the following:
   1. Service class, cast-iron soil pipe and fittings; gaskets; and gasket joints.
   2. Hubless cast-iron soil pipe and fittings; standard, shielded, stainless-steel couplings; and hubless-coupling joints.
   3. Steel pipe, drainage fittings, and threaded joints.
   4. Stainless-steel pipe and fittings gaskets, and gasket joints.
   5. Copper DWV tube, copper drainage fittings, and soldered joints.
      a. Option for Vent Piping, NPS 2-1/2 and NPS 3-1/2: Hard copper tube, Type M; copper pressure fittings; and soldered joints.
   6. Dissimilar Pipe-Material Couplings: Flexible, shielded, nonpressure pipe couplings for joining dissimilar pipe materials with small difference in OD.

E. Aboveground, vent piping NPS 5 and larger shall be any of the following:
   1. Service class, cast-iron soil pipe and fittings; gaskets; and gasket joints.
   2. Hubless cast-iron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.
   3. Steel pipe, drainage fittings, and threaded joints.

F. Underground, soil, waste, and vent piping NPS 4 and smaller shall be any of the following:
   1. Service weight class, cast-iron soil piping; gaskets; and gasket joints.
   2. Hubless cast-iron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.
   3. Stainless-steel pipe and fittings, gaskets, and gasket joints.

G. Underground, soil and waste piping NPS 5 and larger shall be any of the following:
   1. Service weight class, cast-iron soil piping; gaskets; and gasket joints.
   2. Hubless cast-iron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.

H. Aboveground sanitary-sewage force mains NPS 1-1/2 and NPS 2 shall be any of the following:
   1. Hard copper tube, Type DWV; copper pressure fittings; and soldered joints.
   2. Steel pipe, pressure fittings, and threaded joints.

I. Aboveground sanitary-sewage force mains NPS 2-1/2 to NPS 6 shall be any of the following:

1. Hard copper tube, Type DWV; copper pressure fittings; and soldered joints.
2. Steel pipe, pressure fittings, and threaded joints.
3. Grooved-end steel pipe, grooved-joint system fittings and couplings, and grooved joints.

J. Underground sanitary-sewage force mains NPS 4 and smaller shall be any of the following:
1. Hard copper tube, Type DWV; wrought- copper pressure fittings; and soldered joints.
2. Steel pipe, pressure fittings, and threaded joints.
   a. Include grooved-joint system fittings and couplings and grooved joints where indicated.
3. Mechanical-joint, ductile-iron pipe; mechanical-joint, ductile-iron fittings; glands, gaskets, and bolts; and mechanical joints.
   a. Include grooved-joint system fittings and couplings and grooved joints where indicated.
4. Push-on-joint, ductile-iron pipe; push-on-joint ductile-iron fittings; gaskets; and gasket joints.
   a. Include grooved-joint system fittings and couplings and grooved joints where indicated.
5. Pressure pipe couplings, if dissimilar pipe materials or piping with small difference in OD must be joined.

K. Underground sanitary-sewage force mains NPS 5 and larger shall be any of the following:
1. Steel pipe, pressure fittings, and threaded joints.
2. Mechanical-joint, ductile-iron pipe; mechanical-joint, ductile-iron fittings; glands, gaskets, and bolts; and mechanical-joint joints.
3. Push-on-joint, ductile-iron pipe; push-on-joint, ductile-iron fittings; gaskets; and gasket joints.
4. Pressure pipe couplings, if dissimilar pipe materials or piping with small difference in OD must be joined.
5. Hard copper tube, Type DWV; with copper pressure fittings, and soldered joints.

3.3 PIPING INSTALLATION

A. Sanitary sewer piping outside the building is specified in Section 22 13 16 – Sanitary Waste and Vent Piping.

B. Basic piping installation requirements are specified in Section 22 05 00 – Common Work Results for Plumbing.

C. Install seismic restraints on piping. Seismic-restraint devices are specified in Section 22 05 48 – Vibration and Seismic Controls for Plumbing Piping and Equipment.

D. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.

E. Install cleanout fitting with closure plug inside the building in sanitary force-main piping.

F. Install underground, steel, force-main piping. Install encasement on piping according to ASTM A 674 or AWWA C105.

G. Install underground, ductile-iron, force-main piping according to AWWA C600. Install buried piping inside the building between wall and floor penetrations and connection to sanitary sewer piping outside the building with restrained joints. Anchor pipe to wall or floor. Install thrust-block per CPC.
1. Install encasement on piping according to ASTM A 674 or AWWA C105.

H. Install underground, copper, force-main tubing according to CDA's "Copper Tube Handbook".
1. Install encasement on piping according to ASTM A 674 or AWWA C105.

I. Install underground, ductile-iron, special pipe fittings according to AWWA C600.
1. Install encasement on piping according to ASTM A 674 or AWWA C105.

J. Install sleeve with water stop and mechanical sleeve seal at each service pipe penetration through foundation wall. Select number of interlocking rubber links required to make installation watertight. Sleeves and mechanical sleeve seals are specified in Section 22 05 00 – Common Work Results for Plumbing.

K. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook", Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings".
   1. Install encasement on underground piping according to ASTM A 674 or AWWA C105.

L. Make changes in direction and changes in sizes per CPC.

~~M.~~ Lay buried building drainage piping per CPC

N. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:
   1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
   2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
   3. Vent piping: no slope required.

O. Install engineered soil and waste drainage and vent piping systems as follows:
   1. Combination Waste and Vent: Comply with standards of authorities having jurisdiction.
   2. Reduced-Size Venting: Comply with standards of authorities having jurisdiction.

P. Sleeves are not required for cast-iron soil piping passing through concrete slabs-on-grade.

Q. Install ABS soil and waste drainage and vent piping according to ASTM D 2661.

R. Install PVC soil and waste drainage and vent piping according to ASTM D 2665.

S. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

3.4 JOINT CONSTRUCTION

A. Basic piping joint construction requirements are specified in Section 22 05 00 – Common Work Results for Plumbing.

B. Join hub-and-spigot, cast-iron soil piping with gasket joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.

C. Join hub-and-spigot, cast-iron soil piping with calked joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.

D. Join hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-coupling joints. Standard no-hub couplings may be used for venting systems, use 4 band couplings on all waste systems, and 2 band couplings on all vent systems. Use FM 1680 compliant couplings over operating rooms and kitchen prep areas as noted on OSHPD CAN 5-311.9 requirements.

E. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.

F. Grooved Joints: Assemble joint with keyed coupling, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.

G. PVC Nonpressure Piping Joints: Join piping according to ASTM D 2665.

3.5 VALVE INSTALLATION

A. General valve installation requirements are specified in Section 22 05 23 – General-Duty Valves for Plumbing Piping.

B. Shutoff Valves: Install shutoff valve on each sewage pump discharge.
   1. Install gate or full-port ball valve for all pipe sizes.

C. Check Valves: Install swing check valve, between pump and shutoff valve, on each sewage pump discharge.

3.6 HANGER AND SUPPORT INSTALLATION

A. Seismic-restraint devices are specified in Section 22 05 48 – Vibration and Seismic Controls for Plumbing Piping and Equipment.

B. Pipe hangers and supports are specified in Section 22 05 29 – Hangers and Supports for Plumbing Piping and Equipment. Install the following:
   1. Vertical Piping: MSS Type 8 or Type 42, clamps.
   2. Install individual, straight, horizontal piping runs according to the following:
      a. MSS Type 1, adjustable, steel hangers.
   3. Multiple, Straight, Horizontal Piping Runs Support pipe on trapeze hangers.
   4. Base of Vertical Piping: Riser Clamps.

C. Install supports according to Section 22 05 29 – Hangers and Supports for Plumbing Piping and Equipment.

D. Support vertical piping and tubing at base and at each floor.

E. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch minimum rods.

~~F.~~ Install hangers for all piping with the maximum horizontal spacing and minimum rod diameters: Per CPC tables 3-1 and 3-2.

G. Install supports for vertical cast-iron soil piping every 15 feet.

3.7 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.

C. Connect drainage and vent piping to the following:
   1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code.
   2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
   3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code.
   4. Equipment: Connect drainage piping as indicated. Provide shutoff valve, if indicated, and union for each connection. Use flanges instead of unions for connections NPS 2-1/2 and larger.

D. Connect force-main piping as indicated on contract drawing.

3.8 FIELD QUALITY CONTROL

A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
   1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.

2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

D. Test sanitary drainage and vent piping, as follows:
1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
2. Leave uncovered and unconcealed new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
3. Roughing-in Plumbing Test Procedure: Test drainage and vent piping, except outside leaders, on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.
4. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
5. Prepare reports for tests and required corrective action.

E. Test force-main piping, as follows:
1. Leave uncovered and unconcealed new, altered, extended, or replaced force-main piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
2. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.
3. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
4. Prepare reports for tests and required corrective action.

3.9 CLEANING

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

3.10 PROTECTION

A. Exposed Piping: Protect plumbing vents exposed to sunlight with two coats of water-based latex paint.

END OF SECTION

SECTION 22 13 19 SANITARY WASTE PIPING SPECIALTIES

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 the following sanitary drainage piping specialties:
   1. Backwater valves.
   2. Cleanouts.
   3. Floor drains.
   4. Trench drains.
   5. Channel drainage systems.
   6. Air-admittance valves.
   7. Roof flashing assemblies.
   8. Through-penetration fire-stop assemblies.
   9. Miscellaneous sanitary drainage piping specialties.
   10. Flashing materials.

B. Related Sections include the following:
   1. Section 22 43 00 – Healthcare Plumbing Fixtures for plaster sinks interceptors.

1.3 DEFINITIONS

A. ABS: Acrylonitrile-butadiene-styrene plastic.

B. FOG: Fats, oils, and greases.

C. FRP: Fiberglass-reinforced plastic.

D. HDPE: High-density polyethylene plastic.

E. PE: Polyethylene plastic.

F. PP: Polypropylene plastic.

G. PVC: Polyvinyl chloride plastic.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and accessories.

B. Shop Drawings: Show fabrication and installation details for frost-resistant vent terminals.
   1. Wiring Diagrams: Power, signal, and control wiring.

C. Manufacturer Seismic Qualification Certification: Submit certification that, grease interceptors, accessories, and components will withstand seismic forces defined in Section 22 05 48 Vibration and Seismic Controls for Plumbing Piping. 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. Field quality-control test reports.

E. Operation and Maintenance Data: For drainage piping specialties to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

B. 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.

C. Comply with NSF 14, "Plastics Piping Components and Related Materials", for plastic sanitary piping specialty components.

1.6 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 BACKWATER VALVES

A. Horizontal, Cast-Iron Backwater Valves:
1. 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:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
   a. Josam Company; Josam Div.
   b. MIFAB, Inc.
   c. Smith, Jay R. Mfr. Co.; Division of Smith Industries, Inc.
   d. Tyler Pipe; Wade Div.
   e. Watts Drainage Products Inc.
   f. Zurn Plumbing Products Group; Specification Drainage Operation
4. Standard: ASME A112.14.1.
5. Size: Same as connected piping.
6. Body: Cast iron.
7. Cover: Cast iron with bolted access check valve.
8. End Connections: Hub and spigot or hubless.
9. Type Check Valve: Removable, bronze, swing check, factory assembled or field modified to hang open for airflow unless subject to backflow condition.
10. Extension: ASTM A 74, Service class; full-size, cast-iron, soil-pipe extension to field-installed cleanout at floor; replaces backwater valve cover.

B. Drain-Outlet Backwater Valves:
   1. 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:
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Josam Company; Josam Div.
      b. Smith, Jay R. Mfr. Co.; Division of Smith Industries, Inc.
      c. Watts Drainage Products Inc.
      d. Zurn Plumbing Products Group; Specification Drainage Operation
   3. Size: Same as floor drain outlet.
   4. Body: Cast iron or bronze made for vertical installation in bottom outlet of floor drain.
   5. Check Valve: Removable ball float.
   6. Inlet: Threaded.
   7. Outlet: Threaded or spigot.

2.2 CLEANOUTS

A. Exposed Metal Cleanouts:
   1. 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:
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
      a. Josam Company; Josam Div.
      b. MIFAB, Inc.
      c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
      d. Tyler Pipe; Wade Div.
      e. Watts Drainage Products Inc.
      f. Zurn Plumbing Products Group; Specification Drainage Operation
      g. Josam Company; Blucher-Josam Div.
      h. Sioux Chief
   4. Standard: ASME A112.36.2M for cast iron for cleanout test tee.
   5. Size: Same as connected drainage piping
   6. Body Material: Hubless, cast-iron soil pipe test tee as required to match connected piping.
   7. Closure: Countersunk or raised-head, brass plug.
   8. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
   9. Closure: Stainless-steel plug with seal.

B. Metal Floor Cleanouts:
   1. 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:
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
      a. Josam Company; Josam Div.
      b. Oatey.
      c. Sioux Chief Manufacturing Company, Inc.
      d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
      e. Tyler Pipe; Wade Div.
      f. Watts Drainage Products Inc.
      g. Zurn Plumbing Products Group; Light Commercial Operation

h. Zurn Plumbing Products Group; Specification Drainage Operation
i. Josam Company; Josam Div.
j. Kusel Equipment Co.
k. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
l. Josam Company; Blucher-Josam Div.

4. Standard: ASME A112.36.2M for iron ferulle cleanout.
5. Size: Same as connected branch.
6. Type: Threaded, adjustable housing.
7. Body or Ferrule: Cast iron.
8. Clamping Device: Not required.
9. Outlet Connection: Threaded.
10. Closure: Brass plug with straight threads and gasket.
11. Adjustable Housing Material: Cast iron with set-screws or other device.
12. Frame and Cover Material and Finish: Rough bronze.
13. Frame and Cover Shape: Round.
14. Top Loading Classification: Medium Duty.
15. Riser: ASTM A 74, Extra-Heavy class, cast-iron drainage pipe fitting and riser to cleanout.
16. Standard: ASME A112.3.1.
17. Size: Same as connected branch.
18. Housing: Stainless steel.
19. Closure: Stainless steel with seal.
20. Riser: Stainless-steel drainage pipe fitting to cleanout.

C. Cast-Iron Wall Cleanouts:

1. 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:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
   a. Josam Company; Josam Div.
   b. MIFAB, Inc.
   c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
   d. Tyler Pipe; Wade Div.
   e. Watts Drainage Products Inc.
   f. Zurn Plumbing Products Group; Specification Drainage Operation
   g. Sioux Chief
   h. Holdrite
4. Standard: ASME A112.36.2M. Include wall access.
5. Size: Same as connected drainage piping.
6. Body: Hubless, cast-iron soil pipe test tee as required to match connected piping.
7. Closure: Countersunk or raised-head, drilled-and-threaded plug.
8. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
9. Wall Access: Round, flat, chrome-plated brass or stainless-steel cover plate with screw.
10. Wall Access: Round stainless-steel wall-installation frame and cover.

D. Plastic Floor Cleanouts:

1. 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:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Canplas LLC.
   b. IPS Corporation
   c. NDS Inc.

d. Plastic Oddities; a division of Diverse Corporate Technologies
e. Sioux Chief Manufacturing Company, Inc.
f. Zurn Plumbing Products Group; Light Commercial Operation
3. Size: Same as connected branch.
4. Body: PVC.
5. Closure Plug: PVC.
6. Riser: Drainage pipefitting and riser to cleanout of same material as drainage piping.

2.3 FLOOR DRAINS

A. Cast-Iron Floor Drains:
1. 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:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
a. Commercial Enameling Co.
b. Josam Company; Josam Div.
c. MIFAB, Inc.
d. Prier Products, Inc.
e. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
f. Tyler Pipe; Wade Div.
g. Watts Drainage Products Inc.
h. Zurn Plumbing Products Group; Light Commercial Operation
i. Zurn Plumbing Products Group; Specification Drainage Operation
j. Sioux Chief
4. Standard: ASME A112.6.3.
5. Pattern: Floor drain.
6. Body Material: Gray iron.
7. Seepage Flange: Required.
8. Anchor Flange: Required.
9. Clamping Device: Not required.
10. Outlet: Bottom.
11. Coating on Interior and Exposed Exterior Surfaces: Acid-resistant enamel.
12. Sediment Bucket: Not required
13. Top or Strainer Material: Nickel bronze.
14. Top of Body and Strainer Finish: Nickel bronze.
15. Top Shape: Round.
16. Dimensions of Top or Strainer: 4 inches.
17. Top Loading Classification: Standard Medium Duty.
18. Funnel: Not required.
19. Inlet Fitting: Gray iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.
20. Trap Material: Cast iron.
21. Trap Pattern: Standard P-trap.
22. Trap Features: Not required.

2.4 TRENCH DRAINS

A. Trench Drains:
1. 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:

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings] or a comparable product by one of the following:
   a. Josam Company; Josam Div.
   b. MIFAB, Inc.
   c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
   d. Tyler Pipe; Wade Div.
   e. Watts Drainage Products Inc.
   f. Zurn Plumbing Products Group; Specification Drainage Operation
4. Standard: ASME A112.6.3 for trench drains.
5. Material: Ductile or gray iron.
6. Flange: Anchor.
7. Clamping Device: Required.
8. Outlet: Bottom.
9. Grate Material: Stainless steel.
10. Grate Finish: Not required.
11. Dimensions of Frame and Grate: Insert dimensions and describe body, sump, and grate if required. See drawing schedules.
12. Top Loading Classification: Extra Heavy-Duty.

2.5 THROUGH-PENETRATION FIRESTOP ASSEMBLIES

A. Through-Penetration Fire-stop Assemblies:
   1. 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:
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. HILTI
      b. Pro-Set Systems Inc.
      c. 3M Products
   3. Install per UL assemblies.

2.6 MISCELLANEOUS SANITARY DRAINAGE PIPING SPECIALTIES

A. Open Drains:
   1. Description: Shop or field fabricate from ASTM A 74, Service class, hub-and-spigot, cast-iron, soil-pipe fittings. Include P-trap, hub-and-spigot riser section; and where required, increaser fitting joined with ASTM C 564, rubber gaskets.
   2. Size: Same as connected waste piping with increaser fitting of size indicated].

B. Deep-Seal Traps:
   1. Description: Cast-iron or bronze casting, with inlet and outlet matching connected piping and cleanout trap-seal primer valve connection.
   2. Size: Same as connected waste piping.
      a. NPS 2: 4 inch-minimum water seal.
      b. NPS 2-1/2 and Larger: 5 inch-minimum water seal.

C. Floor-Drain, Trap-Seal Primer Fittings:
   1. Description: Cast iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.
   2. Size: Same as floor drain outlet with NPS 1/2 side inlet.
   3. Floor drain with tapped body for primer.
   4. P-trap with tap for primer.

D. Air-Gap Fittings:
   1. Standard: ASME A112.1.2, for fitting designed to ensure fixed, positive air gap between installed inlet and outlet piping.
   2. Body: Bronze or cast iron.
   3. Inlet: Opening in top of body.
   4. Outlet: Larger than inlet.
   5. Size: Same as connected waste piping and with inlet large enough for associated indirect waste piping.

E. Expansion Joints: to conform to operating system
   1. Standard: ASME A112.21.2M.
   2. Body: Cast iron with bronze sleeve, packing, and gland.
   3. End Connections: Matching connected piping.
   4. Size: Same as connected soil, waste, or vent piping.

2.7 FLASHING MATERIALS

A. Lead Sheet: ASTM B 749, Type L51121, copper bearing, with the following minimum weights and thicknesses, unless otherwise indicated:
   1. General Use: 4.0-lb/sq. ft., 0.0625-inch thickness.
   2. Vent Pipe Flashing: 3.0-lb/sq. ft., 0.0469-inch thickness.
   3. Burning: 6-lb/sq. ft., 0.0938-inch thickness.

B. Elastic Membrane Sheet: ASTM D 4068, flexible, chlorinated polyethylene, 40-mil minimum thickness.

C. Fasteners: Metal compatible with material and substrate being fastened.

D. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.

2.8 NOT USED

PART 3 - EXECUTION

3.1 CONCRETE BASES OR DEADMEN

A. Anchor grease interceptors to concrete bases.
   1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 19 inch centers around full perimeter of base.
   2. For installed equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
   3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be imbedded.
   4. Install anchor bolts to elevations required for proper attachment to supported equipment.
   5. Concrete base construction requirements are specified in Section 22 05 00 – Common Work Results for Plumbing.
   6. Cast-in-place concrete materials and placement requirements are specified in Division 03.

B. Anchor grease interceptor to deadmen concrete platform as per manufacturer recommendation, but not limited to structural Engineer recommendation.

3.2 INSTALLATION

A. Refer to Section 22 05 00 – Common Work Results for Plumbing for piping joining materials, joint construction, and basic installation requirements.

B. Install backwater valves in building drain piping. For interior installation, provide cleanout deck plate flush with floor and centered over backwater valve cover, and of adequate size to remove valve cover for servicing.

C. Install cleanouts in aboveground piping and building drain piping per CPC.

D. For floor cleanouts for piping below floors, install cleanout with top flush with finished floor.

E. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.

F. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.
   1. Position floor drains for easy access and maintenance.
   2. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:
      a. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.
      b. Radius, 30 to 60 Inches: Equivalent to 1 percent slope.
      c. Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1 inch total depression.
   3. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
   4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.

G. Install trench drains at low points of surface areas to be drained. Set grates of drains flush with finished surface, unless otherwise indicated.

H. Assemble and install ASME A112.3.1, stainless-steel channel drainage systems according to ASME A112.3.1. Install on support devices so that top will be flush with surface.

I. Assemble non-ASME A112.3.1, stainless-steel channel drainage system components according to manufacturer's written instructions. Install on support devices so that top will be flush with adjacent surface.

J. Assemble FRP channel drainage system components according to manufacturer's written instructions. Install on support devices so that top will be flush with adjacent surface.

K. Assemble plastic channel drainage system components according to manufacturer's written instructions. Install on support devices so that top will be flush with adjacent surface.

L. Install roof flashing on sanitary stack vents and vent stacks that extend through roof.

M. Assemble open drain fittings and install with top of hub 1 inch above floor.

N. Install deep-seal traps on floor drains and other waste outlets, if indicated.

O. Install floor-drain, trap-seal primer fittings on inlet to floor drains that require trap-seal primer connection.
   1. Exception: Fitting may be omitted if trap has trap-seal primer connection.
   2. Size: Same as floor drain inlet.

P. Install air-gap fittings on draining-type backflow preventers and on indirect-waste piping discharge into sanitary drainage system.

Q. Install solids interceptors with cleanout immediately downstream from interceptors that do not have integral cleanout on outlet. Install trap on interceptors that do not have integral trap and are connected to sanitary drainage and vent systems.

R. Install traps per CPC, on plumbing specialty drain outlets.

S. Install escutcheons at wall, penetrations in exposed finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding pipe fittings.

3.3 CONNECTIONS

A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment to allow service and maintenance.

C. Grease Interceptors: Connect inlet and outlet to unit, and connect vent to outlet piping.

D. Ground equipment according to Division 26 Section 26 05 26 – Grounding and Bonding.

E. Connect wiring according to Division 26 Section 26 05 13 – Medium-Voltage Cable.

3.4 FLASHING INSTALLATION

A. Fabricate flashing from single piece unless large pans, sumps, or other drainage shapes are required. Join flashing according to the following if required:

1. Lead Sheets: Burn joints of lead sheets 6.0-lb/sq. ft., 0.0938-inch thickness or thicker. Solder joints of lead sheets 4.0-lb/sq. ft., 0.0625-inch thickness or thinner.

B. Install sheet flashing on pipes, sleeves, and specialties passing through roofs with waterproof membrane.

1. Pipe Flashing: Sleeve type, matching pipe size, with minimum length of 10 inches, and skirt or flange extending at least 8 inches around pipe.
2. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 inches around sleeve.
3. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 inches around specialty.

C. Set flashing on roofs.

D. Install flashing for piping passing through roofs according to Division 07 Section 07 62 00 – Sheet Metal Flashing and Trim.

E. Extend flashing up vent pipe passing through roofs, or secure flashing into cast-iron sleeve having calking recess.

F. Fabricate and install flashing and pans, sumps, and other drainage shapes.

3.5 LABELING AND IDENTIFYING

A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:

1. FOG disposal systems.
2. Grease interceptors.
3. Grease removal devices.
4. Oil interceptors.
5. Solids interceptors.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.
   1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled grease interceptor and their installation, including piping and electrical connections, and to assist in testing.

B. Tests and Inspections:
   1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
   2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.7 PROTECTION

A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain grease interception. Refer to Division 01 Section 01 91 13 – General Commissioning Requirements.

END OF SECTION

SECTION 23 05 00 COMMON WORK RESULTS FOR HVAC

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 DESCRIPTION

A. The requirements of this Section apply to all the Work Ventilating and Air Conditioning of Division 23 Heating.

B. Provide a complete working installation with all equipment called for in proper operating condition. Documents do not undertake to show or list every item to be provided. When an item not shown or listed is clearly necessary for proper operation of equipment that is shown or listed, provide an item that will allow the system to function properly.

1.3 RELATED WORK SPECIFIED ELSEWHERE:

A. Concrete, except as part of an inertia base. See Division 03 Section 03 30 00 – Cast-in-Place Concrete.

B. Wall Louvers with Bird Screens: See Division 08 Section 08 91 00 - Metal Wall Louvers.

C. Electrical (except as specifically indicated): See Division 26 Electrical.

D. Painting (except as specifically indicated): See Division 09 Section 09 90 00 – Painting.

E. Structural steel (excepts as specified herein): See Division 05 Section 05 12 00 - Structural Steel.

F. Power conduit and wiring for HVAC (except as specified herein): See Division 26 Electrical.

G. Architectural access doors: See Division 08 Section 0g 31 13 -Access Doors.

H. Building fire stopping and smoke seals: See Division 07 Section 08 31 13 **–**Firestopping.

1.4 QUALITY ASSURANCE

A. Requirement of Regulatory Agencies:
   1. In accordance with the requirement of Division 01.
   2. Nothing in the Drawings or Specifications shall be construed to permit work not conforming to applicable laws, ordinances, rules or regulations.
   3. When Drawings or Specifications exceed requirements of applicable laws, ordinances, rules or regulations, Drawings and Specifications take precedence.
   4. It is not the intent of Drawings and Specifications to repeat requirements of codes except where necessary for completeness or clarity.
   5. Seismic construction and restraints: In accordance with requirements of Title 17 and Title 24 of California Administrative Code. All equipment mounts, isolators, and hanging systems must meet OSHPD approval requirements.
   6. Comply with the Safety Orders issued by CAL-OSHA and any other safety, health or environmental regulations of the State of California and any districts having jurisdictional authority. Where an omission or conflict appears between CAL-OSHA requirements and the Drawings and Specifications, CAL-OSHA requirements shall take precedence.
   7. If any of the requirements of the above are in conflict with one another, or with the requirements of these specifications, the most stringent requirements shall govern.

8. CMC - California Mechanical Code.
9. CPC - California Plumbing Code.
10. CBC - California Building Code
11. Comply with all applicable requirement of California Code of regulations, including Titles 8, 17, 19, 20, 21, 22 and 24.

B. Reference Standards:
1. AABC - Associated Air Balance Council
2. AGA - American Gas Standard
3. AMCA - Air Moving and Conditioning Association
4. ANSI -American National Standards Institute a. 413.1 Scheme for Identification of piping Systems
5. ARI - Air Conditioning and Refrigeration Institute
6. ASC - Adhesive and Sealant Council
7. ASHRAE - American Society of Heating, Refrigerating and Air Conditioning Engineers
8. ASME - American Society of Mechanical Engineers
9. ASSE - American Society of Sanitary Engineering
10. ASTM - American Society for Testing and Materials
11. AMWVA - American Water Works Association
12. AWS - American Welding Society
13. Hydraulic Institute
14. NBS - National Bureau of Standards
15. NEBB - National Environmental Balancing Bureau
16. NEC - National Electric Code
17. NEMA- National Electrical Manufacturers' Association
18. NFPA - National Fire Protection Association
19. OSHPD - Office of Statewide Health Planning and Development
20. PDI - Plumbing and Drainage Institute.
21. SMACNA - Sheet Metal and Air Conditioning Contractors National Association
22. UL - Underwriters Laboratories
23. General Industry Safety Orders a. Article 3281

C. All Base Materials: Comply with standard of ASTM and ANSI.

D. All Gas Fired Devices: Comply with standards and bear label of AGA.

E. All Pressure Vessels, Relief Valves, Safety Relief Valves and Safety Valves: Comply with standards, ASME stamped.

F. All Electrical Devices and Wiring: Conform to standards of NEC. All devices: UL listed and identified.

G. Applicator (Erector) Qualifications:
1. All equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
2. All equipment and accessories new, free from defects.
3. Supply all equipment and accessories in compliance with the applicable standards listed in this Section and with all applicable national, state and local codes.
4. All items of a given type shall be the product of the same manufacturer.
5. Electrical equipment: Listed by UL and bearing their label.

1.5 SUBMITTALS

A. General:

1. Submit Shop Drawings, penetration location, supplemental data, for all materials, equipment in all Sections of the Division 23 HVAC and in accordance with the requirement of Division 01 Section 01 30 00 –Administrative Requirements. Forward all submittals to Owner's Representative together, at one time.
2. Individual or incomplete submittals are not acceptable and will be returned without review. Contractor is responsible for any resultant consequence.
3. Identify each item by manufacturer, brand, trade name, number, size, rating, or whatever other data is necessary to properly identify and check materials and equipment. Words "as specified" are not sufficient identification.
4. Identify each submittal item by reference to Specification Section paragraph in which item is specified or Drawing and Detail number. Mark identification numbers appearing on the equipment schedule.
5. Organize submittals in same sequence as they appear in specification sections, articles of paragraphs.
6. Shop Drawings shall show physical arrangement, construction details, finishes, materials used in fabrications, provisions for piping entrance, access requirements for installation and maintenance, physical size, mechanical characteristics, foundation and support details, weight.
   a. Specifically indicate, by drawn detail or note, that equipment Complies with each specifically stated requirement of the Contract Documents.
   b. Draw Drawings to scale and dimension (except piping diagrams Not to scale), may be prepared by vendor but submit as Instruments of Contractor, thoroughly check and stamp by Contractor before submission to Owner's Representative for Review.
   c. Catalog cuts and published material may be included to Supplement scale drawings.

B. Binders: Prepare submittal material in accordance with the following and Section 01 30 00 - Administrative Requirements:
   1. Insert all literature in standard 3-ring binders tor 8-1/2 inch by 11 inch pages with individual tabs. Do not staple literature on different products together.
   2. Number all binders on the outside of the cover and indicate the specification section. Mark binder no. 1 Architect's copy and no. 2 Engineer's copy. Both these binders shall contain original manufacture’s literature.
   3. Provide an index with each binder. This index shall follow the same sequence as the Specifications.

C. Submittal literature, drawings and wiring diagrams shall be specifically applicable to this project and shall not contain extraneous material or optional choices. clearly mark literature to indicate the proposed item. Submittals shall include, but not be limited to those items listed in individual Sections.

D. Substitutions: In accordance with Division 01 Section 01 30 00 – Administrative Requirements.

E. Resubmittals will be reviewed for compliance with comment made on the original submittal only. Clearly identify replies to comments. Mark with resubmittal number and date.

F. Coordination Shop Drawings:
   1. Comply with the requirements of Division 01 Section 01 30 00 - Administrative Requirements. Prepare and submit for review coordination drawings where work by separate entities requires fabrication of products and materials which must accurately interface or for which space provided is limited. Coordination drawings shall indicate how the work will interface and installation will be sequenced. It is the intent of this provision to find, bring forth, and resolve potential constructability problems prior to actual construction, thereby allowing for the resolution of issues before construction cost and schedule are impacted. Sheet metal contractor maybe assigned to be the lead of the coordination.

2. Coordinating contractor (Division 23 Mechanical) will oversee preparation of coordination drawings, assign priority space and bring to the attention of the Architect any conflicts or interferences of an unresolved nature found during preparation of coordination drawings to expedite conflict or interferences and submit solutions/recommendations for approval review.
3. Drawings: Shop drawings shall include but are not necessarily limited to the following:
   a. Submit 1/4" = 1'-0" minimum scale, a combined, comprehensive mechanical and electrical systems coordination drawing. Coordination drawing shall include all ductwork, mechanical piping, plumbing, electrical, sprinkler systems, and ceiling systems overlaid on structural frame.
   b. Criteria: Ductwork, mechanical piping, plumbing, electrical, and sprinkler system components shall be sized as shown on Drawings. Seismic restraints shall be shown where required on systems nonconforming M/E work installed within designated coordination areas is subject to removal and replacement by the installing contractor at no additional cost to Owner.
4. Coordination drawings shall be signed and dated by individual trade contractors. By act of signature and submittal of singular combined coordination drawing, each trade contractor acknowledges their coordinated portion of the work with all other mechanical, electrical, architectural, and structural work contractors.
5. After completion of coordination shop drawings signed by individual trade contractors. Submit copies to Engineer for records and provide at the job site for reference. No work will be performed without the complete coordination shop drawings.
6. No request of information will be reviewed and responded without a complete shop drawing regarding the routing of pipes, ductwork and Placement of equipment.
7. Refer to Division 01 Section 01 30 00 - Administrative Requirements, for requirements not indicated in this Section.
8. Review is not intended to verify dimensions or quantities, or to coordinate items shown on these Drawings. Review is for general conformance with design concept of the Project and general compliance with the information given in the Contract Documents. Contractor is responsible for dimensions, which shall be confirmed and correlated at the Jobsite, for fabrication processes and techniques or construction, for coordination of his Work with that of all other trades and the satisfactory performance of is work.

G. Testing and Balancing Review: Coordinate Shop Drawings to include any additional components for proper system testing and balancing.

H. Certificates: Submit final inspection certificates signed by governing authorities.

I. Commissioning Plan and Check Lists: Submit commissioning plan(s) and checklists per requirements of Division 01 Section 01 91 13 General Commissioning Requirements. See section 23 08 00 - Mechanical systems commissioning.

J. The requirements of Division 01 Section 01 70 00 - Execution Requirements and as follows:
   1. Subsequent to completion of balancing, testing operations, this Division is responsible for instructing the Owner's representatives in all aspects of operation, adjustment and maintenance of mechanical plant and other mechanical equipment. Submit three copies of certificate, signed by owners Representative, attesting to their having been instructed.
   2. Instructions on major items such as pumps, fans, air handlers, AC units, and temperature control shall be by representative of manufacturer of respective equipment.
   3. Six months before Owner's personnel assume operation of systems, submit eight sets of operating and maintenance instructions and manuals including the following:
      a. Names, addresses and phone numbers of contractors and subcontractors.
      b. Complete operating and maintenance instructions and parts lists of all equipment and component parts. Data sheets to show complete internal wiring, mechanical and electrical ratings and characteristics, catalog data on component parts.

1) Where data sheets included in manual cover equipment, options, or other features not part of equipment actually furnished, line out these references or otherwise clearly mark so remaining text, diagrams, drawings, schedules, and similar information shall apply specifically to equipment furnished.

c. A lubrication chart listing each item of equipment, all points of lubrication, proper lubricant, dates lubricated, and lubrication schedule.
d. Balancing reports.
e. Submit drafts of instruction sheets to Owner's Representative for review before preparing final sets.

4. Provide full size copies of Record one-line system flow diagrams. Provide three control diagrams, suitably framed, with glass front. Diagrams shall show complete equipment, controls, model numbers, etc., marked to correspond to identification on equipment.

K. Letters from manufacturers certifying their supervision of equipment installation and start-up procedures.

L. Test certificates.

M. Instruction certificates.

N. Fire Marshal and/or Fire Department approvals of system.

O. Final inspection certificate signed by governing authorities.

P. Piping mechanical grooved joint instruction certification.

Q. Others as specified herein and as required.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver equipment in its original package to prevent damage or entrance of foreign matter. Perform all handling and shipping in accordance with manufacturer's recommendations. Provide protective coverings during construction.

B. Identify materials and equipment delivered to Site to permit check against approved materials list, reviewed Shop Drawings.

C. Protect from loss or damage. Replace lost or damaged materials and equipment with new at no increase in Contract Sum.

D. Deliver ductwork to site in accordance with SMACNA publication - "duct cleanliness for new construction-advance level".

1.7 JOB CONDITIONS

A. In accordance with Division 01 Section 01 10 00 - Summary of Work and the following.

B. Specifications and Drawings:

1. In case of conflict, the most stringent takes precedence.
2. For purposes of clarity, legibility, Drawings are essentially diagrammatic to extent that many offsets, bends, unions, special fittings, exact locations of items are not indicated, unless specifically dimensioned. Especially note a number of required duct and pipe offsets to coordinate with structure and not shown. Coordinate dimensioned conditions, including invert elevations, with other trades prior to installation by any trade.
3. Exact routing of piping, ductwork, etc. shall be governed by structural conditions, obstructions. Make use of data in Contract Documents. In addition, Owner's Representative reserves right to make any reasonable change in location of mechanical items, exposed at ceiling or on walls, to group them into orderly relationships or increase their utility. Contractor to verify Owner's requirements in this regard prior to roughing-in.

4. Take dimensions, location of doors, partitions, similar physical features from Architectural Drawings. Verify at Site under this Division. Consult architectural Drawings for exact location of outlets to center with Architectural features, panels, etc., at the approximate location shown on mechanical Drawings.
5. Mounting heights of brackets, outlets, etc., as required.

C. Coordination
1. Work out all "tight" conditions involving Work under this Division and Work in other Divisions in advance of installation. If necessary, and before Work proceeds in these areas, prepare supplementary Drawings under this Division for review showing all Work in congested area. Provide supplementary Drawings, additional Work necessary to overcome congested conditions, at no increase in Contract Sum.
2. Difference or disputes concerning coordination, interference or extent of Work between sections shall be decided by Contractor, his decision, if consistent with Contract Document requirements, shall be final.
3. Coordinate electrical interlocks of mechanical equipment with Division 26 Electrical.
4. Provide templates, information and instructions to other Divisions to properly locate holes and openings to be cut or provided.
5. Not all offsets in ductwork or piping are shown. Contractor shall decide which item to offset or relocate. Maintain required slope in piping.

D. Large Scale Layout Drawings: In accordance with requirements of Division 01 Section 01 70 00 - Execution Requirements, prepare large scale detailed layout drawings showing locations of equipment, piping runs, ductwork, and all other elements of mechanical systems provided under this Division. Include sections of all "tight" areas to show relative position and spacing of affected elements.

E. Equipment Rough-In:
1. Rough-in locations' shown on Mechanical Drawings for equipment furnished by Owner and for equipment furnished under other Divisions are approximate only. Obtain exact rough-in locations from following sources:
   a. From Shop Drawings for Contractor furnished and installed equipment.
   b. From Owner's Representative for Owner furnished-Contractor installed equipment.
   c. From existing equipment where such equipment is relocated under this Contract.
2. Verify mechanical characteristics of equipment before starting rough-in. Where conflict exists between equipment and rough-in shown on drawings obtain clarification from Owner's Representative and provide as directed at no increase in Contract Sum.
3. Make final connections.

F. Site Examination:
1. Examine site carefully and compare to Drawings. Call any discrepancies to attention of owner's Representative during bidding period.

G. Review of Construction:
1. Work may be reviewed at any time by owner's Representative.
2. Advise Owner's Representative that work is ready for review at following times. Provide at least three days' notice for Owner's Representative review.
   a. Prior to backfilling buried work.
   b. Prior to concealment of work in walls and above ceilings.
   c. When all requirements of the contract have been completed.
3. Neither backfill nor conceal work without Owner Representative consent.
4. Maintain on, job a set of Specifications and drawings for use by owner Representative.

5. Owner's Representative will assist with field review of construction, will inform the Owner regarding progress and problems related to construction, and will endeavor to guard Owner against defective materials and faulty workmanship. Owner's Representative reviews will be periodic, depending upon nature of construction. Owner's Representative is not required to perform extensive or continuous inspection, is not responsible for execution of Contract Documents by Contractor, nor is he responsible for construction methods, sequences, or safety precautions.

H. Schedule of Work;
   1. In accordance with Division 01 Section 01 30 00 - Administrative Requirements and as follows:
   2. Arrange work to conform to schedule of construction established or required to comply with Contract Documents.
   3. In scheduling, anticipate means of installing equipment through available openings in structure.
   4. Before making connections or doing any work which will interrupt existing services, notify-Owner, in writing, in advance and advise duration of interruption; perform such. Work as quickly as possible and only at such times designated by Owner, refer to General Conditions.

1.8 WARRANTY

A. In accordance with Division 01 Section 01 70 00 - Execution Requirements and as follows.

B. Warranty all materials, equipment, apparatus and workmanship to be free of defective materials and faulty workmanship for a period of one year from date of filing of Notice of Completion.

C. Provide new materials, equipment, apparatus and labor to replace that determined by Owner's Representative to be defective or faulty.

D. This guarantee also applies to start up services including Instructions, Adjusting,Testing, Noise, Balancing, etc.

E. Furnish Manufacturers' standard Warranties in excess of one year. Manufacturer's warranty shall include parts and labor. Refer equipment specifications for warranty period.

1.9 PROJECT RECORD DOCUMENTS

A. In accordance with Division 01 Section 01 70 00 - Execution Requirements and as follows.

B. Keep up-to-date during progress of job, one set of reproducible and erasable transparencies of Mechanical Drawings indicating the Record installation. In Addition to changes made during course of Work, show following by dimension from readily obtained base lines.
   1. Exact location, type, and function of concealed valves, dampers, and controllers.
   2. Exact size, invert elevations and location of underground and under floor piping and ducts.

C. Progress drawing set to be available for inspection by Owner's Representative or Construction Manager weekly.

D. Submit completed Drawings to Owner's Representative.

1.10 SERVICING

A. A manufacturer's representative and adequate maintenance facilities in the area are required to ensure prompt servicing of all equipment installed.

PART 2 PRODUCTS

2.1 MATERIALS

A. Identify materials, equipment by manufacturer's name, nameplate data. Remove unidentified materials, equipment from Site.

B. Equipment specified by manufacturer's number shall include all accessories, controls, etc., listed in catalog as standard with equipment. Furnish optional or additional accessories as specified.

C. Where no specific make of material or equipment is mentioned, any first class product of reputable manufacturer may be used, provided it conforms to requirements of system and meets with acceptance.

D. Equipment, material damaged during transportation, installation, operation is considered as totally damaged. Replace with new. Variance from this permitted only with written acceptance.

E. Provide an authorized representative to constantly supervise Work of this Division, check all materials prior to installation for conformance with Drawings, Specifications, and reviewed Shop Drawings.

F. Equipment shall be as described in the respective Sections of Division 23 HVAC and as shown.

G. All items of materials in each category of equipment shall be of one manufacturer.

H. Access Doors: Furnish under this Division where shown, or required by Regulatory Agencies and for access of all concealed valves, unions, fire dampers, etc., even though access doors are not shown for Mechanical Work. Doors shall be in accordance with requirements of Division 08 Section 08 31 13 -Access Doors. Doors shall all be from same manufacturer for identical appearance and keying. Sizes: 24 inches by 24 inches minimum for ceilings, where size allows, and 12 inches by 12 inches minimum for walls. Furnish fire rated doors where required. Mark each door to accurately establish its location.

I. Conform with conditions shown and specified. Coordinate with other trades for best possible assembly of combined Work. Relocate equipment when necessitated by failures to coordinate Work or to advise Owner's Representative of conflicts in writing.

J. Use printed descriptions, specifications and recommendations of manufacturers as a guide for installation of Work.

K. Design of mechanical systems is generally based on product of one of the manufacturers cited. Where systems for product installed necessitates modification of systems shown on plans, Contractor is responsible for installation of systems appropriate to product installed.

L. Material and Equipment-General Requirements:

1. In accordance with Division 01 Section 01 60 00 - Product Requirements.
2. Approved for use by State Fire Marshal and local building inspection department when applicable.
3. Testing agency labeled or with other identification wherever standards have been established.
4. Owner's Representative reserves right to reject items not in accordance with Specification either before or after installation.
5. Comprised to render complete and operable systems; provide additional items needed to complete installation to realized design.
6. Compatible with space allocated. Modifications necessary to adjust items to space limitations at Contractor's expense.
7. Installed fully operating and without objectionable noise or vibration.

M. Electrical Requirements:

1. Electrical Work in this Division shall conform to requirements of Division 26 Electrical.
2. Motor Starters and Variable Frequency Drives (VFD's): Provide starters or VFD as shown or specified built into the control panel for all equipment with package controls or where shown or specified. Starters shall conform to the requirements of Division 26 Electrical. Motors shall conform to Section 23 05 13 - Common Motor Requirements for HVAC Equipment.
3. Disconnects: Except for disconnects factory mounted on mechanical equipment, or in combination starters, motor disconnects are specified in Division 26.
4. Power wiring: Except for factory wiring on mechanical equipment, power wiring s specified in Division 26 Electrical. Factory wire all equipment to a single point of connection except where shown or otherwise specified.
5. HVAC control wiring: Provide control conduit and wiring for all field wired HVAC controls.
6. Fire protection system wiring: See Division 26 Electrical.
7. Where Drawings clearly and explicitly differ from the two preceding wiring paragraphs, Drawings have precedence.
8. Provide controls, controllers, relays, transformers, switches, and all other electrical components required for complete functioning systems and equipment.
9. Factory wired assemblies and panels: Provide prewired assemblies with numbered terminal strips for connection to field wiring.
10. Provide disconnect switch for each control circuit connection to prewired assemblies and control panels.
11. Provide approved wiring diagrams for work to be connected under Division 26 Electrical.
12. Provide weatherproof devices and installation for out-of-doors work.

2.2 SPECIAL TOOLS

A. Motors: Provide motors for equipment specified. Coordinate voltages, wiring and starter requirements with division 26 Electrical.

B. Furnish to Owner the following:
   1. One set of any special tools required to operate, adjust, dismantle or repair any equipment of this Division. "Special Tools" means those not normally found in possession of mechanics or maintenance personnel.
   2. One pressure grease gun for each type of grease required, complete with adaptors to fit all lubricating fittings on equipment.

2.3 NOT USED

2.4 NOT USED

2.5 NOT USED

PART 3 EXECUTION

3.0 INSPECTION

A. Verify that conditions are satisfactory for the installation of materials and equipment. Notify Owner's Representative if conditions are not satisfactory and do not commence work until conditions have been corrected.

3.1 INSTALLATION

A. Install materials and equipment in compliance with governing codes.

B. Manufacturers' Directions: Follow in all cases where manufacturers' of articles used furnish directions covering points not specified or shown.

C. Assemble equipment, which is required to be field assembled, per manufacturer's written directions. Prior to the final acceptance submit letters from the manufacturers that the work conforms to the manufacturer's written directions.

D. Equipment: Accurately set and level with supports neatly placed and properly fastened. Properly fasten equipment in place with bolts to prevent movement in earthquake. No allowance of any kind will be made for negligence on part of

E. Contractor to foresee means of bringing in, installing equipment into position inside building. Piping or Ductwork Systems: As specified in other Section of this Division.

F. Electrical:
   1. Install wiring in conduit at exposed locations; provide conduit.
   2. Install electrical devices with code required clearances and access.
   3. All electrical work shall meet the requirements of Division 26 Electrical.

G. Concrete: In accordance with the requirements of Division 03 Section 03 30 00 - Cast in-Place Concrete.

H. Sleeves, Chases and Concrete Inserts:
   1. Division 23 HVAC shall provide all required sleeves, chases, concrete inserts, anchor bolts, etc., be responsible for correct location, installation of same.
   2. Sleeves, chases are prohibited in structural members, except where shown or as directed by Owner's Representative in writing.
   3. Embed no piping in concrete or masonry.
   4. Locate and size openings for ductwork through walls, roof, etc., under this Division. Framing of openings provided by respective Divisions in whose Work opening is made.

I. Cutting and Repairing:
   1. Do cutting, repairing, including structural reinforcing, necessary for Work under this Division. See Division 01 Section 01 70 00 - Execution Requirements.
   2. Do no cutting or patching without Owner's Representative review. Repair damage done by this cutting equal to 'original condition in Owner's Representative opinion.
   3. Assume responsibility for damage to any part of premises or Work of other Divisions, caused by leaks or breaks in piping or equipment furnished or installed under this Division during construction and guarantee/warranty period.

J. Signs, Labels and Identification for Ductwork, Piping, Equipment and Valves: 1. Refer to Specification Section 23 05 53 - Identification for HVAC Piping and Equipment.

K. Vibration and Seismic Control:
   1. Coordinate with Division 01.
   2. Design criteria and extent of bracing, anchorage, etc., for all the Work of Division 23 HVAC are specified in Section 23 05 48 - Mechanical Sound, V Vibration and Seismic Control.

L. Carpentry, Cutting and Patching:
   1. In accordance with Division 01 Section 01 70 00 - Execution Requirements, and as follows.
   2. Provide all sleeving, core drilling, carpentry, cutting and patching required for proper installation of material and equipment specified in this Division.
   3. Do not cut or drill structural members without consent of Owner's Representative.
   4. Core drill existing floors and walls as required for this installation Verify location of all core drills with structural engineer prior to execution.

M. Temporary Service:

1. In accordance with Division 01 Section 01 50 00 - Temporary Facilities and Controls, and as follows.
2. Provide when any existing services are interrupted in connection with Work of this Section beyond the period of time acceptable and approved by the Owner's Representative.

N. Concrete Equipment Bases:
1. Locate and size concrete base for all equipment located on concrete floors. Base: 4 inches high and extending 6 inches beyond edge of equipment base unless indicated otherwise.
2. Coordinate concrete bases; concrete is specified in Division 03 Section 03 30 00- Cast-in-Place Concrete.

O. Waterproof Construction:
1. Maintain waterproof integrity of penetrations of materials intended to be waterproof. Provide flashings at exterior wall and roof penetrations. Caulk watertight penetrations of foundation walls and floors. Provide membrane clamps at penetrations of waterproof membranes.
2. Provide galvanized sheet metal weather protection canopies, hoods or enclosures over all out-of-doors equipment, the operation or maintenance of which would be impaired by rain water, where indicated on drawings. This requirement applies to damper operators and bearing, damper motors, controls, and instruments. See other paragraphs in this Division for application of this requirement to motors, drive, ducts, and fans.

P. Protection of Materials:
1. In accordance with Division 01 Section 01 60 00 - Product Requirements.
2. Protect from damage, water, dust, etc., material, equipment and apparatus provided under this Division, both in storage and installed, until Notice of Completion has been filed. Provide temporary storage facilities for material and equipment. Material, equipment or apparatus damaged because of improper storage or protection will be rejected. Removed from Site and provide new, duplicate material, equipment or apparatus in replacement of that rejected.
3. Completely cover motors and other moving machinery to protect from dirt and water during construction.
4. Cap all openings in pipe and ductwork daily to protect against entry by foreign matter.
5. Protect premises and Work of other Divisions from damage arising out of installation of Work of this Division.
6. Perform Work in manner precluding unnecessary fire hazard.

Q. Restoration of Damage:
1. Repair or replace, as directed by Owner's Representative, materials and parts of premises that become damaged as result of installation of Work of this Division. Remove replaced parts from premises.

3.2 ADJUSTMENT

A. Preliminary Operation:
1. Operate any portion of installation for Owner's Representative convenience. Such operation does not constitute acceptance of Work as complete. Cost of utilities, such as gas and electrical power, shall be borne by Owner's representative if operation is requested by Owner's Representative.

B. Startup Service:
1. Prior to startup, ensure that systems are ready, including checking the following: Proper equipment rotation, proper wiring, auxiliary connections, lubrications, venting fan balance, controls and installed and properly set relief and safetyvalves.

2. Start and operate all systems. Provide services of factory trained technicians for startup of major equipment and systems including pumps, AHU's control systems, air handling units, exhaust fans, heat exchangers, etc.
3. Manufacturer's Representative shall test all major equipment (as described in item 2 above) after completion of installation. All tests shall be witnessed and signed by the Owner's Representative. Contractor shall record data and set points on startup forms and identify the equipment performance on equipment's system curve (while witnessed by the Owner's Representative). Contractor shall submit all signed startup material for all mechanical and plumbing equipment (as one submittal) for Engineer and Owner's Representative review and approval.

C. Adjusting:
1. Adjust all equipment and system components as shown or as otherwise required to result in intended system operation.
2. After completion of testing and adjustment, operate the different systems and equipment under normal working conditions for 72 hours continuously and show specified performance. If performance of equipment or systems is not in accordance with specifications or submitted data, alter or replace equipment at no increase in Contract Sum. Contractor, at his option, may order tests from an independent approved laboratory to prove compliance. All such tests shall be at no increase in Contract Sum. Repeat process as often as required.
3. At completion of Work, provide written certification that all systems are functioning properly without defects.

D. Noise:
1. Cooperate in reducing any objectionable noise or vibration caused by mechanical systems to the extent of adjustments to specified and installed equipment and appurtenances.
2. Completely correct noise problems caused by failure to make installation in accordance with Contract Documents, including labor and materials required as a result of such failure, at no increase in Contract Sum. Includes refinish walls, floors etc.

3.3 CLEANING AND PAINTING

A. Properly prepare Work under this Division to be finish painted under Division 09 Section 09 90 00 - Painting.

B. Refinish Work supplied with final finish under this Division if damaged under this Division to satisfaction of Owner's Representative,

C. Thoroughly clean equipment, fans, pumps, motors, piping and other materials under this Division free from all rust, scale and all other dirt before any covering of painting is done, or the systems put in operation. Leave in condition satisfactory to Owner's Representative.

D. Provide moisture resistant paint for exterior painting and heat resisting paint for hot piping, equipment and materials.

E. Colors as directed by owner's Representative unless specified herein.

F. Factory Finishes:
1. Air outlets in acoustical tile ceilings: Baked white enamel unless otherwise noted on contract documents.
2. Aluminum air outlets: Painted white backed enamel unless otherwise noted on contract documents.
3. Fans, tanks and like items.
4. Air handlers, water heaters, and like items where exposed.

G. For the following, provide factory prime coat. Also, provide factory finish painting on each if not specified in painting Division.

1. Other air outlets.
2. Access panels.

H. Paint all equipment out-of-doors and equipment supports with two coats of weather resistant enamel- Painting shall meet the requirements as specified in Division 09 Section 09 90 00 - Painting.

I. Protect all finished surfaces of fixtures with heavy paper pasted thereon, or by other means, throughout the period of construction.

J. At all times keep the premises free from accumulation of waste material and debris caused by his employees. At the completion of the project, and at other times as Owner’s Representative may direct, remove refuse from within and around the building. All tools, scaffolding and surplus materials shall also be removed, leaving the Site of his Work clean.

K. Completely cover all plumbing fixtures and all motors and other moving machinery prevent entry of dirt and water during construction. Effectively cap all openings into ducts and pipes to keep foreign materials out during construction.

L. Lubricate all equipment at completion of Work. Furnish Owner's Representative with a written lubrication schedule for all equipment and as specified in Division 01 Section 01 70 00 - Execution Requirements.

END OF SECTION

SECTION 23 05 23 GENENAL-DUTY VALVES FOR HVAC PIPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
1. Bronze angle valves.
2. Brass ball valves.
3. Iron, single-flange butterfly valves.
4. Iron, grooved-end butterfly valves.
5. Bronze swing check valves.
6. Iron swing check valves.
7. Iron, grooved-end swing-check valves.
8. Iron center guided check valves
9. Bronze gate valves.
10. Iron gate valves.
11. Bronze globe valves.
12. Iron globe valves.

B. Related Sections:
1. Section 23 05 53 – Identification for HVAC Piping and Equipment for valve tags and schedules.
2. Section 23 07 19 – HVAC Piping Insulation for valve insulation requirements.

1.03 DEFINITIONS

A. CWP: Cold working pressure.

B. EPDM: Ethylene propylene copolymer rubber.

C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.

D. NRS: Nonrising stem.

E. OS&Y: Outside screw and yoke.

F. RS: Rising stem.

G. SWP: Steam working pressure.

1.04 SUBMITTALS

A. Product Data: For each type of valve indicated.

1.05 QUALITY ASSURANCE

A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.

B. ASME Compliance:
1. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
2. ASME B31.9 for building services piping valves.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Use the following precautions during storage:
1. Maintain valve end protection.
2. Store valves indoors and maintain at higher than ambient dew point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

B. Use sling to handle large valves; rig sling to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

PART 2 - PRODUCTS

2.01 GENERAL REQUIRMENTS FOR VALVES

A. Refer to HVAC valve schedule for applications of valves.

B. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

C. Valve Sizes: Same as upstream piping unless otherwise indicated.

D. Valve Actuator Types:
1. Gear Actuator: For quarter-turn valves NPS 8 and larger.
2. Handwheel: For valves other than quarter-turn types.
3. Handlever: For quarter-turn valves NPS 6 and smaller.
4. Chainwheel: Device for attachment to valve handwheel, stem, or other actuator; of size and with chain for mounting height, as indicated in the "Valve Installation" Article.

E. Valves in Insulated Piping: With 2 inch stem extensions and the following features:
1. Gate Valves: With non-rising stem.
2. Ball Valves: With extended operating handle of non thermal conductive material
3. Butterfly Valves: With extended neck.

F. Valve-End Connections:
1. Flanged: With flanges according to ASME B16.1 for iron valves.
2. Grooved: With sockets according to AWWA C606.
3. Threaded: With threads according to ASME B1.20.1.

2.02 BRONZE ANGLE VAVLES

A. Type 301, Class 125, Bronze Angle Valves with Bronze Disc, threaded or soldered.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO #T-311-Y / S-311-Y.
2. Description:

a. Standard: MSS SP-80, Type 1.
b. CWP Rating: 200-psig.
c. Body Material: ASTM B 62, bronze with integral seat and screw-in bonnet.
d. Ends: Threaded / Soldered.
e. Stem and Disc: Bronze.
f. Packing: Asbestos free.
g. Handwheel: Malleable iron.

B. Type 302, Class 150, Bronze Angle Valves with Bronze Disc Threaded:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO T-335-Y
b. Crane
c. Stockham
2. Description:
a. Standard: MSS SP-80, Type 1.
b. CWP Rating: 300-psig.
c. Body Material: ASTM B 62, bronze with integral seat and union-ring bonnet.
d. Ends: Threaded.
e. Stem and Disc: Bronze.
f. Packing: Asbestos free.
g. Handwheel: Malleable iron.

2.03 BRASS BALL VALVES

A. Type 501, Two-Piece, Full-Port, Bronze Ball Valves with Bronze Trim.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO INC. T-585-70 threaded or S-585-70 Soldered
b. Apollo Valves
c. Watts Regulator Co.
d. Hammond Valves
2. Description:
a. Standard: MSS SP-110.
b. SWP Rating: 150-psig.
c. CWP Rating: 600-psig.
d. Body Design: Two-piece.
e. Body Material: Bronze.
f. Ends: Threaded.
g. Seats: PTFE or TFE.
h. Stem: Bronze.
i. Ball: Chrome-plated brass.
j. Port: Full.

B. Type 502, Three-Piece, Full-Port, Bronze Ball Valves with Bronze Trim.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO #T-595-Y / S-595-Y
b. Apollo Valves
c. Hammond Valve
d. Watts
2. Description:
a. Standard: MSS SP-110.
b. SWP Rating: 150-psig.

c. CWP Rating: 600-psig.
d. Body Design: Three-piece.
e. Body Material: Bronze.
f. Ends: Threaded.
g. Seats: PTFE or TFE.
h. Stem: Bronze.
i. Ball: Chrome-plated brass.
j. Port: Full.

C. Type 503, Three-Piece, Full Port, Stainless Steel Valves with Stainless-Steel Trim:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO INC #T-595-S6R-66-LL
b. Apollo Valves
c. Hammond Valve
d. Watts
2. Description:
a. Standard: MSS SP-110.
b. SWP Rating: 150-psig.
c. CWP Rating: 1000-psig.
d. Body Design: Three piece.
e. Body Material: Stainless Steel.
f. Ends: Threaded.
g. Seats: Reinforced TFE.
h. Stem: Stainless steel.
i. Ball: Stainless steel, vented.
j. Port: Full.

2.04 IRON, SINGLE-FLANGE BUTTERFLY VALVES

A. Type 601, 200 CWP, Iron, Single-Flange Butterfly Valves with EPDM or NBR Seat and Aluminum-Bronze Disc, Lug Style (3 inch thru 12 inch):
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. LD-2000
b. Metraflex
c. Crane
2. Description:
a. Standard: MSS SP-67, Type I.
b. CWP Rating: 200-psig.
c. Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.
d. Body Material: ASTM A 126, cast iron or ASTM A 536, ductile iron.
e. Seat: EPDM or NBR as scheduled.
f. Stem: One- or two-piece stainless steel.
g. Disc: Aluminum bronze.

B. Type 602, 150 CWP, Iron, Single-Flange Butterfly Valves with EPDM or NBR Seat and Aluminum-Bronze Disc, Lug Style (14 inch thru 36 inch):
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. LD-1000
b. Metraflex
c. Crane

2. Description:
   a. Standard: MSS SP-67, Type I.
   b. CWP Rating: 150-psig.
   c. Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.
   d. Body Material: ASTM A 126, cast iron or ASTM A 536, ductile iron.
   e. Seat: EPDM or NBR as scheduled.
   f. Stem: One- or two-piece stainless steel.
   g. Disc: Aluminum bronze.

2.05 HIGH PERFORMANCE BUTTERLFY VALVES

A. Type 603, Class 150, High Performance Butterfly Valve, Single-Flange, Stainless Steel Disc. Lug Style:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. NIBCO Inc. LGS-6822
      b. Metraflex
      c. Crane
   2. Description:
      a. Standard: MSS SP-68.
      b. CWP Rating: 285-psig at 100 deg F.
      c. Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.
      d. Body Material: ASTM A 216 WCC, carbon steel
      e. Seat: PTFE mod.
      f. Stem: One- or two-piece stainless steel.
      g. Disc: ASTM A351, Stainless Steel.

2.06 IRON, GROOVED-END BUTTERFLY VALVES

A. Type 604, 175 CWP, Iron, Grooved-End Butterfly Valves (3 inch thru 12 inch):
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Victaulic Series 300
      b. Grinnell
   2. Description:
      a. Standard: MSS SP-67, Type I.
      b. CWP Rating: 175-psig.
      c. Body Material: Coated, ductile iron.
      d. Stem: Two-piece stainless steel.
      e. Disc: Coated, ductile iron.
      f. Seal: EPDM.

B. Type 605, 300 CWP, Iron, Grooved-End Butterfly Valves (14 inch thru 36 inch):
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Victaulic Series 709
      b. Grinnell
   2. Description:
      a. Standard: MSS SP-67, Type I.
      b. NPS 8 and Smaller CWP Rating: 300-psig.
      c. NPS 10 and Larger CWP Rating: 200-psig.

d. Body Material: Coated, ductile iron.
e. Stem: Two-piece stainless steel.
f. Disc: Coated, ductile iron.
g. Seal: EPDM.

2.07 BRONZE SWING CHECK VALVES

A. Type 401, Class 125, Bronze Swing Check Valves with Bronze Disc:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. T-413
b. Crane Co.; Crane Valve Group, Crane Valves
c. Hammond Valve
d. Milwaukee Valve Company
e. Powell Valves
f. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
2. Description:
a. Standard: MSS SP-80, Type 3.
b. CWP Rating: 200-psig.
c. Body Design: Horizontal flow.
d. Body Material: ASTM B 61, bronze.
e. Ends: Threaded.
f. Disc: Bronze.

B. Type 402, Class 150, Bronze Swing Check Valves with Bronze Disc:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. T-433 or S-433
b. Crane Valves
c. Milwaukee Valve Company
2. Description:
a. Standard: MSS SP-80, Type 3.
b. CWP Rating: 300-psig.
c. Body Design: Horizontal flow.
d. Body Material: ASTM B 62, bronze.
e. Ends: Threaded.
f. Disc: Bronze.

2.08 IRON SWING CHECK VALVES

A. Type 403, Class 125, Iron Swing Check Valves with Metal Seats:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. F-918-B
b. Crane Valves
c. Hammond Valve
d. Milwaukee Valve Company
e. Powell Valves
f. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
2. Description:
a. Standard: MSS SP-71, Type I.
b. NPS 2-1/2 to NPS 12, CWP Rating: 200-psig.
c. NPS 14 to NPS 24, CWP Rating: 150-psig.

d. Body Design: Clear or full waterway.
e. Body Material: ASTM A 126, gray iron with bolted bonnet.
f. Ends: Flanged.
g. Trim: Bronze.
h. Gasket: Asbestos free.

B. Type 404, Class 250, Iron Swing Check Valves with Metal Seats:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. F968-B
b. Crane Valves
c. Hammond Valve
d. Milwaukee Valve Company
e. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
2. Description:
a. Standard: MSS SP-71, Type I.
b. NPS 2-1/2 to NPS 12, CWP Rating: 500-psig.
c. NPS 14 to NPS 24, CWP Rating: 300-psig.
d. Body Design: Clear or full waterway.
e. Body Material: ASTM A 126, gray iron with bolted bonnet.
f. Ends: Flanged.
g. Trim: Bronze.
h. Gasket: Asbestos free.

2.09 IRON, GROOVED-END SWING CHECK VALVES

A. Type 405, 300 CWP, Iron, Grooved-End Swing Check Valves:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Victaulic Series 716
b. Grinnell Mechanical Products
2. Description:
a. CWP Rating: 300-psig.
b. Body Material: ASTM A 536, ductile iron.
c. Seal: EPDM.
d. Disc: Spring operated, ductile iron or stainless steel.

2.010 IRON, CENTER-GUIDED CHECK VALVES

A. Type 406, Class 125, Iron, Compact-Wafer, Center-Guided Check Valves with Metal Seat:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. F-910
b. Hammond Valve
c. Metraflex, Inc.
d. Milwaukee Valve Company
2. Description:
a. Standard: MSS SP-125.
b. NPS 2-1/2 to NPS 12, CWP Rating: 200-psig.
c. NPS 14 to NPS 24, CWP Rating: 150-psig.
d. Body Material: ASTM A 126, gray iron.
e. Style: Globe, spring loaded.
f. Ends: Flange.

g. Seat: Bronze.
h. Seat: Bronze.

B. Type 407, Class 250, Iron, Globe, Center-Guided Check Valves with Metal Seat:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. F-960
b. Hammond Valve
c. Metraflex, Inc.
d. Milwaukee Valve Company
2. Description:
a. Standard: MSS SP-125.
b. NPS 2-1/2 to NPS 12, CWP Rating: 400-psig.
c. NPS 14 to NPS 24, CWP Rating: 300-psig.
d. Body Material: ASTM A 126, gray iron.
e. Style: Globe, spring loaded.
f. Ends: Flanged.
g. Seat: Bronze.

2.011 BRONZE GATE VALVES

A. Type 101, Class 125, NRS Bronze Gate Valves:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. T124
b. Crane Valves
c. Hammond Valve
d. Milwaukee Valve Company
e. Powell Valves
2. Description:
a. Standard: MSS SP-80, Type 1.
b. CWP Rating: 200-psig.
c. Body Material: ASTM B 61, bronze with integral seat and screw-in bonnet.
d. Ends: Threaded.
e. Stem: Bronze.
f. Disc: Solid wedge; bronze.
g. Packing: Asbestos free.
h. Handwheel: Malleable iron.

B. Type 102, Class 150, NRS Bronze Gate Valves:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. T-134
b. Hammond Valve
c. Milwaukee Valve Company
d. Powell Valves
2. Description:
a. Standard: MSS SP-80, Type 1.
b. CWP Rating: 300-psig.
c. Body Material: ASTM B 62, bronze with integral seat and union-ring bonnet.
d. Ends: Threaded.
e. Stem: Bronze.
f. Disc: Solid wedge; bronze.
g. Packing: Asbestos free.
h. Handwheel: Malleable iron.

2.012 IRON GATE VALVES

A. Type 103, Class 125, NRS, Iron Gate Valves:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. NIBCO Inc. F-619
      b. Crane Valves
      c. Hammond Valve
      d. Milwaukee Valve Company
      e. Powell Valves
   2. Description:
      a. Standard: MSS SP-70, Type I.
      b. NPS 2-1/2 to NPS 12, CWP Rating: 200-psig.
      c. NPS 14 to NPS 24, CWP Rating: 150-psig.
      d. Body Material: ASTM A 126, gray iron with bolted bonnet.
      e. Ends: Flanged.
      f. Trim: Bronze.
      g. Disc: Solid wedge.
      h. Packing and Gasket: Asbestos free.
      i. Non-rising stem.

B. Type 104, Class 250, NRS, Iron Gate Valves:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. NIBCO Inc. F-669
      b. Crane Valves
   2. Description:
      a. Standard: MSS SP-70, Type I.
      b. NPS 2-1/2 to NPS 12, CWP Rating: 500-psig.
      c. NPS 14 to NPS 24, CWP Rating: 300-psig.
      d. Body Material: ASTM A 126, gray iron with bolted bonnet.
      e. Ends: Flanged.
      f. Trim: Bronze.
      g. Disc: Solid wedge.
      h. Packing and Gasket: Asbestos free.
      i. Non-rising stem

2.013 STAINLESS STEEL GATE VALVES

A. Type 105, Stainless Steel Gate Valves, threaded ends or socket weld, O S & Y, solid Wedge Disc:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Crane Valves Fig 110/114
      b. Milwaukee Valve Company
      c. NIBCO Inc.
      d. Power Valves
      e. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
   2. Description:
      a. Standard: MSS SP-42, Type I.
      b. CWP Rating: 200-psig.

      c. Body Material: ASTM A 351 CF3M

d. Ends: Threaded/socket weld.
e. Steam: ASTM A276 T316.
f. Disc: ASTM A351 CF3M.
g. Packing: PTFE.
h. Handwheel: ASTM A536.

B. Type 106, Class 150 Stainless Gate Valves, Flange end, Solid Wedge Disc:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Crane Fig 117
b. Kitz Corporation
c. Milwaukee Valve Company
d. NIBCO Inc.
e. Powell Valves
f. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
2. Description:
a. Standard: MSS SP-42, Type I.
b. CWP Rating: 200-psig.
c. Body Material: ASTM A351 CF8M.
d. Ends: Flange.
e. Stem: ASTM A351 CF8M.
f. Disc: Solid wedge; ASTM A351 CF8M.
g. Packing: PTFE.
h. Handwheel: ASTM A536.
i. Rising Stem.

2.014 BRONZE GLOBE VALVES

A. Type 201, Class 125, Bronze Globe Valves with Bronze Disc:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. T-211
b. Crane Valves
c. Hammond Valve
d. Milwaukee Valve Company
2. Description:
a. Standard: MSS SP-80, Type 1.
b. CWP Rating: 200-psig.
c. Body Material: ASTM B 62, bronze with integral seat and screw-in bonnet.
d. Ends: Threaded.
e. Stem and Disc: Bronze.
f. Packing: Asbestos free.
g. Handwheel: Malleable iron.

B. Type 202, Class 150, Bronze Globe Valves with Replaceable seat and Disc:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. T-235
b. Crane Valves
c. Hammond Valve
d. Milwaukee Valve Company
2. Description:
a. Standard: MSS SP-80, Type 2.

b. CWP Rating: 400-psig.
c. Body Material: ASTM B 62, bronze with integral seat and union-ring bonnet.
d. Ends: Threaded.
e. Stem: Bronze.
f. Disc: PTFE or TFE.
g. Packing: Asbestos free.
h. Handwheel: Malleable iron.

2.015 IRON GLOBE VALVES

A. Type 203, Class 125, Iron Globe Valves:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. F-718-B
b. Crane Valves
c. Hammond Valve
d. Kitz Corporation
e. Milwaukee Valve Company
2. Description:
a. Standard: MSS SP-85, Type I.
b. CWP Rating: 200-psig.
c. Body Material: ASTM A 126, gray iron with bolted bonnet.
d. Ends: Flanged.
e. Trim: Bronze.
f. Packing and Gasket: Asbestos free.

B. Type 204, Class 250, Iron Globe Valves:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. NIBCO Inc. Type F-768-B
b. Crane Valves
c. Hammond Valve
d. Milwaukee Valve Company
2. Description:
a. Standard: MSS SP-85, Type I.
b. CWP Rating: 500-psig.
c. Body Material: ASTM A 126, gray iron with bolted bonnet.
d. Ends: Flanged.
e. Trim: Bronze.
f. Packing and Gasket: Asbestos free.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.

B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.

C. Examine threads on valve and mating pipe for form and cleanliness.

D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.

E. Do not attempt to repair defective valves; replace with new valves.

3.02 VALVE INSTALLATION

A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown, where possible.

B. Locate valves for easy access, where possible, and provide separate support where necessary.

C. Install valves in horizontal piping with stem at or above center of pipe.

D. Install valves in position to allow full stem movement.

E. Install chainwheels on operators for butterfly and gate valves 2-1/2 and larger and more than 96 inches above floor in rooms with exposed ceilings only. Extend chains to 60 inches above finished floor.

F. Install check valves for proper direction of flow and as follows:
1. Swing Check Valves: In horizon position with hinge pin level
2. Lift Check Valves: With stem upright and plumb.

3.03 ADJUSTING

A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

3.04 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

A. If valve applications are not indicated, use the following:
1. Shutoff Service: Ball, butterfly, or gate valves.
2. Butterfly Valve Dead-End Service: Single-flange (lug) type
3. Throttling Service, Except Steam: Globe, ball, or butterfly valves.
4. Throttling Service, Steam: Globe valves.
5. Pump-Discharge Check Valves:
   a. NPS 2 and Smaller: Bronze swing check valves with bronze disc.
   b. NPS 2-1/2 and Larger: Iron, center-guided, metal-seat check valves.

B. If valves with specified SWP classes or CWP ratings are not available, the same types of valves with higher SWP classes or CWP ratings may be substituted.

3.05 CHILLED-WATER, HEATING HOT WATER AND HEAT RECOVERY WATER VALVE SCHEDULE

A. Pipe NPS 2-1/2 inch and Smaller:
1. Bronze Valves: Type 501 2 inch and smaller; Type 502 2-1/2 inch and larger.
2. Bronze Swing Check Valves: Type 402.

B. Pipe NPS 3 inch and Larger:
1. Iron, Single-Flange Butterfly Valves, (3 inch thru 12 inch): Type 601.
2. Iron, Single-Flange Butterfly Valves, (14 inch thru 36 inch): Type 602.
3. Iron Grooved-End Butterfly Valves: Type 605.
4. Iron Swing Check Valves: Type 404.
5. Iron Grooved-End Check Valves: Type 405.
6. Iron, Center-Guided Check Valves: Type 406.

3.06 LOW-PRESSURE STEAM VALVE SCHEDULE (15-psig OR LESS)

A. Pipe NPS 2 inch and Smaller:
1. Bronze Angle Valves: Type 302.
2. Bronze Swing Check Valves: Type 402.
3. Bronze Gate Valves: Type 101.
4. Bronze Globe Valves: Type 201.

B. Pipe NPS 2-1/2 inch and Larger:
1. Iron Swing Check Valves: Type 403.
2. Iron Gate Valves: Type 103.
3. Iron Globe Valves: Type 203.

3.07 HIGH-PRESSURE STEAM VALVE SCHEDULE (MORE THAN 15-psig)

A. Pipe NPS 2 inch and Smaller:
1. Bronze Angle Valves: Type 302.
2. Bronze Swing Check Valves: Type 402.
3. Bronze Gate Valves: Type 102.
4. Globe Valves: Type 202.

B. Pipe Sizes NPS 2-1/2 and Larger:
1. Iron Swing Check Valves: Type 404.
2. Iron Gate Valves: Type 104.
3. Iron Globe Valves: Type 204.

3.08 STEAM-CONDENSATE VALVE SCHEDULE

A. Pipe NPS 2 and Smaller:
1. Bronze Angle Valves: Type 302.
2. Bronze Swing Check Valves: Type 402.
3. Bronze Gate Valves: Type 101.
4. Bronze Globe Valves: Type 201.

B. Pipe NPS 2-1/2 and Larger:
1. Iron Swing Check Valves: Type 403.
2. Iron Gate Valves: Type 103.
3. Iron Globe Valves: Type 203.

3.09 PUMP CONDENSATE VALVE SCHEDULE

A. Pipe NPS 2 and Smaller:
1. Bronze Angle Valves: Type 302.
2. Bronze Swing Check Valves: Type 402.

3. Bronze Gate Valves: Type 101.
4. Bronze Globe Valves: Type 201.

B. Pipe NPS 2-1/2 and Larger:
1. Iron Swing Check Valves: Type 403.
2. Iron Gate Valves: Type 103.
3. Iron Globe Valves: Type 203.

END OF SECTION

SECTION 23 05 29 HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following hangers and supports for HVAC system piping and equipment:
   1. Steel pipe hangers and supports.
   2. Trapeze pipe hangers.
   3. Metal framing systems.
   4. Thermal-hanger shield inserts.
   5. Fastener systems.
   6. Pipe stands.
   7. Equipment supports.

B. Related Sections include the following:
   1. Division 05 Section 05 50 00 - Metal Fabrications for structural-steel shapes and plates for trapeze hangers for pipe and equipment supports.
   2. Division 21 Section 21 13 00 - Fire Protection Sprinkler System for pipe hangers for fire-protection piping.
   3. Section 23 05 16 - Expansion Fittings and Loops for HVAC Piping for pipe guides and anchors.
   4. Section 23 05 48 - Mechanical Sound, Vibration and Seismic Control for vibration isolation devices.
   5. Section 23 31 13 - Metal Ductwork for duct hangers and supports.
   6. Section 23 23 00 – Refrigerant Piping and Specialties
   7. Section 23 07 19 - HVAC Piping Insulation.

1.3 DEFINITIONS

A. MSS: Manufacturers Standardization Society for Pipe Hangers and Supports.

B. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports".

1.4 PERFORMANCE REQUIREMENTS

A. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Design seismic-restraint hangers and supports for piping and equipment and obtain approval from authorities having jurisdiction.

1.5 SUBMITTALS

A. Product Data: For the following:
   1. Steel pipe hangers and supports.
   2. Thermal-hanger shield inserts.

B. Shop Drawings: Signed and sealed by a qualified professional engineer. Show fabrication and installation details and include calculations for the following;
   1. Trapeze pipe hangers. Include Product Data for components.
   2. Metal framing systems. Include Product Data for components.
   3. Pipe stands. Include product Data for components.
   4. Equipment supports.

1.6 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to ASME B31.9. Structural welding code AWS D1-1, ASME section 9 hangers and supports.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

A. Description:. MSS SP:58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article where to use specific hanger and support types.

B. Manufacturers:
   1. B-Line Systems, Inc.; a division of Cooper Industries
   2. Carpenter & Paterson, Inc.
   3. Grinnell Corp.
   4. SuperStrut
   5. Tolco, Inc.
   6. Unistrut

C. Galvanized, Metallic Coatings: Pre-galvanized, hot dipped, or copper plated.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3 TRAPEZE PIPE HANGERS

A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

2.4 METAL FRAMING SYSTEMS

A. Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.

B. Coatings: Manufacturer's standard finish, unless bare metal surfaces are indicated.

C. Nonmetallic Coatings: Plastic coating, jacket, or liner.

2.5 THERMAL-HANGER SHIELD INSERTS

A. Description: 100-psig minimum, compressive-strength insulation insert encased in sheet metal shield.

B. Manufacturers:
   1. Carpenter & Paterson, Inc.
   2. ERICO/Michigan Hanger Co.
   3. PHS Industries, Inc.
   4. Pipe Shields, Inc.
   5. Rilco Manufacturing Company, Inc.
   6. Value Engineered Products, Inc.
   7. Clement

C. Insulation-Insert Material for Cold Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate with vapor barrier.

D. Insulation-Insert Material for Hot Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.

E. For Clevis or Band Hangers: Insert and shield shall cover, at minimum, lower 180 degrees of pipe.

F. Insert Length: Extend 1 inch beyond sheet metal shield, on each end.

2.6 NOT USED

2.7 EQUIPMENT SUPPORTS

A. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

2.8 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/,4 36M, steel plates, shapes, and bars; black and galvanized.

B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
   1. Properties: Non-staining, noncorrosive, and non-gaseous.
   2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings or copper plated coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use padded hangers for piping that is subject to scratching.

F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of non-insulated or insulated stationary pipes, NPS 3/4 to NPS 30.
   2. Adjustable, Copper plated hangers (MSS Type 10): For suspension of Non-insulated or insulated stationary pipes, NPS 1/2 inch to NPS 2-112 inch.
   3. Pipe Clamp for Sway Brace (Tolco Fig. 4B): For suspension of non-insulated or insulated stationary pipes, NPS 3 inch to NPS 8 inch.
   4. U-Bolts (MSS Type 24): For support of heavy pipes, NPS 1/2 to NPS 30.
   5. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.
   6. Single Pipe Rolls (MSS Type 41): For suspension of pipes, NPS 1 to NPS 30, from 2 rods if longitudinal movement caused by expansion and contraction might occur.
   7. Adjustable Roller Hangers (MSS Type 43): For suspension of pipes, NPS 3/4 to NPS 20, from single rod for horizontal movement caused by expansion and contraction , for horizontal runs over 20' only.
   8. Complete Pipe Rolls (MSS Type 44): For support of pipes, NPS 2 to NPS 42, if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary, for vertical runs only.

G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20.

H. Hanger-Rod Attachments: Install MSS Type attachments.

I. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior void with insulation that matches adjoining insulation.
   2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
   3. Thermal-Hanger shield Inserts: For supporting insulated pipe.

J. Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.

K. Comply with MFMA-1O2 for metal framing system selections and applications that are not specified in piping system Sections.

3.2 HANGER AND SUPPORT INSTALLATION

A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

B. Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping and support individually or together on field-fabricated or manufactured pipe hangers, where space allows.
   1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
   2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to B31.9.

C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.

D. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.

E. Pipe Stand Installation:
   1. Pipe Stand Types except Curb-Mounting Type: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.
   2. Curb-Mounting-Type Pipe Stands: Assemble components or fabricate pipe stand and mount on permanent, stationary roof curb. Refer to Division 07 Section 07 62 00 - Sheet Metal Flashing & Trim.

F. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

G. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

H. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

I. Install lateral bracing with pipe hangers and supports to prevent swaying.

J. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

K. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME 831.1 (for power piping) and ASME 831.9 (for building services piping) are not exceeded.

L. Insulated Piping: Comply with the following:
   1. Attach clamps and spacers to piping.
      a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
      b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
      c. Do not exceed pipe stress limits according to ASME B31.1 for power piping and ASME B31.9 for building services piping.
   2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
      a. Option: Thermal-hanger shield inserts may be used. Include steel weight distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
   3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
      a. Option: Thermal-hanger shield inserts may be used. Include steel weight distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
   4. Shield Dimensions for Pipe: Per Insert manufacturer standards.
   5. Insert Material: Length at least as long as protective shield.
   6. Thermal-Hanger Shields. Install with insulation same thickness as piping insulation.

3.3 EQUIPMENT SUPPORTS

A. Provide lateral bracing, to prevent swaying, for equipment supports.

3.4 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.

3.5 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods, no less than two threads and no more than 1-1/2 inches.

3.6 PAINTING

A. Touch Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
   1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Touch Up: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal are specified in Division 09 painting Sections.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 23 05 53 IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. All piping and ductwork concealed or exposed shall have identification markers.

B. Pipe marker shall comply with ANSI A13-1.

1.3 SUBMITTALS

A. Refer to Division 01 Section 01 30 00 - Administrative Requirements.

B. Submit product samples for full size nameplates, ID markers and valve tags.

C. Refer to Section 23 05 00 - Common Work Results for HVAC.

PART 2 PRODUCTS

2.1 MANUFACTURER'S IDENTIFICATION

A. Manufacturer's nameplate, name or trademark shall be permanently stamped or engraved to all equipment and material furnished under this specification. The nameplate of Subcontractor or Distributor are not acceptable.

B. Identify model number, size, capacity, electrical characteristics, serial number, etc.

C. Leave nameplates clean, legible and with unobstructed view.

2.2 NOT USED

2.3 PIPE IDENTIFICATION

A. Identify with symbol identification and color-code all piping. Provide directional arrows on circulating systems. Identification shall conform to ANSI.1 Scheme of identification of Piping Systems (OSHA).

B. Submit one 8-1/2 inch by 11 inch sample of each color for review prior to installation.

C. Plastic Markers: Brady Perma-Code or Setmark Type "SNA" self-adhesive markers. Each marker shall show accepted color-coded background, proper color of legend in relation to background color, accepted legend letter size, accepted marker length.

1. Letter Size per manufacturer.

D. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

E. Paint exterior jacket of steam and steam condensate piping insulation per the requirements of Section 23 2213 - Steam and Steam Condensate Piping prior to the application of identification decals.

2.4 NOT USED / VALVE IDENTIFICATION

A. Attach to hand wheel or stem of each control and line shutoff valve installed under this Division, with heavy brass "S" hook, color-coded plastic laminate or brass identification tag. Engrave laminate tags with 1 inch high designating numbers, in accordance with typed schedule showing valve sizes, locations, service, similar to following form:

DCW - 1-1/2 inches
Shutoff, Office Toilets
First Floor
Column J-4

B. Brass tags with stamped letters. Tag size minimum 1-1t2inch diameter or square with smooth corners.

2.5 NOT USED / VALVE AND EQUIPMENT CHARTS

A. Provide five typewritten schedules giving numbers, service and locations, and notations of open or closed, of all tagged valves. Enclose each schedule in separate transparent plastic binder. Submit drafts of valve schedule for review before preparing final sets.

PART 3 EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials of any materials that will prevent paint to marker adhesion.

3.2 IDENTIFICATION SCHEDULE

A. Refer to Division 09 Section 09 00 00 - Painting.

3.3 PIPING IDENTIFICATION

A. Apply markings after all cleaning and painting of piping and insulation is completed.

B. Secure each end of marker with the directional arrow tape, wrap entire periphery, if self adhesive markers are used.

C. Location for Pipe identification:

1. At each branch and riser takeoff.
2. At each pipe passage through wall, floor and ceiling construction.
3. On all horizontal runs spaced 25 feet maximum but not less than once in each room at entrance and exit of each concealed space.
4. Where capped piping is provided for future connections, provide legible and durable metal tags indicating symbol identification.
5. At wall and ceiling access panels.
6. Practicable variations or changes in locations and spacing may be made with specific approval of the Owner's Representative to meet specific conditions.

D. Install plastic pipe markers in accordance with manufacturer's instructions.

E. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.

F. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.

G. In finished areas, label exposed pipes or ducts only as directed by Owner's Representative.

3.4 NOT USED/VALVE IDENTIFICATION

A. Label heating and air conditioning valves using contract drawings system legend.

B. Secure tags to valves with approved corrosion resistant brass "S" hooks and chain.

C. Do not label the following valves:
   1. Drain valves (including valves off the WYE strainers).
   2. Manual air vent valves.

3.5 CONCEALED IDENTIFICATION

A. Provide color-coded ceiling tacks to locate coils, fire dampers, valves, control devices, etc. or other approved label on each T-bar suspended ceiling grid. Locate on grid closest to equipment.

END OF SECTION

SECTION 23 07 19 HVAC PIPING INSULATION

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. Provide materials and accessories for installation of mechanical insulation to piping systems as indicated on the drawings and as specified.

1.3 SECTION INCLUDES

A. Piping insulation.

B. Jackets and accessories.

1.4 REFERENCES

A. CCR - Title 24, Part 2, Chapter 2-53

B. CBC - Table 2-53E, CEC, NFPA and UL

C. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate

D. ASTM C177 - Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus

E. ASTM C335 - Steady-State Heat Transfer Properties of Horizontal Pipe Insulation

F. ASTM C585 - Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe

G. ASTM C921 - Properties of Jacketing Materials for Thermal Insulation

H. ASTM E84 - Surface Burning Characteristics of Building Materials

I. ASTM E96 - Water Vapor Transmission of Materials

J. NFPA 255 - Surface Burning Characteristics of Building Materials

K. UL 723 - Surface Burning Characteristics of Building Materials

1.5 SUBMITTALS

A. Submit under provisions of General Conditions, Division 01 Section 01 30 00 – Administrative Requirements.

B. Product Data: Provide product description, list of materials, thickness for each service, performance curves and thermal ratings.

C. Submit the following: insulation materials; jackets and facing materials, adhesives, fastening devices and vapor barrier.

D. Refer to Section 23 05 00 – Common Work Results for HVAC.

1.6 QUALITY ASSURANCE

A. Materials: Flame spread/smoke developed rating of 25/50 or less in accordance with ASTM E84, NFPA 255 and UL 723.

B. Flame proofing treatment subject to deterioration due to moisture or humidity is not acceptable.

1.7 QUALIFICATIONS

A. Applicator: Company specializing in performing the Work of this section with a minimum of 3 years experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle products to site under provisions of Division 01 Section 01 60 00 – Product Requirements.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.

B. Maintain temperature during and after installation for minimum period of 24 hours.

1.10 MANUFACTURERS

A. Insulation
   1. Owens Corning
   2. Certainteed
   3. Schuller
   4. Armstrong
   5. or equal.

B. PVC Jackets
   1. Schuller
   2. Speedline
   3. or equal.

PART 2 PRODUCTS

2.1 GLASS FIBER

A. Insulation: ASTM C547; rigid molded, noncombustible.
   1. 'K' ('ksi') value : ASTM C335, 0.27 at 75 deg F.
   2. Minimum Service Temperature: -20 deg F.
   3. Maximum Service Temperature: 450 deg F.
   4. Maximum Moisture Absorption: 0.2 percent by volume.

2.2 CALCIUM SILICATE

A. Insulation ASTM C533
   1. K value: 0.42 at 200 deg F.
   2. Maximum service temperature: 1200 deg F.
   3. Density: 15 pounds per cubic foot (pcf).
   4. Flexural Strength: 100 pounds per square inch (psi).

2.3 ELASTOMERIC TUBING

A. Insulation ASTM C534
   1. K value: 0.28 at 75 deg F.
   2. Maximum service temperature: 220 deg F.
   3. Density: 6.0 pounds per cubic foot (pcf).
   4. Closed cell form: Vapor permeability ASTM E96 0.2 perm.
   5. Max moisture absorption: 1.0 percent by volume, 10 percent by weight.

B. Seal with Rubatex, Cascotex, or equal adhesive.

2.4 CELLULAR GLASS INSULATION

A. Insulation ASTM C552, Corning Foamglas, United Perlite, or equal.
   1. Rigid cellular glass pre-formed insulation.
   2. K value: 0.33 at 75 deg F.
   3. Service temperatures: +900 degrees F to –320 deg F.
   4. Density: 8.5 pounds per cubic foot (pcf).
   5. Closed cell form: Water absorption 0.2 percent by volume.
   6. Vapor Permeability: 0.0 perm per inch.

2.5 JACKETS

A. Factory Applied Vapor Barrier Jacket (ASJ).
   1. ASTM C921, White kraft paper reinforced with glass fiber yarn and bonded to aluminized film.
   2. Moisture Vapor Transmission: ASTM E96; 0.02 perm inches.
   3. Secure with self sealing longitudinal laps and butt strips.
   4. Secure vapor barrier mastic.
   5. ASJ paper will have factory applied self sealed lap.
   6. Vapor Barrier Lap Adhesive: Compatible with insulation.

B. PVC Plastic
   1. Jacket: [ASTM C921,] One piece molded type fitting covers and sheet material, off white color.
      a. Minimum Service Temperature: -40 deg F.
      b. Maximum Service Temperature: 150 deg F.
      c. Moisture Vapor Transmission: ASTM E96; 0.002 perm inches.
      d. Maximum Flame Spread: ASTM E84; 25.
      e. Maximum Smoke Developed: ASTM E84; 50.
      f. Thickness: 20 mil.
      g. Connections: Brush on welding adhesive, Tacks or Pressure sensitive color matching vinyl tape.
   2. Covering Adhesive Mastic: Compatible with insulation.

C. Canvas Jacket: UL listed
   1. Fabric: ASTM C921, 6 ounces per square yard (oz/sq. yd), plain weave cotton treated with dilute fire retardant lagging adhesive.
   2. Lagging Adhesive: Compatible with insulation.

D. Aluminum Jacket: ASTM B209.
   1. Thickness: 0.01 inch sheet.
   2. Finish: Embossed.
   3. Joining: Longitudinal slip joints and 2 inch laps.
   4. Fittings: 0.016 inch thick die shaped fitting covers with factory attached protective liner.
   5. Metal Jacket Bands: 0.375-inch wide; 0.015-inch thick aluminum or 0.010-inch thick stainless steel.

2.6 PRE-INSULATED PIPE SUPPORT AND SHIELDS

A. Insulated pipe supports shall be supplied and installed by the Contractor on all insulated pipe and tubing. Insulated pipe supports shall be manufactured by Pipe Shields, Inc., Clement, Tolco, Dow Corning, or equal. Pipe shields model numbers are used.

B. All insulated pipe supports shall be load rated. Load ratings shall be established by pipe support manufacturer based upon testing and analysis in conformance with the latest edition of the following codes: ASME B31.1, MSS SP-58, MSS SP-69 and MSS SP-89.

C. All insulated pipe supports shall have Calcium Silicate insulation and galvanized steel jackets for steam and CHW systems only. Pipe supports for use on flat surfaces shall have integral load distribution plates. Pipes with roller hangers shall have double thickness metal shield.

D. Approved Insulated Pipe Supports
   1. Pipe supported on rod hangers - use Models A1000, A2000, A3000, 4000 and A9000.
   2. Pipe supported on flat surfaces - use Models A1000, A2000, A5000, A6000, A7000, A7200 and A7400 Series.
   3. Pipe supported on pipe rolls - use Models A3000, A4000, A5000, A6000, A8000, A8200 and A8400 Series.
   4. Model designations are by Pipe Shields, Inc, Clement, Tolco, Dow Corning, or equal. Use only models designed for service for which supports are to be used.

E. Anchors and Guides: Provide anchors and guides where indicated on the Drawings and as required. Structural inserts shall be high density calcium silicate compressive strength 600 pounds per square inch (psi). Guide slide pads shall be teflon. Contractor shall ensure that slide accommodates pipe movement over full range of service and out-of-service temperatures. Guides shall be Pipe Shields, Inc. Model #B3000 or equal. Anchors shall be Pipe Shields, Inc. Model #C4000 or equal. All steam and condensate pipe work supports shall be provided with guides as per thermal design/stamped drawings.

F. Tape all butt joints where pipe insulation butts up against hanger shield.

G. For additional requirements refer to Sections 23 05 29 – Hangers and Supports for HVAC Piping and Equipment and 23 05 48 – Mechanical Sound, Vibration and Seismic Control.

2.7 PENETRATIONS THROUGH RATED, NON RATED, AND SOUND WALLS

A. For insulated and non insulated pipe: Install insulation and caulk or seal per UL approved details.

B. All insulated pipe will be insulated through walls and caulked or sealed per UL details.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that piping has been tested before applying insulation materials.

B. Verify that surfaces are clean, foreign material removed, and dry.

C. Verify that all welds have been primed.

3.2 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Insulate all piping, valves, fittings, flanges and accessories, as specified in previous spec sections.

C. On exposed piping, locate insulation and cover seams in least visible locations.

D. If insulation becomes wet, remove and dispose of properly and replace with new, dry insulation. Wetted insulation is not acceptable. Ensure insulation is dry before and during installation.

E. Unless otherwise noted, insulate fittings, joints and valves with insulation of same material and thickness as adjoining pipe. Insulate all unions with a full thickness of insulation. Do not “carve out” pipe insulation for unions, unless necessary.

F. Insulate flanges with insulation sleeve of same material as pipe insulation to cover flange and overlap insulation on adjacent piping.

G. Continue insulation through walls, sleeves, and other pipe penetrations.

H. Finish insulation at supports, protrusions and interruptions: No hangers or supports shall be embedded in insulation. Do not insulate expansion bellows.

I. Fiber Glass insulation:
   1. Provide insulation with factory applied vapor barrier jackets.
   2. Butt edges neatly. ASJ with 3 inch minimum butt strips.
   3. Longitudinal overlaps: Minimum 2 inch self-sealing, double adhesive.
   4. Apply additional jacket as specified.
   5. For piping conveying fluids below ambient temperature finish with vapor barrier adhesive at fittings, valves, joints and accessories.

J. Calcium Silicate Insulation
   1. Provide insulation without vapor barrier.
   2. Secure insulation sections with minimum 16 gage wire.
   3. Build up coating of insulating and finishing cement.
   4. Provide calcium silicate rings between flange sleeve and pipe insulation.
   5. For piping conveying fluids below ambient temperature finish with vapor barrier adhesive.
   6. Apply additional jacket as specified. If no additional jacket specified apply skim coat of finishing cement to smooth out surface of fitting insulation.

K. Elastomeric Tubing
   1. Provide insulation.
   2. Butt edges neatly. Seal longitudinal and transverse joints with adhesive to maintain minimum vapor permeance. Adhesive shall be selected and applied in accordance with insulation manufacturer's recommendations.
   3. Apply additional jacket as specified.

L. Foamed glass insulation
   1. Provide insulation.
   2. Butt edges neatly. Seal longitudinal and transverse joints with adhesive in accordance with insulation manufacturer’s recommendations.
   3. Secure insulation using metal bands or fiber-reinforced tape in accordance with manufacturer’s recommendations for service temperature.
   4. Apply weather barrier mastic or metal jacket as specified.

M. Jackets
   1. For all pipe systems exposed in the mechanical equipment rooms, finish with white ASJ jacket.
   2. For exterior applications, provide vapor barrier jacket. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe, cover with aluminum jacket with seams located on bottom side of horizontal piping.

3.3 PIPING INSULATION THICKNESS SCHEDULE

A.

Piping Type	Run out Sizes to 2" Note 1	Branches, Mains, Loops in Size, Note 2				
		0"-1"	1-1/4"-2"	2-1/2"-4"	5"-6"	8"-up
Refrigerant suction piping	1"	1"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
AHU, FCU condensate drain	1”	1”	1”	1”	-	-

Notes:

1. "Run outs" are piping that is 12'-0" inches long or less, and that is connected to fixtures or individual terminal units.
2. "Branches, Mains, and Loops" are circulating piping and piping that is over 12'-0" long and that is connected to fixtures or individual terminal units.

B. Pipe, Valve and Fitting Cover Schedule.

SYSTEM	LOCATION	JACKET
• Domestic Hot Water	Exposed within building	ASJ
• Condensate Drain	Concealed in unconditioned spaces	ASJ

ASJ is All Service Jacket. See Section 2.

* Provide PVC jacket on fittings. Provide additional jacket (aluminum, PVC, etc.) as required by the table and specification over the top of the ASJ.

END OF SECTION

SECTION 23 21 13 HYDRONIC PIPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes pipe and fitting materials, joining methods, special-duty valves, and specialties for the following:
   1. Hot water heating piping.
   2. Chilled water piping.
   3. Makeup water piping.
   4. Condensate drain piping.
   5. Air vent piping.
   6. Safety valve inlet and outlet piping.

B. Related Sections include the following:
   1. Section 23 07 19 – HVAC Piping Insulation.

1.03 PERFORMANCE REQUIREMENTS

A. Hydronic piping components and installation shall be capable of withstanding the following minimum working pressure and temperature:
   1. Hot Water Heating Piping: 125 psig at 200 deg F.
   2. Chilled Water Piping: 125 psig at 200 deg F.
   3. Condensate Drain Piping: 125 psig at 150 deg F.
   4. Air Vent Piping: 125 psig at 200 deg F.
   5. Safety Valve Inlet and Outlet Piping: Equal to the pressure of the piping system to which it is attached.

1.04 DRAWINGS AND PIPING DIAGRAMS

A. Contract drawings shown on plan are schematic and diagrammatic and shall not be scaled. Verify accuracy and immediately notify Architect of any discrepancies that could not be coordinated under the coordination requirements, so that they may be resolved prior to actual fabrication or installation of work.
   1. Anticipate and coordinate minor changes in position of piping to meet job conditions. Such minor changes shall not be made the bases for RFIs and change orders.
   2. Promptly communicate to architect changes affecting accessibility to or clearance around equipment or accessories.
   3. Conflicts or inconsistencies of pipe sizes, arrangements, and details for final connection shall be resolved by the Engineer of Record.

B. Contract Documents may include piping diagrams as a part of the working Drawings.
   1. These piping diagrams are not for the purpose of giving physical dimensions or locations but rather to show all required piping accessories necessary to make clear the interconnections, by the piping, of the various units of the process.

2. If an item is shown on either the piping diagram or the piping detail Drawings, but not on both, the Contractor shall include the item in the project cost, including installation thereof.

C. Minor piping associated with instrumentation and control is generally not shown on interconnection of sensors, transducers, control devices, instrumentation panels, combustion control panel, and burner control panels are the responsibility of the contractor. Small piping associated with water-cooling, drips, drains and other minor piping may not be shown to avoid confusion in the plan presentation but shall be provided as part of contract work.

1.05 SUBMITTALS

A. Product Data: For each type of the following:
1. Valves. Include flow and pressure drop curves based on manufacturer's testing for calibrated-orifice balancing valves and automatic flow-control valves.
2. Air control devices.

B. Shop Drawings: Detail, at 1/4 scale, the piping layout, fabrication of pipe anchors, hangers, supports for multiple pipes, alignment guides, expansion joints and loops, and attachments of the same to the building structure. Detail location of anchors, alignment guides, and expansion joints and loops.

C. Welding certificates.

D. Qualification Data: For Installer.

E. Field quality-control test reports.

F. Operation and Maintenance Data: For air control devices, hydronic specialties, and special-duty valves to include in emergency, operation, and maintenance manuals.

G. Submit a copy of the water analysis to illustrate water quality available at Project site.

1.06 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1/D1.1M, "Structural Welding Code - Steel".

B. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX.
1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping".
2. Certify that each welder has passed P.I.P.E. or AWS qualification tests for welding processes involved and that certification is current.

C. ASME Compliance: Comply with ASME B31.9, "Building Services Piping", for materials, products, and installation. Safety valves and pressure vessels shall bear the appropriate ASME label. Fabricate and stamp air separators and expansion tanks to comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 01.

PART 2 - PRODUCTS

2.01 COPPER TUBE AND FITTINGS

A. Drawn-Temper Copper Tubing: ASTM B 88, Type L.

B. Annealed-Temper Copper Tubing: ASTM B 88, Type K.

C. Wrought-Copper Fittings: ASME B16.22.
   1. Available Manufacturers: Subject to compliance with requirements products by one of the following offering products that may be incorporated into the Work include, but are not limited to, the following:
   2. Basis-of-Design Product: Subject to compliance with requirements, provide NIBCO or a comparable product by one of the following:
      a. Anvil International, Inc.
      b. S. P. Fittings; a division of Star Pipe Products
      c. Victaulic Company of America
      d. Mueller
      e. Streamline

D. Wrought-Copper Unions: ASME B16.22.

E. T-Drill System.

2.02 STEEL PIPE AND FITTINGS

A. Steel Pipe: ASTM A 53/B 53M, black steel with plain ends; type, grade, and wall thickness as indicated in Part 3 “Piping Applications” Article.

B. Cast-Iron Threaded Fittings: ASME B16.4; Classes 125 and 250 as indicated in Part 3 “Piping Applications” Article.

C. Malleable-Iron Threaded Fittings: ASME B16.3, Classes 150 and 300 as indicated in Part 3 “Piping Applications” Article.

D. Malleable-Iron Unions: ASME B16.39; Classes 150, 250, and 300 as indicated in Part 3 “Piping Applications” Article.

E. Cast-Iron Pipe Flanges and Flanged Fittings: ASME B16.1, Classes 25, 125, and 250; raised ground face, and bolt holes spot faced as indicated in Part 3 “Piping Applications” Article.

F. Wrought-Steel Fittings: ASTM A 234/A 234M, wall thickness to match adjoining pipe.

G. Wrought Cast- and Forged-Steel Flanges and Flanged Fittings: ASME B16.5, including bolts, nuts, and gaskets of the following material group, end connections, and facings:
   1. End Connections: Butt-welding.

   2. Facings: Raised face or full face

H. Grooved Mechanical Joint Fittings and Couplings:
   1. Available Manufacturers: Subject to compliance with requirements products by one of the following offering products that may be incorporated into the Work include, but are not limited to, the following:
   2. Basis-of-Design Product: Subject to compliance with requirements, provide Victaulic Company of America or a comparable product by one of the following:
      a. Anvil International, Inc.
      b. National Fittings, Inc.
      c. S. P. Fittings; a division of Star Pipe Products.

3. Joint Fittings: ASTM A 536, Grade 65-45-12 ductile iron; ASTM A 47/A 47M, Grade 32510 malleable iron; ASTM A 53/A 53M, Type F, E, or S, Grade B fabricated steel; or ASTM A 106, Grade B steel fittings with grooves or shoulders constructed to accept grooved-end couplings; with nuts, bolts, locking pin, locking toggle, or lugs to secure grooved pipe and fittings.
4. Couplings: Rigid ductile- or malleable-iron housing and synthetic rubber gasket of central cavity pressure-responsive design; with nuts, bolts, locking pin, locking toggle, or lugs to secure grooved pipe and fittings.

I. Steel Pipe Nipples: ASTM A 733, made of same materials and wall thicknesses as pipe in which they are installed.

J. Steel Branch Connection: Weld-O-Let or Thread-O-Let branch connection. Main pipe shall be one size larger for 6 inch and smaller and two size larger for pipe size 8 inch and larger.

K. Fabricated branch connections:
1. Branch piping must be one pipe size smaller than main pipe size.
2. Fabricate in accordance with ASME B31.9

2.03 JOINING MATERIALS

A. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
1. ASME B16.21, nonmetallic, flat, asbestos free, 1/8-inch maximum thickness unless thickness or specific material is indicated.
a. Full-Face Type: For flat-face, Class 150, cast-iron and cast-bronze flanges.
b. Narrow-Face Type: For raised-face, Class 150, cast-iron and steel flanges.

B. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

D. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for joining copper with copper; or BAg-1, silver alloy for joining copper with bronze or steel.

E. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

F. Gasket Material: Thickness, material, and type suitable for fluid to be handled and working temperatures and pressures.

2.04 DIELECTRIC FITTINGS

A. Description: Combination fitting of copper-alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

B. Insulating Material: Suitable for system fluid, pressure, and temperature.

C. Dielectric Unions:
1. Available Manufacturers: Subject to compliance with requirements products by one of the following manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Capitol Manufacturing Company
   b. Epco Sales, Inc.
   c. Hart Industries International, Inc.
   d. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
3. Factory-fabricated union assembly, for 250-psig minimum working pressure at 180 deg F.

D. Dielectric Flanges:
1. Available Manufacturers: Subject to compliance with requirements products by one of the following manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Capitol Manufacturing Company
   b. Central Plastics Company
   c. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
3. Factory-fabricated companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.

E. Dielectric-Flange Kits:
1. Available Manufacturers: Subject to compliance with requirements products by one of the following manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Advance Products & Systems, Inc.
   b. Calpico, Inc.
   c. Central Plastics Company
   d. Pipeline Seal and Insulator, Inc.
3. Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.
4. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig minimum working pressure where required to suit system pressures.

F. Dielectric Couplings:
1. Available Manufacturers: Subject to compliance with requirements products by one of the following manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Calpico, Inc.
   b. Lochinvar Corporation
3. Galvanized-steel coupling with inert and noncorrosive thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.

G. Dielectric Nipples:
1. Available Manufacturers: Subject to compliance with requirements products by one of the following manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Perfection Corporation; a subsidiary of American Meter Company
   b. Precision Plumbing Products, Inc.
   c. Sioux Chief Manufacturing Company, Inc.
   d. Victaulic Company of America

3. Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

2.05 VALVES

A. Gate, Globe, Check, Ball, and Butterfly Valves: Comply with requirements specified in Division 23 - Section 23 05 23 – General-Duty Valves for HVAC Piping.

B. Automatic Temperature-Control Valves, Actuators, and Sensors: Comply with requirements specified in Section 23 09 23 – Building Automation System.

C. Bronze, Calibrated, Balancing Valves (2 inch and smaller):
   1. Manufacturers:
      a. Bell & Gossett –“Circuit Setter Plus”
      b. Flow Design, Inc -“Flowset”.
      c. Griswold Controls “Quickest”.
   2. Body: Bronze, ball valve with calibrated orifice or venturi.
   3. Ball: Brass or stainless steel.
   4. Seat: TFE.
   5. End Connections: NPT.
   6. Differential Pressure Gage Connections: Integral seals for portable differential pressure meter. Read out ports to be filled with internal EPT insert and check valve.
   7. Handle Style: Lever, with memory stop to retain set position.
   8. CWP Rating: Minimum 125-psig.
   9. Maximum Operating Temperature: 250 deg F.

D. Cast-Iron or Steel, Calibrated, Balancing Valves (2-1/2 inch and larger):
   1. Manufacturers:
      a. Bell & Gossett –“Circuit Setter Plus”
      b. Flow Design Inc – “Flowset”.
      c. Griswold Controls –“Quickest”.
   2. Body: Cast-iron or steel body, ball, plug, or globe pattern with calibrated orifice or venturi.
   3. Ball: Brass or stainless steel.
   4. Stem Seals: EPDM O-rings.
   5. Disc: Glass and carbon-filled PTFE.
   6. Seat: PTFE.
   7. End Connections: Flanged or grooved.
   8. Pressure Gage Connections: Integral seals for portable differential pressure meter.
   9. Handle Style: Lever, with memory stop to retain set position.
   10. CWP Rating: Minimum 125-psig.
   11. Maximum Operating Temperature: 250 deg F.

2.06 NOT USED

2.07 NOT USED

2.08 NOT USED

PART 3 - EXECUTION

3.01 PIPING APPLICATIONS

A. Hot-water heating piping, aboveground, NPS 2-1/2 inch and smaller, shall be:
   1. Type L, drawn-temper copper tubing, wrought-copper fittings, and brazed joints.

B. Hot-water heating piping, aboveground, NPS 3 inch and larger, shall be one of the following:
   1. Schedule 40 steel pipe, wrought-steel fittings and wrought-cast or forged-steel flanges and flange fittings, and welded and flanged joints.
   2. Schedule 40 steel pipe; grooved, mechanical joint coupling and fittings; and grooved, mechanical joints. Coupling shall be zero flex, rigid coupling.

C. Chilled-water piping, aboveground, NPS 2-1/2 inch and smaller shall be:
   1. Type L, drawn-temper copper tubing, wrought-copper fittings, and brazed joints.

D. Chilled-water piping, aboveground, NPS 3 inch – 14 inch and larger shall be any of the following:
   1. Schedule 40 steel pipe, wrought-steel fittings and wrought-cast or forged-steel flanges and flange fittings, and welded and flanged joints.
   2. Schedule 40 steel pipe; grooved, mechanical joint coupling and fittings; and grooved, mechanical joints. Couplings shall be zero-flex 07, flex 77 or flex 109, rigid coupling.

E. Chilled water piping aboveground, NPS 16 inch and larger shall be one of the following:
   1. Schedule 40 steel pipe, wrought-steel fittings and wrought-cast or forged-steel flanges and flange fittings, and welded and flanged joints.
   2. Schedule 40 steel pipe; grooved, mechanical joint coupling and fittings; and grooved, mechanical joints. Coupling shall be zero-flex, rigid coupling.

F. Heat Recovery Piping shall be:

   1. Type L, drawn-temper copper tubing, wrought-copper fittings, and brazed joints.

G. Makeup water piping installed aboveground shall be:
   1. Type L, drawn-temper copper tubing, wrought-copper fittings, and brazed joints.

H. Condensate Drain Piping: Type L drawn-temper copper tubing, wrought-copper fittings, and soldered joints.

I. Air Vent Piping:
   1. Inlet: Same as service where installed.
   2. Outlet: Type L, annealed-temper copper tubing with soldered or flared or compression joints.

J. Safety Valve Inlet and Outlet Piping for Hot Water Piping: Same materials and joining methods as for piping specified for the service in which safety valve is installed. Size shall be the same as the outlet of the valve.

3.02 VALVE APPLICATIONS

A. Install shutoff-duty valves at each branch connection to supply mains as indicated on drawings or where required for testing, and at supply and return connection to each piece of equipment. DC 5/8/09

B. Install balancing valves in the return pipe of each heating or cooling coil.

C. Install check valves at each pump discharge and elsewhere as required to control flow direction.

D. Install safety valves at hot-water generators and elsewhere as required by ASME Boiler and Pressure Vessel Code.

E. Install pressure-reducing valves at makeup-water connection to regulate system fill pressure.

3.03 PIPING INSTALLATIONS

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicate piping locations and arrangements if such were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

B. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

E. Install piping to permit valve servicing.

F. Install piping at indicated slopes.

G. Install piping free of sags and bends.

H. Install fittings for changes in direction and fittings or saddles for branch connections.

I. Install piping to allow application of insulation.

J. Select system components with pressure rating equal to or greater than system operating pressure.

K. Install groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.

L. Install drains, consisting of a tee fitting thread-o-let or t-drill, NPS 3/4 ball valve, and hose adaptor with cap, at low points in piping system mains and elsewhere as required for system drainage.

M. Install branch connections to mains using tee fittings, fabricated branch connections, socket-o-lets, thread-o-lets or weld-o-lets in main pipe. Install valves according to Section 23 05 23 – General-Duty Valves for HVAC Piping.

N. Install unions in piping, NPS 2 inch and smaller, adjacent to valves, at final connections of equipment, and elsewhere as indicated.

O. Install flanges in piping, NPS 2-1/2 inch and larger, at final connections of equipment and elsewhere as indicated.

P. Install strainers on inlet side of each control valve, pressure-reducing valve, solenoid valve, pump, and elsewhere as indicated. Install NPS 3/4 nipple and ball valve in blowdown connection of strainers NPS 2 and larger. Match size of strainer blowoff connection for strainers smaller than NPS 2.

Q. Install expansion loops, expansion joints, anchors, and pipe alignment guides as specified in Section 23 05 16 – Expansion Fittings and Loops for HVAC Piping.

R. Identify piping as specified in Section 23 05 53 – Identification for HVAC Piping and Equipment.

S. Coordinate flashing and counterflashing for mechanical penetrations of roofing membrane with roofing membrane installer.

3.04 HANGERS AND SUPPORTS

A. Hanger, support, and anchor devices are specified in Section 23 05 29 – Hangers and Supports for HVAC Piping and Equipment. Comply with the following requirements for maximum spacing of supports.

B. Seismic restraints are specified in Section 23 05 48 – Mechanical Sound, Vibration and Seismic Control.

C. Install the following pipe attachments:
1. Adjustable steel clevis hangers for individual horizontal piping
2. Provide copper-clad hangers and supports for hangers and supports in direct contact with copper pipe or provide felt lined Clevis hangers.
3. Size hanger support to suit pipe insulation inserts.

D. Install hangers for steel piping and copper piping with the following minimum rod sizes:

Pipe Size (inches)	Rod Sizes (inches)
1/2 – 2	3/8
2-1/2 – 3	1/2
4 – 5	5/8
6 & 8	3/4
10-12	7/8
14-18	1
20-24	1-1/4
26-30	1-1/2

E. Install hangers for steel piping and copper piping with the following maximum spacing.

Type of Pipe	**3/4" and less**	**1" – 1-1/2"**	**2" and larger**
Steel	8-feet	10-feet	10-feet
Copper	5-feet	6-feet	10-feet

F. Support vertical runs at roof, at each floor, or as required or per seismic design.

3.05 ROUTE AND GRADES

A. Route piping in orderly manner and maintain proper grades. Coordinate and install to conserve headroom and interfere as little as possible with use of space. Run exposed piping parallel to walls. Group piping whenever practical at common elevations. Install concealed pipes close to building structure to keep furring to a minimum.

B. Expansion, Contraction and Bending:
1. Install piping with provisions for expansion and contraction. Provide expansion loops, swing joints, and/or expansion joints where indicated or otherwise required.
2. Do not spring or force piping during installation.
3. Do not bend piping without use of pipe bending machine.
4. See Section 23 05 16 – Expansion Fittings and Loops for HVAC Piping.

C. Slope piping:
1. Slope piping as indicated, true to line and grade, and free of traps and air pockets.
2. Unless indicated otherwise, slope piping in direction of flow as follows:

Service	**Inclination**	**Slope**
Heating Water (Include Heat Recovery)	Level	
Chilled Water	Level	
Heat Recovery	Level	

D. Reducers:
1. Eccentric and/or Concentric:
   a. Heating water, chilled water, condenser water, heat recovery water, piping, top side flat.
   b. Between water piping and pump suction.

E. Connect heating water & chilled water branch piping to bottom of main. Where connection is made to the top of main due to coordination issues, provide vents and drain as required.

F. Provide drain valves and hose adapters or plugs at all low points in piping.

3.06 PIPE JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 23 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Brazed Joints: Construct joints according to B31.9.

E. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
   1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
   2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

F. Welded Joints: Construct joints according to B31.9.

G. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

H. Retain paragraph below for grooved-end pipe couplings for copper or steel pipe.

I. Grooved Joints: Assemble joints with coupling and gasket, lubricant, and bolts. Cut or roll grooves in ends of pipe based on pipe and coupling manufacturer's written instructions for pipe wall thickness. Use grooved-end fittings and rigid, grooved-end-pipe couplings.

3.07 NOT USED

3.08 NOT USED

3.09 NOT USED

3.010 FIELD QUALITY CONTROL

A. General:
   1. Perform testing procedure in the presence of the Architect or Owner's representative and/or authorities having jurisdiction.
   2. Complete and test pipe rough-in before insulation or other finish work is applied. Covering of work before acceptance is prohibited.
   3. Do not test relief valves, pressure-reducing valves, valves, or equipment beyond its rated capacity.

END OF SECTION

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Copper building wire rated 600 V or less.
2. Metal-clad cable, Type MC, rated 600 V or less.
3. Connectors, splices, and terminations rated 600 V and less.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: Indicate type, use, location, and termination locations.

PART 2 - PRODUCTS

2.1 COPPER BUILDING WIRE

A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

C. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.

D. Conductor Insulation:
1. Type THHN and Type THWN: Comply with UL 83.
2. Type THW: Comply with NEMA WC-70/ICEA S-95-658 and UL 83.
3. Type XHHW-2: Comply with UL 44.

2.2 METAL-CLAD CABLE, TYPE MC

A. Description: A factory assembly of one or more current-carrying insulated conductors in an overall metallic sheath.

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. Comply with UL 1569.
3. RoHS compliant.
4. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

C. Circuits:

1. Single circuit and multi-circuit with color-coded conductors.
2. Power-Limited Fire-Alarm Circuits: Comply with UL 1424.

D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.

E. Ground Conductor: Insulated.

F. Conductor Insulation:

1. Type TFN/THHN/THWN-2: Comply with UL 83.
2. Type XHHW-2: Comply with UL 44.

G. Armor: Steel or aluminum, interlocked.

H. Jacket: PVC applied over armor, in wet locations and exterior.

2.3 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

B. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.

C. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.

1. Material: Copper.
2. Type: One hole with standard barrels.
3. Termination: Compression or Crimp.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper; solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN/THWN, single conductors in raceway, Metal-clad cable, Type MC.

B. Exposed Branch Circuits, Including in Crawlspaces: Type THHN/THWN, single conductors in raceway, Metal-clad cable, Type MC.

C. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN, single conductors in raceway, Metal-clad cable, Type MC.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material.

C. Wiring at Outlets: Install conductor at each outlet, with at least **6 inches (150 mm)** of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor and identify as spare conductor.

3.6 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.7 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. After installing conductors and cables and before electrical circuitry has been energized, test branch circuit and feeder conductors for compliance with requirements.

2. Perform each of the following visual and electrical tests:

   a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
   b. Test bolted connections for high resistance using one of the following:

      1) A low-resistance ohmmeter.
      2) Calibrated torque wrench.
      3) Thermographic survey.

   c. Inspect compression-applied connectors for correct cable match and indentation.
   d. Inspect for correct identification.
   e. Inspect cable jacket and condition.
   f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
   g. Continuity test on each conductor and cable.

B. Cables will be considered defective if they do not pass tests and inspections.

C. Prepare test and inspection reports to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Steel slotted support systems.
2. Aluminum slotted support systems.
3. Nonmetallic slotted support systems.
4. Conduit and cable support devices.
5. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.
6. Fabricated metal equipment support assemblies.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

a. Slotted support systems, hardware, and accessories.
b. Clamps.
c. Hangers.
d. Sockets.
e. Eye nuts.
f. Fasteners.
g. Anchors.
h. Saddles.
i. Brackets.

2. Include rated capacities and furnished specialties and accessories.

B. Shop Drawings: For fabrication and installation details for electrical hangers and support systems.

1. Hangers. Include product data for components.
2. Slotted support systems.
3. Equipment supports.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32-inch- (10-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c. in at least one surface.

1. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
2. Material for Channel, Fittings, and Accessories: Galvanized steel.
3. Channel Width: Selected for applicable load criteria.
4. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
5. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
6. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
7. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Aluminum Slotted Support Systems: Extruded-aluminum channels and angles with minimum 13/32-inch- (10-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c. in at least one surface.
1. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
2. Channel Material: 6063-T5 aluminum alloy.
3. Fittings and Accessories Material: 5052-H32 aluminum alloy.
4. Channel Width: Selected for applicable load criteria.
5. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
6. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
7. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Nonmetallic Slotted Support Systems: Structural-grade, factory-formed, glass-fiber-resin channels and angles with minimum 13/32-inch- (10-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c., in at least one surface.
1. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
2. Channel Width: Selected for applicable load criteria.
3. Fittings and Accessories: Products provided by channel and angle manufacturer and designed for use with those items.
4. Fitting and Accessory Materials: Same as those for channels and angles.
5. Rated Strength: Selected to suit applicable load criteria.
6. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

D. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: Stainless-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:

1. NECA 1.
2. NECA 101
3. NECA 102.
4. NECA 105.
5. NECA 111.

B. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.

C. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."

D. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.

E. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with two-bolt conduit clamps.

F. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings, and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT IMC and RMC may be supported by openings through structure members, according to NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
6. To Steel: Beam clamps (MSS SP-58, Type 19, 21, 23, 25, or 27), complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that comply with seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Metal conduits and fittings.
2. Metal wireways and auxiliary gutters.
3. Boxes, enclosures, and cabinets.

B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for firestopping at conduit and box entrances.

1.3 DEFINITIONS

A. ARC: Aluminum rigid conduit.

B. GRC: Galvanized rigid steel conduit.

C. IMC: Intermediate metal conduit.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

A. Metal Conduit:

1. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. GRC: Comply with ANSI C80.1 and UL 6.
3. ARC: Comply with ANSI C80.5 and UL 6A.
4. IMC: Comply with ANSI C80.6 and UL 1242.
5. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.
    a. Comply with NEMA RN 1.
    b. Coating Thickness: 0.040 inch (1 mm), minimum.
6. EMT: Comply with ANSI C80.3 and UL 797.
7. FMC: Comply with UL 1; zinc-coated steel or aluminum.
8. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

B. Metal Fittings:

1. Comply with NEMA FB 1 and UL 514B.
2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
3. Fittings, General: Listed and labeled for type of conduit, location, and use.
4. Fittings for EMT:

    a. Material: Steel or die cast.
    b. Type: Setscrew or compression.

5. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
6. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch (1 mm), with overlapping sleeves protecting threaded joints.

C. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

C. Wireway Covers: Screw-cover type unless otherwise indicated.

D. Finish: Manufacturer's standard enamel finish.

2.3 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, Type FD, with gasketed cover.

D. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

E. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, with gasketed cover.

F. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

G. Device Box Dimensions: **4 inches square by 2-1/8 inches deep (100 mm square by 60 mm deep)**.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC or IMC.
2. Concealed Conduit, Aboveground: GRC, IMC or EMT.
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: GRC or IMC.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
6. Damp or Wet Locations: IMC.
7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 3R in damp or wet locations.

C. Minimum Raceway Size: **1/2-inch (16-mm)**] [**3/4-inch (21-mm)**] trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
3. EMT: Use setscrew or compression, steel fittings. Comply with NEMA FB 2.10.
4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

3.2 INSTALLATION

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

B. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits.

Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

C. Do not install raceways or electrical items on any rotating equipment.

D. Do not fasten conduits onto the bottom side of a metal deck roof.

E. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

F. Complete raceway installation before starting conductor installation.

G. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches (300 mm) of changes in direction.

H. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.

I. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

J. Support conduit within 12 inches (300 mm) of enclosures to which attached.

K. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

L. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.

M. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

N. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch (35mm) trade size and insulated throat metal bushings on 1-1/2-inch (41-mm) trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

O. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

P. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

Q. Cut conduit perpendicular to the length. For conduits 2-inch (53-mm) trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

R. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

S. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

T. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Conduit extending from interior to exterior of building.
4. Where otherwise required by NFPA 70.

U. Expansion-Joint Fittings:

1. Install in each run of aboveground RMC and EMT conduit that is located where environmental temperature change may exceed 100 deg F (55 deg C) and that has straight-run length that exceeds 100 feet (30 m).
2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:

    a. Outdoor Locations Not Exposed to Direct Sunlight: **125 deg F (70 deg C)** temperature change.
    b. Outdoor Locations Exposed to Direct Sunlight: **155 deg F (86 deg C)**] temperature change.

3. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F (0.0115 mm per meter of length of straight run per deg C) of temperature change for metal conduits.
4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

V. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of **72 inches (1830 mm)** of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

W. Locate boxes so that cover or plate will not span different building finishes.

X. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

3.3 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.4 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Color and legend requirements for conductors.
2. Labels.
3. Bands and tubes.
4. Tags.
5. Cable ties.
6. Fasteners for labels.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Comply with ASME A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

2.2 COLOR AND LEGEND REQUIREMENTS

A. Color-Coding for Phase and Voltage-Level Identification, 600 V or Less: Use colors listed below for ungrounded conductors.

1. Color shall be factory applied or field applied for sizes larger than No. 8 AWG if authorities having jurisdiction permit.
2. Colors for 208/120-V Circuits:

a. Phase A: Black.
b. Phase B: Red.

c. Phase C: Blue.

3. Colors for 240-V Circuits:

a. Phase A: Black.
b. Phase B: Red.

4. Colors for 480/277-V Circuits:

a. Phase A: Brown.
b. Phase B: Orange.
c. Phase C: Yellow.

5. Color for Neutral: White or gray.
6. Color for Equipment Grounds: Green or Green with a yellow stripe.
7. Colors for Isolated Grounds: Green with white stripe.

2.3 LABELS

A. Vinyl Wraparound Labels: Preprinted, flexible labels laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.

B. Snap-around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameters sized to suit diameters and that stay in place by gripping action.

C. Self-Adhesive Wraparound Labels: Preprinted or Write-on, 3-mil- (0.08-mm-) thick, polyester or vinyl flexible label with acrylic pressure-sensitive adhesive.
1. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
2. Marker for Labels: Permanent, waterproof, black ink marker recommended by tag manufacturer.
3. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.

D. Self-Adhesive Labels: Polyester or Vinyl, thermal, transfer-printed, 3-mil- (0.08-mm-) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.

2.4 BANDS AND TUBES

A. Snap-around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 2 inches (50 mm) long, with diameters sized to suit diameters and that stay in place by gripping action.

B. Heat-Shrink Preprinted Tubes: Flame-retardant polyolefin tubes with machine-printed identification labels, sized to suit diameter and shrunk to fit firmly. Full shrink recovery occurs at a maximum of 200 deg F (93 deg C). Comply with UL 224.

2.5 TAGS

A. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch (50 by 50 by 1.3 mm), with stamped legend, punched for use with self-locking cable tie fastener.

B. Nonmetallic Preprinted Tags: Polyethylene tags, [**0.015 inch (0.38 mm)**] [**0.023 inch (0.58 mm)**] thick, color-coded for phase and voltage level, with factory permanent designations; punched for use with self-locking cable tie fastener.

C. Write-on Tags:
1. Polyester Tags: [**0.010 inch (0.25 mm)**] [**0.015 inch (0.38 mm)**] thick, with corrosion-resistant grommet and cable tie for attachment.
2. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
3. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.6 CABLE TIES

A. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 12,000 psi (82.7 MPa).
3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
4. Color: Black, except where used for color-coding.

B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 12,000 psi (82.7 MPa).
3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
4. Color: Black.

C. Plenum-Rated Cable Ties: Self-extinguishing, UV stabilized, one piece, and self-locking.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 7000 psi (48.2 MPa).
3. UL 94 Flame Rating: 94V-0.
4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).
5. Color: Black.

PART 3 - EXECUTION

3.1 PREPARATION

A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications. Use consistent designations throughout Project.

B. Install identifying devices before installing acoustical ceilings and similar concealment.

C. Verify identity of each item before installing identification products.

D. Coordinate identification with Project Drawings.

E. Apply identification devices to surfaces that require finish after completing finish work.

F. Vinyl Wraparound Labels:

1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.

G. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.

H. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.

I. Self-Adhesive Labels:

1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.

J. Snap-around Color-Coding Bands: Secure tight to surface at a location with high visibility and accessibility.

K. Heat-Shrink, Preprinted Tubes: Secure tight to surface at a location with high visibility and accessibility.

L. Marker Tapes: Secure tight to surface at a location with high visibility and accessibility.

M. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.

1. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.

N. Metal Tags:

1. Place in a location with high visibility and accessibility.
2. Secure using cable ties.

O. Nonmetallic Preprinted Tags:

1. Place in a location with high visibility and accessibility.
2. Secure using cable ties.

P. Write-on Tags:

1. Place in a location with high visibility and accessibility.
2. Secure using cable ties.

Q. Cable Ties: General purpose, for attaching tags, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.

B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.

C. Accessible Fittings for Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive labels containing the wiring system legend and system voltage.

D. Arc Flash Warning Labeling: Self-adhesive labels.

END OF SECTION

SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Cartridge fuses rated 600 V ac and less for use in the following:
   a. Enclosed controllers.
   b. Enclosed switches.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include construction details, material descriptions, dimensions of individual components. Include the following for each fuse type indicated:

1. Dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain fuses, for use within a specific product or circuit, from single source from single manufacturer.

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, current-limiting, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

1. Type RK-1: 600-V, zero- to 600-A rating, 200 kAIC, time delay.
2. Type RK-5: 600-V, zero- to 600-A rating, 200 kAIC, time delay.

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 application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with NFPA 70.

E. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fuses before installation. Reject fuses that are moisture damaged or physically damaged.

B. Examine holders to receive fuses for compliance with installation tolerances and other conditions affecting performance, such as rejection features.

C. Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FUSE APPLICATIONS

A. Cartridge Fuses:
1. Motor Branch Circuits: Class RK1 or Class RK5, time delay.

3.3 INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

3.4 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems" and indicating fuse replacement information inside of door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Molded-case circuit breakers (MCCBs).
3. Enclosures.

1.3 DEFINITIONS

A. NC: Normally closed.

B. NO: Normally open.

C. SPDT: Single pole, double throw.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include nameplate ratings, dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.

1. Enclosure types and details for types other than NEMA 250, Type 1.
2. Current and voltage ratings.
3. Short-circuit current ratings (interrupting and withstand, as appropriate).
4. Include evidence of a nationally recognized testing laboratory (NRTL) listing for series rating of installed devices.
5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.

B. Shop Drawings: For enclosed switches and circuit breakers.

1. Include plans, elevations, sections, details, and attachments to other work.
2. Include wiring diagrams for power wiring.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer and Installer agree to repair or replace components that fail in materials or workmanship within standard warranty period.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Enclosed switches and circuit breakers shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. 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."

2.2 GENERAL REQUIREMENTS

A. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.

C. Comply with NFPA 70.

2.3 FUSIBLE SWITCHES

A. Type HD, Heavy Duty:
1. Three pole.
2. 600-V ac.
3. 200 A and smaller.
4. UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses.
5. Lockable handle with capability to accept padlocks and interlocked with cover in closed position.

B. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.

2.4 MOLDED-CASE CIRCUIT BREAKERS

A. New breakers shall match existing breakers in panelboard or motor control center. Contractor shall field verify requirements prior to bid.

B. Circuit breakers shall be constructed using glass-reinforced insulating material. Current carrying components shall be completely isolated from the handle and the accessory mounting area.

C. Circuit breakers shall have a toggle operating mechanism with common tripping of all poles, which provides quick-make, quick-break contact action. The circuit-breaker handle shall be over center, be trip free, and reside in a tripped position between on and off to provide local trip indication. Circuit-breaker escutcheon shall be clearly marked on and off in addition to providing international I/O markings.

D. The maximum ampere rating and UL, IEC, or other certification standards with applicable voltage systems and corresponding interrupting ratings shall be clearly marked on face of circuit breaker.

E. MCCBs shall be equipped with a device for locking in the isolated position.

F. Lugs shall be suitable for 194 deg F (90 deg C) rated wire, sized according to the 167 deg F (75 deg C) temperature rating in NFPA 70.

G. Standard: Comply with UL 489 with interrupting capacity to comply with available fault currents.

H. Thermal-Magnetic Circuit Breakers: Inverse time-current thermal element for low-level overloads and instantaneous magnetic trip element for short circuits.

2.5 ENCLOSURES

A. Enclosed Switches and Circuit Breakers: UL 489, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

B. Enclosure Finish: The enclosure shall be gray baked enamel paint, electrodeposited on cleaned, phosphatized steel (NEMA 250 Type 1) or gray baked enamel paint, electrodeposited on cleaned, phosphatized galvannealed steel (NEMA 250 Types 3R, 12).

C. Operating Mechanism: The cover interlock mechanism shall have an externally operated override. The override shall not permanently disable the interlock mechanism, which shall return to the locked position once the override is released. The tool used to override the cover interlock mechanism shall not be required to enter the enclosure in order to override the interlock.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Construction Manager no fewer than fourteen (14) days in advance of proposed interruption of electric service.
2. Do not proceed with interruption of electric service without Construction Manager's written permission.
3. Comply with NFPA 70E.

3.3 ENCLOSURE ENVIRONMENTAL RATING APPLICATIONS

A. Enclosed Switches and Circuit Breakers: Provide enclosures at installed locations with the following environmental ratings.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.

3.4 INSTALLATION

A. Coordinate layout and installation of switches, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Install fuses in fusible devices.

C. Comply with NFPA 70 and NECA 1.

3.5 IDENTIFICATION

A. Comply with requirements in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections for Switches:

1. Visual and Mechanical Inspection:

a. Inspect physical and mechanical condition.
b. Inspect anchorage, alignment, grounding, and clearances.
c. Verify that the unit is clean.
d. Verify blade alignment, blade penetration, travel stops, and mechanical operation.
e. Verify that fuse sizes and types match the Specifications and Drawings.

f. Verify that each fuse has adequate mechanical support and contact integrity.
g. Inspect bolted electrical connections for high resistance.

1) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.

a) Bolt-torque levels shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.12.

h. Verify correct phase barrier installation.
i. Verify lubrication of moving current-carrying parts and moving and sliding surfaces.

C. Tests and Inspections for Molded Case Circuit Breakers:

1. Visual and Mechanical Inspection:

a. Verify that equipment nameplate data are as described in the Specifications and shown on the Drawings.
b. Inspect physical and mechanical condition.
c. Inspect anchorage, alignment, grounding, and clearances.
d. Verify that the unit is clean.

D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

3.7 ADJUSTING

A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

END OF SECTION

SECTION 312000

EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Perform rough grading in accordance with Contract Documents.

1.1 STANDARD SPECIFICATIONS

A. All work to be performed and materials to be used shall be in accordance with the Southern California Chapter American Public Works Association “Standard Specifications for Public Works Construction”,(SSPWC) The CONTRACTOR shall have one copy of the Standard Specifications at the job site.

1.2 DESCRIPTION OF WORK

A. This section describes excavation and backfilling requirements for building demolition excavation for removal of foundation, pits and substructure, and backfill for remedial excavations.

1.3 QUALITY ASSURANCE

A. Regulatory Requirements

1. Excavation Work: Perform in compliance with applicable requirements of laws, codes, ordinances and regulations of Federal, State, County and Municipal authorities having jurisdiction over work.
2. Shoring and Bracing: Comply with requirements of County and Municipal Codes having jurisdiction over work. Secure approval by authorities administering this code before proceeding with work.
3. When such laws, codes or ordinances contain more stringent requirements than Contract Documents, the more stringent requirements govern.

1.4 REFERENCES

A. Except as modified by governing codes and by Contract Documents, comply with applicable provisions and recommendations of the following:

1. ANSI A10.2 "Safety Code for Building Construction".
2. AASHTO “American Association of State Highway and Transportation Officials”.
3. Part 1926, subpart P, "Excavation, Trenching and Shoring", Construction Safety and Health Regulations (OSHA), including Sections relative to protection of public; sheet piling, shoring and bracing; trenches and excavating equipment.
4. Cal/OSHA
5. Southern California Chapter American Public Works Association “Standard Specifications for Public Works Construction”, latest edition.

6. Geotechnical Investigation Report, Martin Luther King Jr. Medical Campus, Augustus F. Hawkins Building Demolition Project, 1720 E#. 120th Street, Los Angeles, California.

1.5 SUBMITTALS

The CONTRACTOR shall submit the information specified herein to the Owner's Representative for review. Unless otherwise specified, submittals shall be made not less than three weeks before the start of work. These submittals shall be reviewed and acceptable to the Owner's representative prior to conducting any work.

A. Removal, Storage, Transportation, and Disposal Work Plan: Contractor shall prepare and submit a Removal, Storage, Transportation and Disposal Work Plan that details the following:

1. Sequencing of the Soil excavation work by location, estimated volume/tonnage, and type and characterization of Soil.
2. Proposed locations and sizes of Soil staging and Soil storage areas within the Project Limits.
3. Procedures for segregation of Soil.
4. Locations, means, and methods for storing excavated Soil and Waste (including Liquid Waste) prior to transportation in accordance with applicable permits and the requirements of this Section. Provide materials of construction, type of puncture resistant lining material and provisions for spill containment and spill control. Storage containers for Hazardous Waste shall comply with 40 CFR Part 265.
5. Locations, means, and methods for stockpile sampling and characterization of excavated Soil (and Liquid Waste) for disposal in accordance with this Section.
6. Procedures for segregation, removal and stockpiling of Stained or Odorous Materials and VOC-Impacted Soil if encountered during the performance of Work.
7. Procedures for setting up Exclusion Zones around Work areas and decontamination areas at designated egress locations. Exclusion Zones shall be required if VOC-Impacted Soil or Hazardous Waste is encountered.
8. Procedures for decontamination of equipment used within Exclusion Zones.
9. Plan for groundwater and stormwater management within excavation(s) including characterization and lawful disposition of Liquid Waste. Groundwater and stormwater shall not be comingled.
10. Transportation plans, route maps, haul permits, hauling companies, and certifications to be utilized for the transportation of Soil and Liquid Waste removed during the Work.
11. Procedures and equipment associated with Soil excavation including excavation methodology, initial PPE anticipated and required upgrades, in accordance with the Contractor's HASP.
12. Procedures, equipment, and materials for vapor, dust, and odor suppression, including the specifications for any proposed commercial suppression agents or materials.

B. Hauling Load Tickets: Submit daily load tickets, with respective certified tare weights, from certified scale approved by OWNER for all corresponding loads hauled to or from the Work Site.

C. Training Certification of Employees (Health and Safety): Contractor shall submit current training certificates and a letter, signed and dated by the Health and Safety Officer stating that the Contractor's employees have received required training under OSHA and Cal/OSHA regulations (as applicable) to perform the Work per the Contract Documents.

D. Contractor shall submit copy of Contractor's Hazardous Substances Removal Certification (issued by the California Contractors State License Board) a minimum of seven (7) calendar days prior to offsite disposal of Waste identified in this Section. Loading, hauling and transportation of Waste shall not proceed until this Certification has been provided to the Engineer. Any and all delays related to untimely submittal of this Certification shall be at no additional cost to the Owner.

E. Notifications, Permits, and Approvals:

1. Contractor shall notify the Engineer a minimum of fourteen (14) calendar days prior to the start of excavation of Soil.
2. Contractor shall provide copies of required regulatory permits or approvals and appropriate regulatory agency notifications in accordance with permit requirements.
3. Contractor shall provide all required notifications to the Engineer and applicable agencies in accordance with all permit requirements.

F. Health and Safety Plan (HASP):

1. Contractor shall submit a detailed Project-specific HASP including safe work practices and emergency procedures approved by the Health and Safety Officer.
2. The HASP shall be submitted as part of the Site-Specific Safety Plan.
3. The HASP shall be reviewed by the Engineer prior to commencement of the Work. The Contractor and SUBCONTRACTORs shall not be allowed to proceed with any on-site activity until all Engineers' comments concerning the HASP have been addressed
4. The Contractor shall update and resubmit the HASP at appropriate times to reflect changes on the Project (i.e., to Work areas, means, methods, techniques, sequences, and procedures).
5. The HASP shall identify all necessary emergency phone numbers.
6. The Contractor shall maintain a copy of the HASP on site at all times of the Work. .

G. Health and Safety Officer:

1. Contractor shall submit a qualifications package that shall include the resume of the Health and Safety Officer to be used by the Contractor, documenting minimum three (3) years' experience managing corporate health and safety programs (including training and respiratory fit testing) and the preparation of HASPs for implementation at impacted Soil sites. Assignment of the Contractor's Health and Safety Officer shall be subject to review by the Engineer.

2. Contractor's Health and Safety Officer shall be an industrial hygienist certified by the American Board of Industrial Hygiene (ABIH) to certify training and respiratory fit tests and to review and approve the Contractor's detailed Health and Safety Plan (HASP), including determination of the need for PPE in performing the Waste removal work identified in this Section. Contractor shall submit proper documentation that the hygienist is ABIH certified, including certification number and date of certification/re-certification.

H. Site Safety Officer: Contractor shall submit a qualifications package that shall include the resume of the Site Safety Officer to be used by the Contractor, documenting minimum three (3) years' experience in implementing HASPs at impacted Soil sites, and copies of current 40Hours HAZWOPER, First Aid, and CPR certifications. Assignment of the Contractor's Site Safety Officer shall be subject to review by the Engineer.

I. Disposal/Recycling Facility: Contractor shall submit a qualifications package for each proposed disposal and recycling facility to be used by the Contractor, per the requirements of this Section, that shall include the following:

1. Legal name, address, and contact information for the proposed offsite facility or facilities to be used by the Contractor for disposal of Waste.
2. Current regulatory permits, licenses and certifications demonstrating the regulatory status of the proposed facility or facilities to receive Waste for the specific Waste characterization(s) identified in this Section.
3. Statement from each proposed facility that it is fully licensed and permitted and not subject to regulatory investigation or undergoing review for renewal of its license.

J. Disposal Manifests:
   1. Contractor shall submit completed sample manifest(s) for final disposition of Waste at offsite disposal facility or facilities selected by the Contractor.
   2. Contractor shall submit manifests to the Engineer per the requirements of this Section for signature and record.
   3. Contractor shall provide procedures for managing manifests.

K. Backfill Materials and Equipment: Proposed types and sources of all fill and backfill materials. For each type of soil to be utilized as fill or backfill, the CONTRACTOR shall deliver two 50-lb bag samples from each borrow source or supplier to the Owner's Representative's laboratory for review and laboratory testing. Do not import any material to the site unless accepted by the Owner's Representative. With each sample provide the following documentation:

1. Location of borrow source site, including name of the owner or facility name with contact phone number, street address, city, and state.
2. Present and past usage of the source site and material.
3. All existing report(s) associated with an assessment of the source site as relates to the presence of oil or hazardous materials.

4. If the materials are not from a commercial borrow pit and/or are suspected of potentially containing oil and/or hazardous materials based on the Owner Representative's review of the submitted data described above, the CONTRACTOR shall submit the below-listed chemical test data on the material. The cost of any required testing shall be borne by the CONTRACTOR. The Owner's Representative will review the data and determine its acceptability for use on site. Samples of each material shall be submitted to a OWNER approved and certified laboratory and analyzed as follows:
5. Total Petroleum Hydrocarbons (EPA Method 9071/418.1) every 150 cy.
6. Extractable and Volatile Petroleum Hydrocarbons every 150 cy.
7. Volatile Organic Compounds (EPA Method 8260) every 250 cy.
8. PCB and Pesticides (EPA Method 8080) every 250 cy.
9. Thirteen Priority Pollutant Metals (EPA Method 6000-7000 series) every 250 cy.
10. Acid-Base Neutrals (EPA Method 8270) every 300 cy.
11. TCLP (for a particular parameter) if the measured concentration for that particular parameter exceeds twenty times the RCRA Hazardous Waste TCLP Regulatory criteria.
12. Testing Laboratory Soil Reports: The following reports are to be submitted in accordance with the procedures described in Public Works Project Manual.
13. Report and certification of granular fill and drainage fill.
14. Test reports on borrow material.
15. Field density test reports.

1.6 PROJECT CONDITIONS

A. Examine site, Drawings and as-built records of existing utilities and construction. Record data is for information only and is not guaranteed to represent all conditions that will be encountered.
B. Review the site-specific Geotechnical Investigation Report, Martin Luther King Jr. Medical Campus, Augustus F. Hawkins Building Demolition Project, 1720 E#. 120th Street, Los Angeles, California.
C. Contractor shall notify the Engineer immediately if Non-Hazardous Waste described in the Contract Documents is characterized as Hazardous Waste per the results of the Contractor's environmental testing.
D. Contractor shall barricade open excavations and post with warning lights and signage. The Contractor shall operate warning lights during hours from dusk to dawn each day and as otherwise required.

E. Contractor shall protect utilities, surface and subsurface structures, and facilities designated to remain in place from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavation and backfill operations.

1.7 ENVIRONMENTAL PROTECTION

A. Offsite Precautions: Contractor's equipment which has contacted Waste shall not be allowed to pass outside the Project Limits, over existing onsite access roads, offsite public roads, or other public and private property without decontamination and protection per the Contractor's Removal, Storage, Transportation and Disposal Work Plan. Any such roads or property which are damaged or contaminated with Waste as a result of Contractor's operations shall be restored to original condition by the Contractor at no additional cost to the City, including any and all associated delays.

B. Stormwater Runoff Management: Stormwater shall be managed by the Contractor in accordance with the Contractor's SWPPP. QSP inspection to be provided by a state ENGINEER. Any damage, repair, alterations identified in QSP inspections is exclusively the responsibility of the Contractor and shall be immediately repaired by the Contractor at no additional cost to the Owner, including any and all associated delays.

C. Standing Water Quality: During the execution of the Work, the Contractor shall adopt, implement and conform to the regulatory requirements and the Contractor's SWPPP. Water entering excavations, if removed by the Contractor, shall be containerized, tested, and disposed or recycled as a Liquid Waste at an appropriate offsite facility selected by the Contractor at no additional cost to the Owner, per the requirements of this Section.

D. Air Quality (Vapor, Dust, and Odor) and Noise: During the execution of the Work, the Contractor shall adopt, implement and conform to the regulatory requirements in accordance with SCAQMD Rule 1166. Mitigation measures stipulated by SCAQMD Rule 1166 are exclusively the responsibility of the Contractor and shall be immediately implemented by the Contractor at no additional cost to the Owner.

1.7 MEASUREMENT

A. Measurement for "Earthwork and Grading" will be measured as a unit (lump sum) and include all shoring and dewatering as required to perform the work.

B. Measurement for "Soil Excavation and Stockpiling of Non-hazardous Waste" will be measured as a unit (cubic yards) based on bank volume. Measurement of "Soil Excavation and Stockpiling of Non-hazardous Waste" shall include excavation, segregation, stockpiling, sampling, testing, and characterization in accordance with the Contract Documents.

C. Measurement for "Disposal of Non-hazardous Waste" will be measured as a unit (ton) based on certified load tickets. Measurement of "Disposal of Non-hazardous Waste" shall include profiling, loading, hauling, and disposal in accordance with the Contract Documents.

1.9 PROTECTION

A. Existing Utilities:

1. Maintain existing utilities which are to remain in service, existing utilities which are to remain in service until after relocation, and relocated utilities. Before excavating over or adjacent to existing utilities, notify utility

   Company or Owner to ensure protective work will be coordinated and performed in accordance with utility company or Owner's requirements. If existing service lines, utilities and utility structures, which are to remain in service, are uncovered or encountered during these operations, safeguard and protect from damage.

2. Within limits of excavation, remove existing piping, subsoil drainage systems, conduit, manholes and relocated items which are to be abandoned. Plug open ends of utilities to remain with concrete.

3. Consult Owner immediately for directions, should uncharted or incorrectly charted piping or other utilities be encountered during excavation. Cooperate with Owner and public and private utility companies in keeping their respective services, utilities and facilities in operation. If damaged, repair utilities to satisfaction of Owner and utility Owner concerned.

B. Existing Facilities: Protect and maintain in satisfactory manner, existing pavements, curbs, gutters, structures, conduits, fences, walls and other facilities to remain above and below grade. Restore facilities damaged by construction operations.

C. Existing Facilities to removed shall be removed in their entirety unless otherwise shown. Contractor to confirm termination of services with

D. Draining: Excavate areas in such manner as to afford adequate drainage. Control grading in vicinity of excavated areas so ground surface will slope to prevent water running into excavated areas. Groundwater pumping will not be allowed. Prevent erosion of completed work during construction and until permanent drainage and erosion controls are operational. Repair adjoining properties, facilities and streets damaged due to improper protection.

PART 2 – PRODUCTS

2.1 MATERIALS

A. General: The excavated on-site soils may be reused as fill material, provided they are free from roots, other organic matter and deleterious materials. Fill material shall be inorganic, non-expansive granular soil free from rocks or lumps greater than 6 inches in maximum dimension. Reprocessed concrete from on-site sources (building slab demolition only) may be reused as common fill or granular fill. Import of processed concrete from off-site sources will not be allowed.

A. Compacted Granular Fill: Compacted Granular Fill shall consist of sandy gravel, or gravelly sand, free of organic material, loam, trash, snow, ice, frozen soil, and other objectionable material and shall be well-graded within the following limits:

Sieve Size	Percent Finer by Weight
6 in.	100

No. 4	30-90
No. 40	10-50
No. 200	0-8

B. Reprocessed concrete from on-site sources (building slab demolition) may be reused as granular fill. Import of processed concrete from off-site sources will not be allowed.

C. Common Fill: Common Fill shall consist of well graded, natural, mineral soil free from contamination, organic materials, loam, wood, cinders, asphalt, concrete, trash and other weak, compressible, or objectionable materials. On-site material with levels of chemical compounds below Site remedial Goals (SRGs) may be considered for reuse as common fill. Common Fill shall be used for general site fill as approved by the Owner's representative.

Common Fill shall not contain stones larger than six (6) inches in maximum dimension and shall have a maximum of 80 percent passing the No. 40 sieve and a maximum of 30 percent passing the No. 200 sieve. It shall not contain broken concrete, masonry rubble or other similar materials and shall have physical properties such that it can be readily spread and compacted during filling and placed to form embankments and compacted to the specified densities in a reasonable length of time. It shall be free from plastic clays, from all materials subject to decay, decomposition, or dissolution and from cinders or other materials which will corrode piping or other metal. It shall be a free draining material. It shall have an in-place dry density of not less than 115 lbs. per cubic foot.

D. Geotextile: Geotextile shall consist of an approved non-woven geotextile filter fabric.

E. All material is subject to approval by the Owner's representative.

PART 3 – EXECUTION

3.1 PREPARATION

A. Reference Points: Provide and maintain throughout construction, benchmarks and other reference points on and off site.

B. Site Preparation: Clean areas within Contract Limit Lines as required. Remove pavement, utilities, objects (such as fences, bollards, etc.), pits, manholes and vegetation.

1. Before excavation, contact the "Underground Service Alert of Southern California" (USASC) for information on buried utilities and pipelines.
2. All areas to be backfilled or graded should be stripped of significant vegetation and other deleterious materials. These materials should be removed from the site for disposal.
3. No imported materials shall be transported to the site without the prior approval of the Owner's representative. Expansive soils will not be allowed.
4. Barricade trenches, ditches, pits, sumps, and similar Work outside the barricaded working area with chain link fence as specified in Section 01500: Construction Facilities and Temporary Controls, and in accordance with Cal-OSHA standards and requirements.
5. Saw-cut concrete or bituminous paving for trench installation.
6. Trenches over 5 feet in depth shall conform to the Construction Safety Orders of the California Division of Industrial Safety.

7. Backfill excavations to the required elevations with common or granular fill and compact as required. Provide excavations free from standing water by providing protection against water intrusion. Slope adjacent grades away from excavations to minimize entry of water.
8. Remove existing concrete, masonry and rubble.
9. Excavate to remove abandoned slabs, footings, foundation walls, pits, manholes, conduit, pipes and other existing below-grade construction to limits indicated.

C. Fill above described areas to subgrade with acceptable material as specified.

3.2 EXCAVATION

A. Unless otherwise directed by the Owner, excavations to completed demolition and remediation will be backfilled and compacted as specified at no additional cost to the Owner.

B. Classification of Excavation: The CONTRACTOR shall assure himself by site investigation or other necessary means that he is familiar with the type, quantity quality, and character of excavation work to be performed. Excavation shall be considered unclassified excavation. Except as indicated in the Contract Documents.

C. Temporary excavation shall comply with the requirements of the Geotechnical Investigation and Bulk Factor Report prepared for the site.

D. Temporary shoring (if required) shall comply with the requirements of the Geotechnical Investigation and Bulk Factor Report prepared for the site.

E. Groundwater was not encountered during the field exploration but it is possible that it may be encountered during excavation activities. If encountered, the Contractor shall contact the Geotechnical Engineer of Record for recommendations on mitigation groundwater within the building foundation excavation. Caving should be anticipated with any onsite sandy soils encountered during excavation.

3.3 FILLING

A. Materials for fills shall consist of acceptable material, as specified in Paragraph 2.1, MATERIALS, obtained from required excavation on site, or from borrow sources. Materials shall be reviewed and subject to approval of the OWNER.

B. Utilization of Excavated Materials: Suitable excavated material, as specified in the Paragraph 2.1 MATERIALS, may be used for backfilling. Separate unsuitable material from material which is suitable for fill. Placement and compaction of Materials shall be reviewed by the Owner's representative. Borrow: Acceptable borrow shall consist of suitable material specified in the paragraph 2.1 MATERIALS. Submit representative samples of each type of borrow material and Soils Testing Laboratory results for approval prior to importing to site.

C. Fill under Paved Areas: Place fill materials in horizontal loose layers; spread, mix and place in such manner as to produce uniform thickness of material. Start placement in deepest area and progress approximately parallel to finished grade. Layers shall not exceed 6 inches in thickness prior to compaction.

1. Do not place fill material on areas where free water is standing, or on surfaces that have not been approved by Soils Testing Laboratory.

D. Compaction and Density Control:

a. Compact each layer of fill with acceptable equipment to achieve the following minimum percentages of maximum dry density at the moisture content specified in these Specifications. Compact all fill to at least 90% relative compaction per ASTM D-1557. Compaction or consolidation, by soaking or jetting with water is not acceptable alternative methods to utilization of mechanical equipment.

b. A third party inspector will perform density testing to certify that the compaction meets the requirements of this Section. When tests are performed, acceptable results shall indicate that the requirements specified in this Section have been obtained.

c. A third party inspector will perform density testing on each layer of Bedding and Backfill Material prior to placing succeeding layers. The number of tests performed shall be a minimum of one (1) for every 200 cubic yards of compacted material, with a minimum of one (1) test for every one (1) foot thickness of compacted material. Testing frequency shall be in accordance with ASTM methods, unless otherwise specified in this Section. The Engineer reserves the right to perform compaction tests in any location at any time. Retests of failed tests will be performed by the Engineer and costs for each retest may be deducted from the final payment to the Contractor. The Contractor shall provide space and allow time for each test to be performed and the results obtained.

d. Contractor shall furnish assistance to facilitate density testing by the Engineer.

e. The following tests may be used by Engineer for on-site density control:

i. ASTM D6938, - Standard Test Method for In-Place Density and Water Content of Soil and Soil Aggregate by Nuclear Methods (Shallow Depth).

ii. 2. ASTM D1556 – Standard Test Method for Density and Unit Weight of Soil In-Place by the Sand Cone Method.

f. Whenever the Contractor's operations do not conform to the above criteria and requirements contained in this Section, the Engineer will prohibit placement of an overlying lift until the Contractor takes effective corrective action at no additional cost to the City, including, but not limited to, scarifying the top six inches, recompaction and manipulation of moisture. Any delays resulting from the Contractor’s corrective actions shall be at no additional cost to the City.

g. Damage to any compacted lift at any time during the course of construction, such as rutting under loads imposed by earth moving equipment, shall be fully repaired and re-compacted to specified density by the Contractor at no additional cost to the City prior to placement of any overlying materials. Any delays resulting from the Contractor's corrective actions shall be at no additional cost to the City.

E. Moisture Control for Fill and Subgrade

1. Maintain moisture content by wetting or drying manipulation. Suspend compacting operations when satisfactory results cannot be obtained because of rain or other unsatisfactory conditions.

2. Sprinkle with water fill and subgrade material, which does not contain sufficient moisture to be compacted in accordance with requirements of Specifications.

3. Dry fill and subgrade material containing excess moisture prior to or during compaction to moisture content not greater than two percentage points (2%) above optimum. Reduce moisture content of material which displays pronounced elasticity or deformation under action of loaded rubber tired conveyances to optimum if necessary to secure stability. For subgrade material, these requirements for maximum moisture apply at time of compaction of subgrade.

F. Fill Under Areas of General Grading: Obtain material for fill from excavation or from borrow sources as specified.

1. Place fill in 9 inch layers (maximum) to grades shown on the Contract Drawings. Compact layers

   To specified density at optimum moisture content as determined by ASTM D1557.

3.4 QUALITY CONTROL

A. General Requirements

1. CONTRACTOR will employ, at his expense, Soils Testing Laboratory, to perform tests and submit reports specified in this Section.

2. The Soils Testing Laboratory will conduct and interpret tests; state in reports whether test results indicate conformance with Contract Document requirements and note deviations.

B. Tests: Soils Testing Laboratory will perform tests herein specified and additional tests required, and submit test reports to Owner including the following:

1. Optimum Moisture-Maximum Density Curve shall be supplied by the Soils Testing Laboratory. Determine maximum densities by ASTM D1557.

2. Should borrow material be required, each type shall receive mechanical analysis, plasticity index determination, moisture-density curve determination and expansion index analysis by Soils Testing Laboratory as required.

C. Subgrade and Fill Layers: Subgrades and fill layers shall be approved by Owner's Representative. Tests of subgrades and fill layers will be taken as follows:

1. The CONTRACTOR shall document limits and depth of excavation prior to backfilling.
2. Backfill: periodic monitoring of backfill placement will be undertaken by the Owner's representative. Backfill placement shall conform to criteria specified.

D. CONTRACTOR shall cooperate with Owner's representative in performance of tests.

E. If, in Owner's opinion, based on field density testing, fill that has been placed is found to be below specified density, Owner will require additional compaction and testing at CONTRACTOR's expense.

3.5 DISPOSAL OF EXCAVATED MATERIALS

A. Dispose of the following material off property at CONTRACTOR's own cost:

1. Demolition debris not used for recycling.
2. Stripped topsoil which is not being stockpiled for future work, unless disposition on site is directed by Owner.

B. Do not burn material resulting from clearing and grubbing operations on site. Remove from property.

END OF SECTION 312000

SECTION 312333

EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES

DESCRIPTION

1.1 WORK OF THIS SECTION.

Excavating, backfilling, and compacting utility trenches such as water, gas, irrigation, storm drain, sewer lines, concrete-encased conduits, and manholes, vaults, valve boxes, catch basins, underground tanks, thrust blocks, yard boxes, pull boxes and other utility appurtenances.

1.2 RELATED SECTIONS.

Not defined separately under this section.

1.3 QUALITY ASSURANCE.

Comply with the following as a minimum requirement: Standard Specifications for Public Works Construction, current edition, except as modified herein.

1.4 REFERENCES

Geotechnical Investigation Report, Martin Luther King Jr. Medical Campus, Augustus F. Hawkins Building Demolition Project, 1720 E#. 120th Street, Los Angeles, California.

MATERIALS

2.1 BEDDING MATERIALS.

Bedding materials from trench bottom to one foot above the pipe shall be sand, gravel, crushed aggregate or native free draining granular material providing a sand equivalent of at least 30 or a coefficient of permeability greater than 1.4 inches per hour.

2.2 BACKFILL MATERIALS.

Excavated trench material to be installed for backfilling shall be clean, free of large clods, and stones larger than 2-1/2 inches in any dimension.

Cement-sand slurry shall be provided with 1 sack of cement per cubic yard of the mixture.

CONSTRUCTION METHODS

3.1 GENERAL

Before excavation, contact the "Underground Service Alert of Southern California" (USASC) for information on buried utilities and pipelines.

Barricade trenches, ditches, pits, sumps, and similar Work outside the barricaded working area with chain link fence as specified in Section 01500: Construction Facilities and Temporary Controls, and in accordance with Cal-OSHA standards and requirements.

Saw-cut concrete or bituminous paving for trench installation.

Trenches over 5 feet in depth shall conform to the Construction Safety Orders of the California Division of Industrial Safety.

Where indicated and/or required to excavate in lawn areas, protect adjoining lawn areas outside of the Work area. Replace or install removed sod upon completion of backfill by installing sod level with adjacent lawns. If installation of removed sod fails, furnish sod and install to match existing lawns.

Backfill over excavations to the required elevations with earth, gravel, sand, or concrete and compact as required. Provide excavations free from standing water by pumping, draining, or providing protection against water intrusion. Slope adjacent grades away from excavations to minimize entry of water.

Unless otherwise indicated on Drawings, depth of excavations shall allow for

A minimum coverage above top of pipe, tank, or conduit measured from subgrade, as follows:

Steel Pipe	24 inches below subgrade
Cast-Iron Pressure Pipe	36 inches below subgrade
Plastic Pipe (other than waste)	30 inches below subgrade
Soil, Sewer & Storm Drain	minimum 12 inches below subgrade and as required for proper pitch and traffic load.

Trench width shall provide ample space for fitting and joining. Excavate for piping bells and fittings, bell and spigot pipe and other fittings.

Unless indicated otherwise, excavate trenches to the required depths for utilities, such as pipes, conduit and tanks, with minimum allowances of 6 inches at the bottom and 6 inches at the sides for bedding of unprotected piping or as required for concrete encasement of conduits as indicated on Drawings. Grade bottom of trenches to a uniform smooth surface. Remove loose soil from the excavation before installing sand bedding or concrete encasement.

Provide excavations free from standing water by pumping, draining, or providing protection against water intrusion. If soil becomes soft, soggy, or saturated, excavate to firm undisturbed soil and fill as required. Slope adjacent grades away from excavations to minimize entry of water.

Provide a minimum clear dimension of 2 inches from sides of wall excavation to outer surfaces of buried pipes or conduits installed in the same trench or outside surfaces of containers and/or tanks.

Do not install backfill until required inspections and testing is completed.

Backfill electrical or other excavated utility trenches located outside of barricaded installation areas within 24 hours after inspection.

Install backfill materials in layers not exceeding 4 inches in thickness and compact to 90 percent of the maximum density.

If materials excavated from the Project site are not permitted for trench backfill in paved areas, backfill trenches with a cement-sand slurry mix. Install backfill to an elevation of the existing undisturbed grade plus one inch.

Install and compact sand bedding to provide a uniform full length bearing under piping and conduits.

3.2 INSPECTION AND TESTING

The GEOTECHNICAL ENGINEER, retained by the Owner as an Owner Consultant, will conduct periodic observation and testing of backfill placement.

Compaction test shall be performed in accordance with ASTM D 1557, method “C.”

3.3 PROTECTION

Protect the Work of this section until Substantial Completion.

3.4 CLEANUP

Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Payment of excavation and backfilling is incidental to the work item for the particular substructure installation; no separate payment will be made.

END OF SECTION 312333

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SECTION 312500

EROSION AND SEDIMENTATION CONTROLS

DESCRIPTION

1.1 SCOPE OF WORK.

This item shall consist of the implementation and maintenance of a Storm Water Pollution Prevention Plan (SWPPP) and implementation and maintenance of storm water pollution prevention Best Management Practices (BMPs) required to prevent and control discharges of dust, soil, sediment, debris, and other pollutant from the project site onto adjacent areas and/or into the storm water conveyance system from construction activities shown on the project drawings and as specified.

The SWPPP and BMPs shall apply to all construction related areas and activities associated with the project, such as staging areas, equipment and material storage sites, waste management areas, temporary plant sites, and borrow pit operations which may be outside the construction limits.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

1.2 REGULATIONS.

The CONTRACTOR must comply with the following Permits:

1. State Water Resources Control Board (SWRCB) Order No. 2009-0009-DWQ, National Pollutant Discharge Elimination System (NPDES) Permit No. CAS000002, General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), as adopted, amended, and/or modified (see http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml); and
2. Regional Water Quality Control Board (RWQCB) Order No. R4-2006-0074, NPDES Permit No. CAS004001, Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the incorporated Cities Therein, http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/los_angeles_ms4/2006_1003_final/2001%20la%20ms4%20permit%20as%20updated%20by%20order%20no.%20r4-2006-0074%20sep%2014%202006.pdf).

1.3 APPLICABLE PUBLICATIONS AND GUIDANCE.

The publications and guidance listed below form a part of this specification to the extent referenced. There are other sources of information available to the CONTRACTOR and the following list is not meant to limit those resources. These items are referred to in the text by the basic designation only.

1. California Stormwater Quality Association webpage - https://www.casqa.org/Default.aspx. In late 2009, CASQA posted an updated version of the Construction BMP Handbook as a web-based Portal. CASQA developed the new 2011 CASQA Construction BMP Handbook / Portal to complement the State Construction General Permit. The Construction Handbook / Portal provides general guidance for implementing stormwater pollution prevention plans (SWPPPs) and Best Management Practices (BMPs).More information about the CASQA Construction BMP Handbook / Portal can be found at: https://www.casqa.org/store/products/tabid/154/p-167-construction-handbookportal-initial-subscription.aspx.
2. Caltrans webpage - http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm. BMP guidance and details are available in the Caltrans Storm Water Quality Handbooks, Construction Site Best Management Practices (BMPs) Manual. Addition BMP guidance is also available at: http://www.dot.ca.gov/hq/construc/stormwater/factsheets.htm.
3. State Water Resources Control Board webpage - http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml
4. Supplemental guidance on implementation of a SWPPP prepared in accordance with the Construction General Permit.

1.4 NOTICE OF INTENT (NOI).

The CONTRACTOR will file the Notice of Intent (NOI) to comply with the Construction General Permit (NPDES Permit No. CAS000002) and pay the associated fees. The NOI may list the CONTRACTOR as the “Developer/CONTRACTOR” in portions of the NOI.

1.5 START OF WORK.

Construction work shall not start until: 1) the SWRCB has issued a WDID Number for the project in response to a Notice of Intent (NOI) filed by the CONTRACTOR; and 2) the SWPPP has been prepared by the CONTRACTOR and approved by LAWA.

1.6 SWPPP IMPLEMENTATION.

Prior to the start of any clearing, grading, excavating, filling, construction, paving, and/or the installation of structures, the CONTRACTOR shall implement the SWPPP. The SWPPP shall include, but not be limited to, site information, identification of potential pollutants, and identification of appropriate stormwater pollution prevention BMPs to be utilized by the CONTRACTOR throughout the duration of the project, designed to prevent unauthorized discharges due to wind, rain, run-on or runoff water sources, and/or tracking by vehicles and equipment. The SWPPP shall also include site plans with details of appropriate BMPs to be implemented and their locations for each phase of work. The SWPPP shall identify BMPs to address: erosion and sediment controls, wind erosion controls, tracking controls, non-stormwater management controls, materials management control, and waste management controls. The CONTRACTOR shall continually monitor BMPs for proper implementation and repair to ensure effectiveness. Any required modifications to BMPs shall be documented in the SWPPP itself and on site plans as necessary when changes occur, including recordation of the date of each such modification/amendment. The SWPPP shall include provisions that describe requirements for 1) the CONTRACTOR to conduct sampling of stormwater and other discharges and for 2) CONTRACTOR employee training relevant to stormwater pollution control and implementation of the SWPPP, as appropriate. The OWNER PM OR DESIGNEE will regularly inspect the project

site and may require amendments to the SWPPP and/or the BMPs therein as necessary during construction to prevent and/or eliminate unauthorized discharges off the jobsite and/or to the stormwater conveyance system.

1.7 QUALIFICATIONS OF THE CONTRACTOR.

Installation, monitoring, maintenance, and repair of BMPs shall be performed or supervised by a Qualified SWPPP Practitioner (QSP) as defined in the Construction General Permit. Stormwater sampling, as required by the Construction General Permit and/or the SWPPP shall be performed or supervised by a QSP as defined in the Construction General Permit. Section VII (page 33 of the Construction General Permit) details the training qualifications and certification requirements used in defining a QSP. The QSP may delegate any or all of these activities to an employee trained to do the task(s) appropriately, but shall ensure adequate deployment.

1.8 BEST MANAGEMENT PRACTICES.

All construction activities shall be evaluated by for their potential to impact stormwater quality. Adequate BMPs shall be identified by the OWNER PM OR DESIGNEE and/or the QSP and implemented by the CONTRACTOR to control the potential impacts. The BMPs shall include effective erosion and sediment controls, wind erosion controls, tracking controls, non-stormwater management controls, and material and waste management controls.

Guidance for implementing BMPs is described in the publications listed in paragraph 156-2.2. The CONTRACTOR shall implement the BMPs as presented in the SWPPP or as deemed necessary by the QSP.

The CONTRACTOR, as recommended by the QSP, with the approval of the OWNER PM OR DESIGNEE, may modify the working details, as necessary, to adapt the BMPs for site conditions to meet the pollution control objectives. There shall be no additional costs resulting from the CONTRACTOR’s modification to BMPs required to achieve the pollution prevention objectives.

MATERIALS

2.1 MATERIALS.

Materials shall be as shown on the plans and as specified in the publications listed above in paragraph 156-1.3 and the SWPPP. All materials shall meet commercial grade standards and shall be approved by the OWNER before being incorporated into the project.

The CONTRACTOR shall have adequate materials on-site to quickly deploy BMPs, as necessary, to protect the exposed portions of the site and to prevent sediment and pollutant discharges from the site.

CONSTRUCTION REQUIREMENTS

3.1 GENERAL.

In the event of a conflict between these requirements and pollution control laws, rules, regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

A copy of the SWPPP and NOI must be kept on site and updated as necessary.

The regulations listed in paragraph 156-1.2 above prohibit degradation of water quality and require prevention or control of discharges from construction sites and construction activities for all projects. The CONTRACTOR shall implement the BMPs described in the SWPPP to prevent and/or control potential discharges of dust, soil, sediment, debris, and other pollutant from the project site on to adjacent areas and/or into stormwater conveyance system from any and all activities with the potential to release such pollutants directly or indirectly.

If the Airport OWNER PM OR DESIGNEE or the QSP or the CONTRACTOR determine that a BMP is in need of repair or replacement, or has other shortcomings in preventing stormwater pollution, the CONTRACTOR shall begin implementing repairs or modifications to the BMP within 72 hours of identification and complete the changes as soon as possible or as soon as it is safe to do so. The Contactor shall perform such work at the CONTRACTOR's expense. Such modifications will be documented in the copy of the SWPPP being maintained on site.

3.2 AUTHORITY OF OWNER PM OR DESIGNEE.

The OWNER PM OR DESIGNEE has the authority to limit the surface area of soils exposed by clearing and grubbing, excavation, borrow and fill operations, and to direct the CONTRACTOR to provide immediate permanent or temporary BMPs to minimize pollutant transport by wind, rain, run-on or runoff water sources, and/or tracking by vehicles and equipment. The OWNER has the authority to require BMPs to be installed or maintained by the CONTRACTOR at any time and to stop or delay work that could result in pollutant transport, until such time as the CONTRACTOR provides adequate BMP protection.

3.3 BEST MANAGEMENT PRACTICES.

Details and working drawings for BMPs are provided in the SWPPP and the references listed in paragraph 156-1.3. The CONTRACTOR shall implement an effective combination of erosion and sediment control BMPs, wind erosion control BMPs, tracking control BMPs, non-stormwater management BMPs, and materials and waste management BMPs.

Erosion control BMPs include but are not limited to: scheduling, slope roughening, hydraulic mulches, soil stabilizers and binders, bonded fiber matrix (BFM), erosion control blankets, and plastic covers. Temporary sediment control BMPs include but are not limited to linear sediment barriers (e.g., silt fence, fiber rolls, and gravel bag berms), sediment traps, and storm drain inlet protection. Wind erosion control BMPs include covering and/or the application of water or dust palliatives to exposed soil and stockpiles. Tracking control BMPs include street sweeping, stabilized construction entrance and roadways, and site entrance/exit tire washing. Non-stormwater management BMPs include but are not limited to: pavement cutting, vehicle and equipment cleaning, vehicle and equipment fueling and maintenance. Materials and Waste Management BMPs include but are not limited to: material storage, stockpiles, spill prevention and control, clean up, and concrete waste management.

3.4 TRAINING.

CONTRACTOR shall ensure that training on stormwater pollution prevention in general and implementation of the SWPPP prepared for the project is given to all employees and SUBCONTRACTORs involved in construction activities. This training shall include but not be limited to the location of the storm drains on the job site; the direct link between the storm drain system and the ocean; potential pollutants; and BMP installation, inspection, maintenance and repair. All training shall be documented in the SWPPP.

3.5 UNAUTHORIZED DISCHARGES.

No unauthorized discharges of any material, debris, or pollutant may leave the project site and/or enter the stormwater conveyance system including process and wash waters, dust, petroleum products, soil or debris. The CONTRACTOR shall be responsible for clean-up, mitigation, and penalties resulting from failure to implement and maintain appropriate BMPs for pollution prevention.

3.6 NOTIFICATION.

The CONTRACTOR shall notify the OWNER PM OR DESIGNEE immediately of any unauthorized releases to the storm drain. The CONTRACTOR shall immediately document all unauthorized releases including but not limited to the time, date and duration, material released, and action taken to stop discharge and prevent future discharges. Documentation shall be provided to the OWNER PM OR DESIGNEE and included in the copy of the SWPPP being maintained on site.

3.7 CLEAN UP.

All unsalvageable materials used in the stormwater pollution prevention program shall be properly disposed of outside of the property at the completion of work.

3.8 SCHEDULE.

Prior to the start of construction, the CONTRACTOR shall submit schedules for accomplishment of temporary and permanent erosion control work, as are applicable for clearing and grubbing; grading; construction; paving; and structures at watercourses. The CONTRACTOR shall also submit a proposed method of erosion and dust control on haul roads, plant sites and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the OWNER.

3.9 CONSTRUCTION DETAILS.

The CONTRACTOR will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion is likely to be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise, temporary erosion control measures may be required between successive construction stages.

The OWNER will limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the CONTRACTOR's capability and progress in keeping the finish grading, and other such permanent control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.

In the event that temporary erosion and pollution control measures are required due to the CONTRACTOR's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or are ordered by the OWNER PM OR DESIGNEE, such work shall be performed by the CONTRACTOR at his/her own expense.

The erosion control features installed by the CONTRACTOR shall be acceptably maintained by the CONTRACTOR during the construction period.

Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or manmade channels leading thereto.

METHOD OF MEASUREMENT

4.1 TEMPORARY EROSION CONTROL

Temporary erosion and pollution (temporary water pollution, soil erosion, and siltation control work) control work required which is not attributed to the CONTRACTOR's negligence, carelessness, or failure to install permanent controls will be performed as scheduled, as shown on the drawings, or ordered by the OWNER. Completed and accepted work will be measured as follows:

1. Temporary Erosion Control. This item includes temporary air and water pollution, soil erosion and siltation control, fiber rolls, silt fence, gravel bags, concrete washouts, stabilized construction entrances, inlet protection and other BMPs shall be measured on a monthly basis as a lump sum. A detailed list of each item installed and maintained monthly shall be prepared and provided by the CONTRACTOR if requested.

4.2 METHOD OF MEASUREMENT.

Control work performed for protection of construction areas within the construction limits of the project site and including the CONTRACTOR’s Staging and Laydown Area, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the CONTRACTOR with costs included in the contract prices bid for the items to which they apply.

BASIS OF PAYMENT

5.1 TEMPORARY EROSION CONTROL.

Temporary Erosion Control will be paid for at the Contract lump sum amount for Temporary Erosion Control during the life of the contract, which amount shall be full compensation for furnishing all labor, supervision, materials, equipment, tools, and incidentals and for doing all the work of Temporary Erosion Control, complete in place, including regular monitoring, maintenance, repair and replacement of erosion control features as specified in Section PR-8 Environmental Mitigation Requirements , as pursuant to the contract documents.

Payment will be made under:

312500.1 Temporary Erosion Control – per lump sum

END OF SECTION 312500

SECTION 323113

CHAIN-LINK FENCES AND GATES

DESCRIPTION

1.1 GENERAL.

This item shall consist of furnishing and erecting a chain-link fence and gates in accordance with these specifications and the details shown on the plans and in conformity with the lines and grades shown on the plans or established by the OWNER PM OR DESIGNEE.

A. SUBMITTALS.

1. Shop drawings: Show fence layout, footing details and typical elevations.
2. Samples: 12 in square of vinyl coated fabric, and a 1 ft. section of post.

B. **HANDLING.**

1. Handling/storage: Handle and store components to avoid damaging the finish. Store off the ground in a protected location.

MATERIALS

2.2 BARBED WIRE – NOT USED.

No barbed wire shall be used.

2.3 POSTS, RAILS, AND BRACES.

Line posts, intermediate posts, rails, and braces shall conform to the requirements of ASTM F-1043 or ASTM F 1083 as follows:

Galvanized tubular steel pipe shall conform to the requirements of Group IA, (Schedule 40) coatings conforming to Type A, or Group IC (High Strength Pipe), External coating Type B, and internal coating Type B or D.

Posts, rails, and braces furnished for use in conjunction with aluminum alloy fabric shall be aluminum alloy or composite.

Posts, rails, and braces, with the exception of galvanized steel conforming to F 1043 or ASTM F 1083, Group 1A, Type A, or aluminum alloy, shall demonstrate the ability to withstand testing in salt spray in accordance with ASTM B 117 as follows:

- External: 1,000 hours with a maximum of 5% red rust.
- Internal: 650 hours with a maximum of 5% red rust.

The dimensions of the posts, rails, and braces shall be in accordance with Tables I through VI of Fed. Spec RR-F-191/3. Line posts, intermediate posts, rails and braces shall conform to all polyvinyl chloride (PVC) coated requirements of ASTM F 668.

2.5 VINYL-COATED WIRE TIES AND TENSION WIRES. Wire ties for use in conjunction with a given type of fabric shall be of the same material and coating weight identified with the fabric type. Tension wire shall be 9-gauge marcelled steel wire with the same coating as the fabric type and shall conform to ASTM A 824. All material shall conform to Fed. Spec. RR-F-191/4.

2.6 VINYL-COATED MISCELLANEOUS FITTINGS, HARDWARE AND ACCESSORIES. Miscellaneous steel fittings and hardware for use with vinyl-coated steel fabric shall be of commercial grade steel or better quality, wrought or cast as appropriate to the article, and sufficient in strength to provide a balanced design when used in conjunction with fabric posts, and wires of the quality specified herein. Barbed wire support arms shall withstand a load of 250 pounds (113 kg) applied vertically to the outermost end of the arm.

1. Vinyl-coated accessories shall comply with ASTM F 626, except tie wires shall comply with ASTM A 1664, Class 2b. The following provisions apply:
   a. Tension wire: 9 gauge high strength steel wire.
   b. Tension rod: As indicated on plans.
   c. Stretcher bars: One piece length equal to full height of fabric. Provide one (1) stretcher
   a. Bar for each end post and two (2) for each corner and pull post.
   d. Stretcher bar bands: Heavy pressed steel to secure stretcher bars to intermediate, corner posts.
   e. Post tops: Steel or malleable iron designed as a weather-tight closure cap. Design caps with opening to permit passage of the top rail, when rail is provided.
   f. Wire tires: For tying fabric to line posts, use 9-gauge steel wire clips spaced 12 in on-
   g. Steel bands: 11 gauge, 7/8 in bands at 12 in on-center for barrier.
   h. Barbed wire supporting arms: Galvanized steel assembly complete with provision for anchorage to posts and provision for attachment of 3 rows of barbed wire to each arm.
   i. Hinges: Heavy duty hinges, 3 min per gate leaf
   j. Visibility screening: UV and water resistant woven durable polyethylene or similar fabric with grommets for securing to the fence.

Supporting arm may be either attached to posts or integral with post top weather cap. Provide Vee type with 2 arms at 45 degrees to vertical.

2.7 CONCRETE.

Concrete shall be of a commercial grade with a minimum 28-day compressive strength as shown in the plans.

2.8 MARKING.

Each roll of fabric shall carry a tag showing the kind of base metal (steel, aluminum, or aluminum alloy number), kind of coating, the gauge of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts, wire, and other fittings shall be identified as to manufacturer, kind of base metal (steel, aluminum, or aluminum alloy number), and kind of coating.

CONSTRUCTION METHODS

3.1 CLEARING FENCE LINE.

All trees, brush, stumps, logs, curb and gutter, curb stops, existing fences, fence posts, and other debris which would interfere with the proper construction of the fence in the required location shall be removed a minimum width of 10 ft on each side of the fence centerline before starting fencing operations. The cost of removing and disposing of the material shall not constitute a pay item and shall be considered incidental to fence construction.

3.2 INSTALLING POSTS.

Posts shall be set in the concrete barrier rail or ground mounted at the required dimension and depth and at the spacing shown on the plans.

Posts shall be spaced not more than 10 ft. apart and should be set a minimum of 24 inches in the concrete barrier rail. The posts shall be in proper alignment so that there is a minimum of 3 in of concrete on all sides of the posts.

The concrete shall be thoroughly compacted around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within 7 days after the concrete barrier rail is completed.

Erect posts plumb and level, in straight alignment, and set in concrete barrier rail or ground. Support and brace until concrete sets. Use of slurry mix or non-shrink grout will not be allowed for installation of posts.

3.3 INSTALLING TOP RAILS OR TENSION WIRES.

Install top rails or tension wire as where required as defined as follows:

3.3.1 INSTALLING TOP RAILS.

The top rails shall be continuous and pass through the post tops. The couplings used to join the top rail lengths shall allow for expansion.

3.3.2 INSTALLING TENSION WIRES.

Install before stretching fabric, pulling wire taut and securely anchoring to posts with ties or clips.

3.4 INSTALLING BRACES.

Horizontal brace rails, with diagonal truss rods and turnbuckles, shall be installed at all terminal posts. Brace corner, end, and pull posts to the nearest post with a horizontal brace used as a compression member and a diagonal truss rod with truss tightener used as a tension member.

3.5 ELECTRICAL GROUNDS.

Electrical grounds shall be constructed where a power line passes over the fence and at 500-ft intervals. The ground shall be installed directly below the point of crossing. The ground shall be accomplished with a copper clad rod 8 ft. long and a minimum of 5/8-in in diameter driven vertically until the top is 6 in below the ground surface. A No. 6 solid copper conductor shall be clamped to the rod and to the fence in such a manner that each element of the fence is grounded. Installation of ground rods shall not constitute a pay item and shall be considered incidental to fence construction.

METHOD OF MEASUREMENT

4.1 MEASUREMENT.

Chain-Link Security Fence will be measured for payment by the linear foot. Measurement will be along the top rail of the fence and preparing the area for installation. All removal and disposal of existing fence, debris etc. for construction of the fence shall be considered incidental to this scope of work. No separate measurement will be made for vertical grade breaks and horizontal bends (corner sections).

BASIS OF PAYMENT

5.1 PAYMENT.

Payment for Chain-Link Fence will be made at the contract unit price per linear foot.

The price shall be full compensation for all preparation of the area, removal of existing fence and materials, erection, installation, maintenance and for furnishing all materials, labor, supervision equipment, tools, and incidentals necessary to complete the item pursuant to the Contract Documents. No separate payment will be made for special transitions and connections to existing barrier and fence, vertical grade breaks and horizontal bends (corner sections).

Payment will be made under:

323113.2 Chain-Link Fence - per linear foot

323113.2 Chain-Link Gate – per each

MATERIAL REQUIREMENTS

ASTM A 121 Zinc-Coated (Galvanized) Steel Barbed Wire

ASTM A 123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A 153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM A 392 Zinc-Coated Steel Chain-Link Fence Fabric

ASTM A 491 Aluminum-Coated Steel Chain-Link Fence Fabric

ASTM A 572 High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Steel Quality

ASTM A 653 Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

ASTM A 824 Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence

ASTM A 1011 Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability

ASTM B 117 Standard Practice for Operating Salt Spray (Fog) Apparatus

ASTM B 221	Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire Shapes and Tubes
ASTM B 429	Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM F 626	Poly (Vinyl Chloride) Miscellaneous Fittings, Hardware and Accessories,
ASTM F 668	Poly (Vinyl Chloride) (PVC) and other Organic Polymer-Coated Steel Chain-Link Fence Fabric
ASTM F 1043	Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework
ASTM F 1083	Pipe, Steel, Hot-Dipped Zinc-coated (galvanized) Welded, for Fence Structures
ASTM F 1183	Aluminum Alloy Chain Link Fence Fabric
ASTM F 1345	Zinc-5% Aluminum-Mischmetal Alloy-Coated Steel Chain Link Fence Fabric
ASTM F1664	Standard Specification for Poly(Vinyl Chloride) (PVC) and Other Conforming Organic Polymer-Coated Steel Tension Wire Used with Chain-Link Fence (Tension and Tie Wires only)
ASTM G 152	Operating Open Flame (Carbon-Arc) Light Apparatus for Exposure of Nonmetallic Materials
ASTM G 153	Operating Enclosed Carbon-Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G 154	Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
ASTM G 155	Operating (Xenon-Arc) Light Apparatus for Exposure of Nonmetallic Materials
FED SPEC	Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces) RR-F-191/3
FED SPEC	Fencing, Wire and Post, Metal (Chain-Link Fence Accessories) RR-F-191/4

END OF SECTION 323113

SECTION 323116 - WELDED WIRE FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Welded wire fences.
2. Swing gates.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include material descriptions, dimension of individual components and profiles, and finishes for the following:
   a. Fence and gate posts, rails, and fittings.
   b. Gates and hardware.

B. Shop Drawings: For each type of fence and gate assembly.

1. Include plans, elevations, sections, details, and attachments to other work.
2. Include accessories, hardware, gate operation, and operational clearances.

C. Samples for Verification: For each finish product specified, two (2) samples, minimum size 6 in (150 mm) long, representing actual color.

1.5 FIELD CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 WELDED WIRE FENCING

A. Basis-of-Design Products: Provide Omega II Fence Systems, Omega Max to match existing.

2.2 MATERIALS

A. Panel Height:

1. 8-foot-high nominal panels: 96 in (2 442 mm).

B. Steel Mesh Fence Panels:

1. Panel is 93-3/16 in (2 366 mm) wide, welded by resistance using 8 gauge (0.16 in or 4.1 mm) pre-galvanized steel wire, welded at each crossing to form rectangles, C/C spacing is 1/2 in (12.7 mm) for horizontal bars and 3 in (76.2 mm)) for vertical bars.
2. Double horizontal wires 8 gauge (0.16 in or 4.1 mm), welded at each C/C 6" (152,4 mm) horizontally to add rigidity and strength.
3. Cold rolled annealed wire made of AISI Grade 1018 steel with tensile strength of at least 75 000 psi (515 Mpa) in accordance with ASTM A853.
4. Longitudinal camber and transverse camber shall not exceed 0.094 in (2.5 mm). Panel diagonal measurements shall not present more than a 1/8 in (3.2 mm) difference.
5. The horizontal and vertical bar right angle shall not vary by more than 1°. Cut bars shall not exceed top, bottom nor panel sides.

C. Square Posts:

1. Cold rolled 1008 grade steel to meet ASTM A500 and ASTM A787 and the following maximum horizontal loads, length as required for installation type:
2. Installation: As indicated on Drawings and as required.
3. Post Size:
   a. 3 in x 3 in (76.2 mm x 76.2 mm).
   b. Gauge: 11 (3.0 mm).

D. Post Brackets:

1. Universal Collar Bracket Kit: Universal bracket for standard use on line or end posts. Includes the following: 14 gauge (1.9 mm) steel collar and wire retaining plate 1/4 in x 1 in (6.4 mm x 25.4 mm), nut, washer and carriage bolt 5/16 in x 1-1/4 in (7.9 mm x 31.8 mm), all galvanized steel.
   a. For 8-foot-high nominal panels: Provide 9 brackets per post.
   b. Provide special brackets as required and indicated on the Drawings.

E. Post caps:

1. Aluminum alloy: For dimension posts 3 in x 3 in (76.2 mm x 76.2 mm.

2.3 SWING GATES

A. Configuration:

1. Single swing.

B. Gate Frames:

1. Two (2) horizontal tubes and two (2) vertical tubes, all 2 in x 2 in (50.8 mm x 50.8 mm) 11 gauge (3.0 mm) square tubes, welded at intersections to create a rigid frame, in accordance with ASTM F900.

C. Gate Posts:

1. Cold rolled from 1008 grade steel to meet ASTM A500 and ASTM A787. Posts are to include cap and SPF-W Kit for adjacent panel mounting. Length as required for installation type.
2. Installation: As indicated on Drawings and as required.
3. Post Size:
   a. 4 in x 4 in (101.6 mm x 101.6 mm) 11 gauge (3.0 mm).

D. Gate Hardware:

1. Standard Hardware: Hot-dip galvanized steel in conformity with ASTM F900, sized to assure proper gate operation. Nonmoving parts shall be powder coated.
   a. Hinge: Structurally designed to support all gates without deformation during opening and closing.
   b. Gate Lockset: LokkLatch Deluxe D&D Technologies (LLDAB-K). Self locking gravity latch with differently keyable Kwikset 6 pin cylinders or comparable product as approved by Architect.

2.4 COATINGS

A. Zinc coating:

1. Horizontal and vertical bars are coated with a minimum of 0.25 oz/ft2. (80 g/m2) zinc (galvanizing before welding) in conformity with ASTM A641 Class 1.
2. Square fence posts, swing gate frame and posts:
   a. Thickness of 11GA (0.120 in or 3.0 mm) or less: Zinc coated (pre-galvanized process) with a minimum of 0.9 oz/ft2 (275 g/m2) as per ASTM A653 Grade 90.

3. Flat vertical bars are coated with a minimum of 1.7 oz/ft2 (530 g/m2) zinc (hot-dip galvanizing) in conformity with ASTM A123 Grade 75.
4. Individual brackets are coated with a minimum of 1.5 oz/ft2 (460 g/m2) zinc (hot-dip galvanizing) in conformity with ASTM A123 Grade 65.

B. Polyester Coating:

1. Polyester coating to be minimum 4 mils applied by an electrostatic process. Coating shall cover all surfaces of the wire and post sections. Coating shall be capable of withstanding the following tests:
   a. Mechanical adhesion test as per ASTM D3359 - Method B.
   b. Shock resistance tests as per ASTM D2794.
   c. Salt spray testing with a minimum of 1 000 hours without red rust appearance, as per ASTM B117.
   d. Humidity resistance in a weather meter chamber as per ASTM D2247.
   e. Exposure to ultraviolet light with exposure of 1 000 hours using apparatus Type E and 63°C as per ASTM D1499.

C. Polyester Surface Coating Colors: As selected by Architect to match existing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 IN-GROUND CONCRETE INSTALLATION

A. Install fencing on established boundary lines inside property line

B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacing indicated, in firm, undisturbed or compacted soil.

C. Post Setting: Set posts in concrete footing. Protect portion of posts above ground from concrete splatter. Place concrete around posts and consolidation. Using mechanical devices to set posts is not permitted. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during placement and finishing operations until concrete is sufficiently cured.

1. Dimensions and Profile: As indicated on Drawings.
2. Space line posts uniformly at center to center.
3. Exposed Concrete Footings: Extend concrete 2 in (50.8 mm) above grade. Smooth and shape to shed water.
4. Concealed Concrete Footings: Stop footings [2 in (50.8 mm) below grade as indicated on Drawings to allow covering with surface material.
5. Posts Set into Concrete in Sleeves: Use steel pipe sleeves pre-set and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with non shrink, non-metallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, and finished sloped to drain water away from post.
6. Posts Set into Concrete in Voids: Form or core drill holes not less than 5 in (125 mm) deep and 3/4 in (19.1 mm) larger than OD of post. Clean holes of loose material, insert posts, and fill granular space between post and concrete with non-shrink, non-metallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, and finished sloped to drain water away from post.
7. Flange Post Installation: Bolt mounting plates attached to each post to slab or structure as indicated, using expansion bolts.

3.3 FENCE INSTALLATION

A. Install the fence along the specified layout according to the drawings. The fence panel shall be installed to maintain a clear minimum distance of 1-1/4 in (31.8 mm) and a maximum distance of 2 in (50.8 mm) from the ground surface. Holes for posts shall be at least 8 in (200 mm) in diameter and at least 42 in (1 070 mm) deep.

B. Posts shall be adequately supported within the concrete forms to maintain the required positioning and prescribed level until concrete has set. All necessary anchors and posts shall be at a minimum depth of 36 in (914 mm) into the ground

C. Square Post Installation: Once the concrete is set, the fence sections are fastened to the posts with the desired bracket type.

3.4 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach panels as for fencing. Attach hardware using tamper-resistant or concealed means. Adjust hardware for smooth operation.

B. At gates noted to be lockable, provide flat mounting surface at gate and jamb post for mounting of keyed gravity lock. May be galvanized angle bracket with non-removable or hidden screws or rectangular framing.

3.5 ADJUSTING

A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

B. Lubricate hardware and other moving parts.

END OF SECTION 323116

EXHIBIT A

COUNTYWIDE COMMUNITY WORKFORCE AGREEMENT

BY AND BETWEEN

THE COUNTY OF LOS ANGELES

AND

THE LOS ANGELES/ORANGE COUNTIES BUILDING AND CONSTRUCTION TRADES COUNCIL AND THE SIGNATORY CRAFT COUNCILS AND LOCAL UNIONS

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PURPOSE

The purpose of this Countywide Community Workforce Agreement ("CWA" or "Agreement") is to provide for the orderly settlement of labor disputes and grievances without strikes or lockouts, and to maximize the economic development opportunities for residents and businesses located within the County of Los Angeles ("County"), thereby promoting the public interest in assuring timely and economical completion of construction projects covered by this Agreement ("Covered Projects").

WHEREAS, the County is contemplating that, during the term of this Agreement, the County will likely proceed with the construction of Covered Projects; and

WHEREAS the construction of such Covered Projects will be of the utmost importance to the County and the general public of the County; and

WHEREAS, the work on such Covered Projects will require maximum cooperation between the Parties to this Agreement, as well as with the contractors selected to perform the work covered under this Agreement; and

WHEREAS, both the County and the Unions intend to maximize local economic development by ensuring equity and economic inclusion through comprehensive workforce and business development strategies and partner coordination; and

WHEREAS, this Agreement reflects a commitment by all Parties to the diversity in the workforce hiring; and

WHEREAS, increasing access to employment opportunities with prevailing wages is one way for the County and the Unions to directly combat poverty and unemployment; and

WHEREAS, the County and the Unions are both committed to contribute to the economic development of the community through the inclusion of Local Small Business Enterprise (LSBE), Disabled Veteran Business Enterprise (DVBE), and Social Enterprise (SE) firms in the execution of Covered Projects; and

WHEREAS, the County and the Unions are both committed to eliminating barriers and challenges to open competition and growth for LSBE, DVBE, and SE firms performing work on Covered Projects; and

WHEREAS, the County and the Unions are both committed to eliminating barriers and increasing the hiring and employment in the construction trades of Local Residents and Targeted Workers, including creating more opportunities for women and minorities to have craft labor careers in the construction trades; and

WHEREAS, the Contractors/Subcontractors/Employers ("Contractors") and the Unions desire to mutually establish and stabilize wages, hours, and working conditions for the workers employed on Covered Projects by the Contractors, and further, to encourage close cooperation

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

WHEREAS, large numbers of workers of various skills will be required in the performance of the construction work covered by this Agreement, including those to be represented by the Unions and any other craft labor organization which is signatory to this Agreement employed by Contractors who are signatory to agreements with said labor organizations; and

WHEREAS, it is recognized that Covered Projects will engage multiple contractors and bargaining units on Covered Project sites at the same time over an extended period of time, the potential for work disruption is substantial without an overriding commitment to maintain continuity of work; and

WHEREAS, the interests of the general public, the County, the Unions, Contractors, and workers would be best served if future Covered Projects proceed in an orderly manner free of disruption because of strikes, sympathy strikes, work stoppages, picketing, lockout, slowdowns or other interferences with work; and

WHEREAS, the Parties signatory to this Agreement pledge their full good faith and trust to work towards a mutually satisfactory completion of Covered Projects.

NOW, THEREFORE, IT IS MUTUALLY AGREED BY AND BETWEEN THE PARTIES, AS FOLLOWS:

ARTICLE 1 DEFINITIONS

1.1 "Agreement" means this Community Workforce Agreement, which meets the definition of a "project labor agreement" pursuant to California Public Contract Code §2500, *et. seq.*

1.2 "Apprentice" as used in this Agreement shall mean those apprentices registered and participating in a Joint Labor/Management Apprenticeship Program ("Apprenticeship Program") approved by the State of California, Department of Industrial Relations, Division of Apprenticeship Standards.

1.3 "Board" means the Los Angeles County Board of Supervisors, acting in their capacity as the governing authority of the County.

1.4 "California Construction Labor Hours" means all craft worker hours performed on a Covered Project by California residents, excluding the hours performed by inspectors, off-site material fabricators, designers, project office staff, or vendors.

1.5 "Construction Contract" means the contract with a prime Contractor for the construction of a Covered Project.

1.6 "Contractor/Subcontractor/Employer" ("Contractors") means the prime Contractor and all subcontractors and owner operators of any tier, with respect to work performed within the

scope of a Construction Contract. Contractors may bid for and be awarded work within the scope of a Construction Contract for a Covered Project without regard as to whether the Contractors are otherwise a party to any Union collective bargaining agreement.

1.7 "Core Employee" as used in this Agreement shall mean an employee whose name appeared on the Contractor's active payroll for sixty (60) working days out of the last one hundred (100) working days immediately before the award of work within the scope of a Covered Contract to the Contractor, who possesses any license and meets all standards required by state or federal law for the work to be performed; and who has the ability to safely perform the functions of the applicable trade; and who has worked at least two-thousand (2,000) hours in the construction craft in which they are employed during the prior four (4) years.

1.8 "County" means the County of Los Angeles and its Departments, Commissions, and Agencies delivering the proposed Covered Projects.

1.9 "Covered Project" means a County construction project that meets one or more of the criteria specified in 1.9.1, below, and which does *not* meet one or more of the criteria specified in 1.9.2, below.

1.9.1 A County construction project shall be considered a "Covered Project" if it meets one or more of the following criteria and does not meet one or more of the criteria specified in 1.9.2, below:

(a) The Board is advised by the relevant County department prior to solicitation for the construction that the construction project has an estimated construction contract value of $5,000,000 or greater.

(b) Prior to the bid advertisement date or request for proposals release date for the construction of a project, the Board determines, in its sole discretion, that it wishes to include a County construction project as a Covered Project even though that project does not have an estimated construction contract value of $5,000,000 or greater.

1.9.2 A County construction project shall not be considered a "Covered Project" if it meets one or more of the following criteria:

(a) The construction project is being let due to an emergency, declared by the United States, or by the State of California, or by the Board, or by the Director of Public Works.

(b) The construction project is for the construction of supportive, interim, and/or affordable housing.

(c) The construction project is being performed using Job Order Contracts.

(d) The project was determined to be a Covered Project, but the Board subsequently cancelled the project.

1.10 "Current Prevailing Wage Determination" means the most recently adopted and published prevailing wage determination by the State of California, Department of Industrial Relations, in effect at the time the work is performed by each Contractor.

1.11 "Disabled Veteran Business Enterprise" or "DVBE" shall mean: (1) A business which is certified by the State of California as a disabled veteran business enterprise; or (2) A business which is verified as a service-disabled veteran-owned small business by the Veterans Administration.

1.12 "Jobs Coordinator" means an individual or entity contracted or employed by a Contractor to facilitate implementation of the Local and Targeted Worker Hiring Policy (LTWHP) and carry out other duties required by the Agreement.

1.13 "Joint Labor/Management Apprenticeship Program" means a joint Union and Contractor administered apprenticeship program certified by the Division of Apprenticeship Standards, Department of Industrial Relations of the State of California.

1.14 "Letter of Assent" means the document which formally binds each Contractor to adherence to all the forms, requirements, and conditions of this Agreement that each Contractor (of any tier) must sign and submit to the County's designated office and to the Council prior to beginning any work covered by this Agreement. The form Letter of Assent is attached as Attachment A.

1.15 "Local and Targeted Worker Hiring Policy" or "LTWHP" means, for each construction project, the policy adopted by the County's Board of Supervisors a copy of which is attached hereto as Attachment D.

1.16 "Local Small Business Enterprise" or "LSBE" shall mean a business which is certified by the State of California as a small business and has had its principal office located in the County for at least one (1) year.

1.17 "Master Labor Agreement" or "MLA" means the local collective bargaining agreements of the signatory Unions having jurisdiction over the work on the Covered Project, as such may be changed from time-to-time, and which are incorporated herein and listed in Attachment B.

1.18 "Project Labor Coordinator" means the designee of the County, either from its own staff or an independent entity acting on behalf of the County, to monitor compliance with this Agreement and assist with developing and implementing the programs referenced herein, all of which are critical to fulfilling the intent and purposes of the Parties and this Agreement, and to otherwise implement and administer this Agreement.

1.19 "Social Enterprise" or "SE" means nonprofit or for-profit businesses whose primary purpose is the "common good" and which "use the methods and disciplines of business and the power of the marketplace to advance their social, environmental and human justice agendas, wherein the organization that applies commercial strategies to maximize improvements in human and environmental well-being," that may "include maximizing social impact rather than profits for external shareholders," and has both: (1) been in operation for at least one (1) year

providing transitional or permanent employment to a Transitional Workforce or providing social, environmental and/or human justice services; and (2) is certified by the County's Department of Economic Opportunity as a SE.

1.20 "Subscription Agreement" means the contract between a Union's Labor Management Trust Funds and a Contractor that is not a party to a current collective bargaining agreement with a union signatory to this Agreement to document that Contractor's agreement to comply with the trust fund contribution requirements of the Letter of Assent described in Section 3.4., below. The Subscription Agreement cannot bind the Contractor beyond the obligations set forth in this Agreement and is limited to work performed within the scope of the Construction Contracts.

1.21 "Skilled Journeyperson" has the same meaning as in California Public Contract Code §2601.

1.22 "Targeted Worker" is defined in the LTWHP, and the categories of Targeted Workers shall be listed in the Craft Employee Request Form created for each Covered Project.

1.23 "Tier 1 Local Resident" is defined in the Local and Targeted Worker Hiring Policy.

1.24 "Tier 2 Local Resident" is defined in the Local and Targeted Worker Hiring Policy.

1.25 Tier 1 Local Residents and Tier 2 Local Residents shall be collectively referred to as "Local Residents".

1.26 "Union" or "Unions" or "Signatory Unions" means the Los Angeles/Orange Counties Building and Construction Trades Council ("Council") affiliated with North America's Building Trades Unions (AFL/CIO), and the local unions and district councils signing this Agreement, whose names are subscribed hereto and who have through their officers executed this Agreement.

ARTICLE 2 SCOPE OF AGREEMENT

2.1 Parties: Unless otherwise provided or limited herein, this Agreement shall only apply to the Contractors performing work or agreeing to perform work pursuant to a Construction Contract for a Covered Project, the Council, the Unions, and the County. The Council, the Unions and the County shall hereinafter be referred to as the Parties.

2.2 Application of Agreement: This Agreement shall only apply to the work within the scope of a Construction Contract for a Covered Project, as defined above, unless specifically excluded or limited in Section 2.3, below. This Agreement shall in no way limit the County's right to terminate, modify or rescind a Construction Contract and/or any related subcontract or agreement and the County has the sole discretion and right to combine, consolidate, cancel, terminate, or take other action regarding any Construction Contracts or portions of any Construction Contracts. Should the County remove or terminate any Construction Contract and thereafter authorize that work be commenced or re-commenced, that Construction Contract shall

be performed under the terms of this Agreement unless this Agreement has expired prior to the authorization to commence or re-commence such work.

2.3 Exclusions:

2.3.1 This Agreement shall not apply to any off-site maintenance of leased equipment and on-site supervision of such maintenance work.

2.3.2 This Agreement shall not apply to or impact in any way service contracts or operation or maintenance contracts entered into by the County including, but not limited to said contract relating to the Covered Projects, services provided at any County facility, building and/or the operation or maintenance of any County owned and operated facilities.

2.3.3 This Agreement shall not apply to the Contractor's non-manual employees including, but not limited to, superintendents, assistant superintendents, supervisors, staff engineers, master mechanics, office engineers, time keepers, mail carriers, clerks, office workers, messengers, guards, safety personnel, emergency medical and first aid technicians or any other employee of the Contractors above the rank of Craft Foreman, and other engineering, administrative, supervisory, and management employees, including quality control and quality assurance management personnel to the extent they do not perform the work of a Surveyor or Building/Construction Inspector and/or Field Soils and Material Tester (Inspector), as covered by Section 2.3.6.

2.3.4 This Agreement shall not apply to material suppliers of raw materials, manufactured products, offsite hauling or delivery by any means of material, supplies, or equipment required to or from any point of delivery; provided, however, that lay down or storage areas for equipment or material and manufacturing (prefabrication) sites, dedicated solely to a Covered Project, and the movement of materials or goods between locations on a Covered Project site, are within the scope of this Agreement to the extent that those lay down or storage areas and prefabrication sites are for work within the scope of the Construction Contracts.

2.3.5 Certain equipment and systems of a highly technical and specialized nature may have to be installed at the Covered Project. The nature of such equipment and systems, together with requirements of manufacturer's warranty, may dictate that it be prefabricated, pre-piped, and/or pre-wired. The Unions agree to install such material, equipment and systems without incident, or allow such installation to be performed by the manufacturer's employees or a contractor designated by the manufacturer where the Unions are unable to perform such work or the warranty specifies that it may be void absent installation by the manufacturer or certified installation personnel of the manufacturer's authorized contractor or vendor (or the warranty explicitly requires such authorized and certified personnel to perform the installation) and no such authorized union contractor in the applicable trade has successfully bid the work, then such installation shall not be covered under this Agreement. The prime Contractor shall notify the Unions at the

pre-job conference of the use of this provision and shall provide copies of the written warranty to the affected Union that requires the work be performed by the manufacturer's own personnel, or a contractor certified by the manufacturer. When the warranty does not require installation by the manufacturer's own personnel or a contractor certified by the manufacturer, the Unions agree to perform and install such work under the supervision and direction of the manufacturer's representative. This Section 2.3.5 shall not apply to construction equipment owned or rented by contractor used during construction, but which does not become integrated into the site.

2.3.6 This Agreement shall not apply to any employees of the County, design teams (including, but not limited to architects, engineers, master planners), or any other consultants directly contracted by the County (including, but not limited to, project managers, construction managers, inspectors and their employees and their sub-consultants, and other employees of professional service organizations). Notwithstanding the foregoing, this exclusion shall not apply to the classifications of Surveyors and/or Building/Construction Inspector and/or Field Soils and Material Testers (Inspectors) unless they are County employees. This inclusion applies to the scope of work defined in the State of California Wage Determination for that craft. This shall also specifically include such work where it is referred to by utilization of such terms as "quality control" or "quality assurance." Every Inspector performing under these classifications on Covered Projects pursuant to a professional services agreement, a contract directly with the County or a contract with a Contractor shall be bound to all applicable requirements of this Agreement. Covered work as defined by this Agreement shall be performed pursuant to the terms and conditions of this Agreement regardless of the manner in which the work was awarded.

2.3.7 Any work performed on or near or leading to or into a site of work covered by this Agreement and undertaken by state, city or other governmental bodies, or their Contractors; or by public utilities, or their Contractors, for work for which is not within the scope of this Agreement

2.4 The County and/or the Contractors, as appropriate, have the absolute right to award the Construction Contracts under this Agreement to any Contractor notwithstanding the existence or non-existence of any agreements between such Contractor and any Union parties, provided only that such Contractor is ready, willing, and able to execute and comply with this Agreement should such Contractor be awarded work under a Construction Contract for a Covered Project.

ARTICLE 3 EFFECT OF AGREEMENT

3.1 By executing this Agreement, the Unions and the County agree to be bound by each and every provision of this Agreement. The provisions of this Agreement, including the applicable terms of the Master Labor Agreements ("MLA(s)"), as such may be changed from time-to-time and which terms are incorporated herein by reference, shall apply to the work within the scope of the Construction Contracts for the Covered Projects. To the extent that the provisions of this

Agreement are inconsistent with the applicable MLA, the provisions of this Agreement shall prevail, notwithstanding the provisions of any other local, area and/or national agreement which may conflict with or differ from the terms of this Agreement. However, such does not apply to work performed under the National Cooling Tower Agreement, the National Stack Agreement, the National Transit Division Agreement (NTD), or within the jurisdiction of the International Union of Elevator Constructors and all instrument calibration and loop checking work performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians except that Articles dealing with Work Stoppages and Lock-Outs, Work Assignments and Jurisdictional Disputes, and Settlement of Grievances and Disputes shall apply to such work.

3.2 It is specifically agreed that no later agreement shall be deemed to have precedence over this Agreement unless signed by all Parties signatory hereto who are then currently employed or represented at the Covered Project. Where a subject covered by the provisions of this Agreement is also covered by a MLA, the provisions of this Agreement shall apply. Where a subject is covered by a provision of a MLA and not covered by this Agreement, the provisions of the MLA shall apply. Any dispute as to the applicable source between this Agreement and any MLA for determining the wages, hours of working conditions of employees on this Covered Project shall be resolved under the procedures established in Article 11.

3.3 It is understood that this Agreement constitutes a self-contained, stand-alone agreement and that, by virtue of having become bound to this Agreement, the Contractor will not be obligated to sign any local, area or national collective bargaining agreement as a condition of performing work within the scope of this Agreement, except as provided in Section 3.4, below.

3.4 It is agreed that all Contractors of whatever tier, who have accepted the award of work within the scope of a Construction Contract, shall be required to accept and be bound to the terms and conditions of this Agreement, and shall evidence their acceptance by the execution of the Letter of Assent as set forth in Attachment A hereto, prior to the commencement of work. At the time that any Contractor enters into a subcontract with any subcontractor of any tier providing for the performance of work within the scope of a Construction Contract, the Contractor shall provide a copy of this Agreement to said subcontractor and shall require the subcontractor, as a part of accepting the award of a construction subcontract, to agree in writing in the form of a Letter of Assent to be bound by each and every provision of this Agreement prior to the commencement of work on the Covered Project. No Contractor shall commence work within the scope of a Construction Contract without having first provided a copy of the Letter of Assent as executed by it to the Project Labor Coordinator and the Council, 48 hours before the commencement of such work, or within 48 hours after the award of such work to that Contractor, whichever occurs later. Further, Contractors not signatory to the established Joint Labor/Management Trust Fund Agreements, as described in the MLAs for the craft workers in their employ, shall sign a Subscription Agreement with the appropriate Joint Labor/Management Trust Funds covering the work performed under this Agreement before such work is commenced. It shall be the responsibility of the prime Contractor to have each of its lower-tier Contractors sign such Subscription Agreement with the appropriate Union prior to the Contractor beginning work performed under this Agreement. The Subscription Agreement shall not bind the Contractor beyond the terms and conditions of this Agreement and must be limited to work performed within the scope of a Covered Contract for a Covered Project.

3.5 This Agreement shall be binding on the signatory Contractors hereto only and shall not apply to the parents, affiliates, subsidiaries, or other ventures of any such party or any other contract for construction or project to which this Agreement does not apply.

3.6 This Agreement shall be included as a general condition of the Construction Contract for each of the Covered Projects.

ARTICLE 4 WORK STOPPAGES AND LOCKOUTS

4.1 There shall be no strikes, sympathy strikes, picketing, work stoppages, slowdowns, sickouts, handbilling or other disruptive activity for any reason (including but not limited to disputes relating to the negotiation or renegotiation of applicable MLA(s), economic strikes, unfair labor practice strikes, safety strikes, sympathy strikes, and jurisdictional strikes or disputes) by the Union, or by any employee, and there shall be no lockout by the Contractor. Failure of any Union or employee to cross any picket line established at the Covered Project site is a violation of this Article.

4.2 The Union shall not sanction, aid or abet, encourage, or continue any work stoppage, strike, picketing or other disruptive activity at the Covered Project site and shall undertake all reasonable means to prevent or to terminate any such activity. No employee shall engage in activities which violate this Article. Any employee who participates in or encourages any activities which interfere with the normal operation of the Covered Project shall be subject to disciplinary action, including discharge, and if justifiably discharged for the above reasons, shall not be eligible for rehire on the Covered Project. If any Union is notified of any offsite work stoppage, strike, picketing or other disruptive activity by the Union that will economically and/or materially affect the completion of the Covered Project, the Union will promptly make good faith efforts to cease such Covered Project work disruption.

4.3 The Union shall not be liable for independent acts of employees for whom it has no responsibility. The principal officer or officers of a Union will immediately instruct, order and use their best efforts of their office to cause the employees they represent to cease any violations of this Article. A Union complying with this obligation within two (2) business days of its knowledge of or receipt of notice of such independent acts of employees shall not be liable for unauthorized acts of employees it represents. The failure of the Contractor to exercise its right in any instance shall not be deemed a waiver of its right in any other instance.

4.4 If a MLA, local, regional, and other applicable labor agreements expire during the term of this Agreement, it is specifically agreed that there shall be no strike, sympathy strike, picketing, lockout, slowdown, withholding of work, refusal to work, walk-off, sick-out, sit-down, stand-in, wobble, boycott or other work stoppage, disruption, advising of the public that a labor dispute exists, or other impairment of any kind as a result of the expiration of any local, regional or other applicable labor agreement having application at any Covered Project and/or failure of the parties to that agreement to reach a new contract. Otherwise to the extent that such a local, regional, or other applicable labor agreement does expire and the parties to that agreement have failed to reach agreement on a new contract, work will continue on the Covered Project on one of the

following two bases, both of which will be offered by the Unions involved to the Contractors affected:

4.4.1 Each of the Unions with a contract expiring must offer to continue working on the Covered Project under interim agreements that retain all the terms of the expiring contract, except that the Unions involved in such expiring contracts may each propose wage rates and employer contribution rates to employee benefit funds different from what those wage rates and employer contributions rates were under the expiring contracts. The terms of the Union's interim agreement offered to Contractors will be no less favorable to the Contractor than the terms offered by the Union to any other employer or group of employers covering the same type of construction work in the County.

4.4.2 Each of the Unions with a contract expiring must offer to continue working on the Covered Project under all the terms of the expiring contract, including the wage rates and employer contribution rates to the employee benefit funds if the Contractors affected by that contract agree to the following retroactivity provisions: if a new MLA for the Union having jurisdiction at the Covered Project is ratified and if such new MLA provides for retroactive wage or fringe benefit contribution increases, then each affected Contractor shall pay to its employees (and the respective trust funds for hours worked by employees) who performed work covered by the Agreement at the Covered Project during the hiatus between the effective dates of such labor agreements, an amount equal to any such retroactive wage increase established by such new labor agreement, retroactive to whatever date is provided by the new local, regional or other applicable agreement for such increase to go into effect, for each employee's hours worked on the Covered Project during the retroactive period. All Parties agree that such affected Contractor shall be solely responsible for any retroactive payment to its employees and that neither the County nor any other Contractor has any obligation, responsibility or liability whatsoever for any such retroactive payments or collection of any such retroactive payments, from any such Contractor.

4.4.3 Some Contractors may elect to continue to work on the Covered Project under the terms of the interim agreement option offered under 4.4.1 above and other Contractors may elect to continue to work on the Covered Project under the retroactivity option offered under 4.4.2 above. To decide between the two options, Contractors will be given one (1) week after the particular MLA has expired or one (1) week after the Union has personally delivered to the Contractor in writing its specific offer of terms of the interim agreement pursuant to 4.4.1 above, whichever is the later date. If the Contractor fails to timely select one of the two options, the Contractor shall be deemed to have selected the option of 4.4.2.

4.5 Expedited arbitration will be utilized for all grievances alleging violations of this Article. In lieu of or in addition to any other action at law or equity, any Party, including the County, prime Contractor, and the Project Labor Coordinator, may institute the following procedure when a breach or violation of this Article is alleged to have occurred:

4.5.1 If the County or Contractor contends that any Union has violated this Article, it will serve written notification upon the Business Manager of the Union(s) involved, advising her or him of the fact, with copies of such notice to the prime Contractor, and the Project Labor Coordinator. The Business Manager(s) will immediately instruct, order and use the best efforts of her or his office to cause any violation of this Article to cease.

4.5.2 If the County or Union contends that any Contractor has violated this Article, it will notify the Contractor, prime Contractor, and the Project Labor Coordinator, setting forth the facts which the Union contends violates this Article, at least twenty-four (24) hours prior to invoking the expedited arbitration procedures contained in this Article. It is agreed by the Parties that the term "lockout" for purposes of this Agreement does not include discharge, termination or layoff of employees by the Contractor in the normal course of its business, nor does it include the Contractor's decision to terminate or suspend work on the Covered Project or any portion thereof for operational or special circumstances.

4.5.3 The Party invoking this procedure shall notify the Project Labor Coordinator to select the permanent arbitrator next in sequence from the following list:

1. Tom Pagan
2. Najeeb Khoury
3. Sara Adler
4. Chris Cammeron
5. Fred Horowitz

The parties agree these shall be the five (5) permanent arbitrators under this procedure. Expenses incurred in arbitration shall be borne equally by the Union and the Contractor involved and the decision of the arbitrator shall be final and binding on both the disputing parties, provided, however, that the arbitrator shall not have the authority to alter or amend or add to or delete from the provisions of this Agreement in any way. Notice to the arbitrator shall be by the most expeditious means available, including by telephone and by facsimile or email to the Party alleged to be in violation, to the Council, to the Project Labor Coordinator, and to the involved Union if a Union is alleged to be in violation.

4.5.4 Upon receipt of said notice, the arbitrator shall convene a hearing within twenty-four (24) hours if it is contended that the violation still exists. The arbitrator, with assistance from the Project Labor Coordinator, shall notify the disputing parties by telephone and by facsimile or email of the place and time for the hearing. Notice shall be given to the individual Union(s) and Contractor(s) alleged to be involved and to the Council. Said hearing shall be completed in one session, which, with appropriate recesses at the arbitrator's discretion, shall not exceed twenty-four (24) hours unless otherwise agreed upon by all disputing parties. A failure of any disputing party to attend said hearings shall not delay the hearing of evidence or the issuance of any decision by the arbitrator. The sole issue

at the hearing shall be whether or not a violation of Section 4.1 or 4.2 of this Article has in fact occurred. The arbitrator shall have no authority to consider any matter of justification, explanation or mitigation of such violation. The decision shall be issued in writing within three (3) hours after the close of the hearing and may be issued without a written opinion. If any disputing party desires a written opinion, one shall be issued within fifteen (15) days, but its issuance shall not delay compliance with or enforcement of the decision.

4.5.5 The arbitrator may order cessation of the violation of this Article and other appropriate relief and such decision shall be served on all disputing parties and on the Project Labor Coordinator by hand or registered mail upon issuance. If the arbitrator determines that a violation of this Article has occurred, the respondent Unions(s) shall, within eight (8) hours of receipt of the award, direct all the employees they represent on the Covered Project to immediately return to work. If the craft(s) involved does not return to work by the beginning of the next regularly scheduled shift following such eight (8) hour period after receipt of the arbitrator's award, and the respondent Union(s) have not complied with their obligation to immediately instruct, order, and use their best efforts to cause a cessation of the violation and return of the employees they represent to work, then the respondent Union(s) shall each pay a sum as liquidated damages to the affected contractor, and each shall pay an additional sum per shift for each shift thereafter on which the craft(s) has not returned to work. Similarly, if the arbitrator determines that a lock-out has occurred, the respondent Contractor(s) shall, within eight (8) hours of receipt of the award, return all the affected employees to work on the Project, or otherwise correct the violation as found by the arbitrator. If the respondent Contractor(s) do not take such action by the beginning of the next regularly scheduled shift following the eight (8) hour period, each respondent Contractor shall pay a sum as liquidated damages to the affected Union(s) (to be apportioned among the affected employees and the benefit funds to which contributions are made on their behalf, as appropriate and designated by the arbitrator) and each shall pay an additional sum per shift for each shift thereafter in which compliance by the respondent Contractor(s) has not been completed. The arbitrator shall retain jurisdiction to determine compliance with this Section and to establish the appropriate sum of liquidated damages, which shall not be less than ten thousand dollars ($10,000) per shift, nor more than twenty-five thousand dollars ($25,000) per shift.

4.5.6 Such decision may be enforced by any Court of competent jurisdiction upon the filing of this Agreement and all other relevant documents referred to above in the following manner. Written notice of the filing of such enforcement proceedings shall be given to the other disputing party and to the Project Labor Coordinator. The Project Labor Coordinator shall not be named as a party or real party in interest in any such action. In the proceeding to obtain a temporary order enforcing the arbitrator's decision as issued under this Article, all Parties waive the right to a hearing and agree that such proceedings may be ex parte. Such agreement does not waive any party's right to participate in a hearing for a final order of enforcement. The Court's order or orders enforcing the arbitrator's

decision shall be served on all disputing parties and on the Project Labor Coordinator by hand or delivered by registered mail.

4.5.7 Any rights created by statute or law governing arbitration proceedings inconsistent with the above procedure or which interfere with compliance therewith are hereby waived by the disputing parties to whom they accrue.

4.5.8 The fees and expenses incurred in arbitration shall be divided equally by the disputing parties to the arbitration, including Union(s) and the Contractor(s) involved.

4.6 The procedures contained in this Article shall be applicable to alleged violations of Article 4 to the extent any conduct described in Section 4.1 or 4.2 occurs on the Covered Project. Disputes alleging violation of any other provision of this Agreement, including any underlying disputes alleged to be in justification, explanation, or mitigation of any violation of Section 4.1 or Article 4 shall be resolved under the applicable grievance adjudication procedures for these other Articles.

4.7 Notwithstanding any provision of this Agreement to the contrary, it shall not be a violation of this Agreement for any Union to withhold the services of its members (but not the right to picket) from a particular Contractor who:

4.7.1 fails to timely pay its weekly payroll; or

4.7.2 fails to make timely payments to the Union's Joint Labor/Management Trust Funds in accordance with the provisions of this Agreement.

4.7.3 Prior to withholding its members' services for the Contractor's failure to meet its weekly payroll, the Union shall give at least five (5) calendar days written notice of such failure to pay by registered or certified mail, return receipt requested, and by facsimile or email transmission to the involved Contractor, prime Contractor and Project Labor Coordinator. The Union will offer to meet within a three (3) working day period, after the written notice of such failure to pay was sent, to attempt to resolve the dispute with the applicable Contractor's prime Contractor, and the Project Labor Coordinator. Upon the payment of the delinquent Contractor of all monies due and then owing for wages, the Union shall direct its members to return to work and the Contractor shall return all such members back to work.

4.7.4 Prior to withholding its members' services for the Contractor's failure to make timely payments to the Union's Labor/Management Trust Funds, the Union shall give at least thirty (30) calendar days written notice of such failure to pay by registered or certified mail, return receipt requested, and by facsimile or email transmission to the involved Contractor, the prime Contractor, and Project Labor Coordinator. The Union, Contractor, prime Contractor and Project Labor Coordinator will meet within ten (10) calendar days following receipt of the written

notice to attempt to resolve the dispute. Upon payment by the delinquent Contractor of all monies due and then owing for wages and/or fringe benefit contributions, the Union shall direct its members to return to work and the Contractor shall return all such members back to work.

ARTICLE 5 NO DISCRIMINATION OR HARASSMENT

5.1 This Article is intended to preserve the dignity and professionalism of the workplace and construction site as well as protect the right of employees to be free from discrimination, unlawful harassment, retaliation, and inappropriate conduct toward others based on a protected status. Discrimination, unlawful harassment, retaliation, and inappropriate conduct toward others based on a protected status, are contrary to the values of the County, Contractors and the Unions. The County, Contractors and the Unions will not tolerate unlawful discrimination on the basis of sex, race, color, ancestry, religion, national origin, ethnicity, age, disability, sexual orientation, marital status, medical condition, political affiliation or any other protected characteristic protected by state or federal employment law, nor will it tolerate unlawful harassment or retaliation. All Contractors and employees are responsible for conducting themselves in accordance with this Article. Any employee proven to be in violation of this Article is subject to immediate removal from the workplace and construction site.

5.2 The Parties agree not to engage in any form of unlawful discrimination or harassment of any kind on the grounds of, or because of, race, religion, national origin, ancestry, sex, sexual orientation, age, physical disability, marital status, medical condition, political affiliation, or membership in a labor organization in hiring and dispatching workers for the Covered Project.

5.3 Any employee covered by this Agreement which believes that she, he, or they, has been discriminated against or harassed, in violation of section 5.1 above, shall be referred to the appropriate state and/or federal agency for the resolution of such dispute.

ARTICLE 6 UNION SECURITY

6.1 The Contractors recognize the Unions as the sole and exclusive bargaining representatives of all craft employees working within the scope of this Agreement.

6.2 Employees are not required to become or remain Union members or pay Union dues or fees as a condition of performing work on a Covered Project. However, Contractors shall make and transmit all deductions for Union dues, fees, and assessments that have been authorized by employees in writing in accordance with the applicable MLA. Nothing in this Section 6.2 is intended to supersede independent requirements of the applicable MLA as to those Contractors otherwise signatory to such MLAs and as to the employees of those Contractors who are performing work on Covered Projects.

ARTICLE 7 REFERRAL

7.1 The Contractors recognize the Unions as the primary source of all craft labor employed on the Construction Contract for the Covered Projects. For Unions now having a job referral system contained in a MLA, the Contractor agrees to comply with such system, and it shall be used exclusively by such Contractor, except as modified by this Agreement. Such job referral system will be operated in a nondiscriminatory manner and in full compliance with federal, state, and local laws and regulations which require equal employment opportunities and non-discrimination. All of the foregoing hiring procedures, including related practices affecting apprenticeship, shall be operated so as to consider the policies and requirements of the County to encourage employment of Local Residents and Targeted Workers and utilization of LSBE, DVBE and SE's on the Project, and to facilitate the ability of all Contractors to meet their employment needs.

7.2 The Contractor shall have the right to determine the competency of all employees, including the determination that prospective employees meet the qualifications established by the County for employment, the number of employees required, the duties of such employees within their craft jurisdiction, and shall have the sole responsibility for selecting employees to be laid off, all of which shall not be inconsistent with this Agreement and the applicable MLA. The Contractor shall also have the right to reject any applicant referred by a Union, subject to the required payment of show-up pay, for any non-discriminatory reason; provided further that such right is exercised in good faith and not for the purpose of avoiding the Contractor's commitment to employ qualified workers through the procedures endorsed in this Agreement.

7.3 The Unions will exert and document their efforts to recruit and refer a sufficient number of skilled craft workers to fulfill the labor requirements of the Contractor, including specific employment obligations to which the Contractor may be legally and/or contractually obligated; and to refer apprentices as requested to develop a larger, skilled workforce. The Unions will work with their affiliated regional and national unions, and jointly with the Contractor, to identify and refer competent craftpersons as needed for work on Covered Projects, and to identify individuals, particularly Local Residents and Targeted Workers, for entrance into Apprenticeship Programs, or participation in pre-apprenticeship programs agreed to by the County and Council and procedures to assist individuals with qualifying and becoming eligible for such Apprenticeship Programs, all maintained to increase the available supply of skilled craft personnel for Covered Projects. The Union shall not knowingly refer an employee currently employed by a Contractor on Project Work to any other Contractor.

7.4 In recognition of the County's commitment to serve the community and the fact that the community in which the Covered Projects are located will be impacted by the construction activities, the Parties agree to support the development and employment of increased numbers of construction workers from among the Local Residents and Targeted Workers of the County. With the assistance of the Unions as specified in Section 7.5, the Contractor is responsible for ensuring compliance with the LTWHP.

7.5 The Unions agree that, to the maximum extent allowed by law, and as long as they possess the requisite skills and qualifications, the Unions shall follow the referral and recruitment procedures required by this Agreement to provide a sufficient number of skilled craft Local

Residents, Targeted Workers, Apprentices, and Skilled Journeypersons, as requested by the Contractors, to fulfill the requirements of the Contractors. Towards that end, the Unions agree that upon receiving a completed Craft Employee Request Form from a Contractor, the Unions shall follow the procedures required by this Agreement to provide referrals and utilization of qualified workers as follows:

7.5.1 First, qualified Tier 1 Local Residents and Targeted Workers requested by the Craft Employee Request Form.

7.5.2 If the Unions cannot provide the Contractors with a sufficient number of qualified Tier 1 Local Residents and Targeted Workers, then the Union shall certify to the Project Labor Coordinator in the manner specified on the Craft Employee Request Form that all reasonable efforts to recruit Tier 1 Local Residents have been exhausted. Thereafter, the Unions shall recruit and identify for referral qualified Tier 2 Local Residents and Targeted Workers sufficient to meet the number of Local Residents and Targeted Workers requested by the Craft Employee Request Form.

7.5.3 If the Unions still have not provided the Contractors with the attainment of a sufficient number of qualified Local Residents and Targeted Workers from their efforts in compliance with Sections 7.5.1 and 7.5.2, the Contractors and the Unions shall follow the procedures in Section 7.11. The Council will work with Apprenticeship Programs, the affected Contractor(s), and the Jobs Coordinator to indenture a sufficient additional number of qualified Local Residents and Targeted Workers as new Apprentices and/or Skilled Journeymen in accordance with this Agreement. In such cases, if the initiation and enrollment fees present a barrier to a potential Local Resident or Targeted Worker, then the Council and the Unions, along with the Project Labor Coordinator and the Jobs Coordinator, will assist in working with Department of Economic Opportunity, or any such successor agency, and other similar organizations to secure such funds.

7.5.4 Professional services agreements entered into by the County for covered surveying or inspection services, which are separate and apart from the Construction Contract for a Covered Project, do not include the LTWHP requirements, and therefore are not subject to the hiring and referral goals set forth in the LTWHP.

7.6 To facilitate the dispatch of Local Residents, Targeted Workers, Apprentices and Skilled Journeypersons, all Contractors will be required to utilize the Craft Employee Request Form whenever they are requesting the referral of any employee from a Union referral list for any Covered Project. When Local Residents and Targeted Workers are requested by the Contractors, the Unions will refer such workers regardless of their place on the Unions' hiring halls' list and normal referral procedures. The Contractors and Unions agree to maintain copies of all Craft Employee Request Forms used on the Covered Projects submitted or received including transmission verification reports that are date/time imprinted, until the Contractor's work on the project is complete. The Unions also agree to provide to the Project Labor Coordinator copies of any Craft Employee Request Forms wherein the Union has certified that all reasonable efforts to

recruit Local Residents and Targeted Workers have been exhausted. The Contractor shall copy the Project Labor Coordinator on all Craft Employee Request Forms at the time they are sent to the Union.

7.7 Each Contractor and Union must document all efforts made to comply with the hiring process to locate, dispatch, and hire Local Residents and Targeted Workers.

7.8 Local Residents and Targeted Workers may be referred to the Unions from the Project Labor Coordinator, Contractor, or Jobs Coordinator. For any applicant referred by the Project Labor Coordinator, Contractor, or the Jobs Coordinator to qualify as a Targeted Worker, the Jobs Coordinators shall first verify the presence of the Targeted Worker criteria defined by the LTWHP prior to referral to the Unions. The Project Labor Coordinator may ask the Jobs Coordinator to upload into an electronic system of the County's choice, the verification of an employee's Targeted Workers status.

7.9 Each Contractor performing work on a Covered Project that was procured by the County through an alternative project delivery methodology, is required to utilize a skilled and trained workforce, as defined in California Public Contract Code section 2602. The Parties shall utilize the grievance procedures set forth in Article 11 of this PLA to resolve any disputes regarding skilled and trained workforce requirements. To the maximum extent permissible under state law and regulation, including, but not limited to, California Public Contract Code §§ 22164(c)(2), 20146(c)(1), and 20155.4(b)(3), Contractors and County shall be relieved of reporting and enforcement obligations and systems described in California Public Contract Code sections 2602 and 2603, and Contractors' requirement to utilize a skilled and trained workforce shall instead be monitored and enforced by Parties through provisions of this Agreement.

7.10 Core Workforce

7.10.1 The parties recognize the County's interest in promoting competition and inclusion of Local Small Business Enterprises (LSBE), Disabled Veteran Business Enterprises (DVBE) and Social Enterprises (SE), which may not be signatory to a current MLA. In order to promote participation and attract certified LSBEs/DVBEs/SEs to work under this Agreement, and subject to the limitations set forth below, each Contractor that has been certified as an LSBE, DBVE or SE with twenty-five (25) or fewer employees at the time they are awarded a Covered Contract, may first employ three (3) of its core employees prior to employing an employee through the appropriate Union hiring hall. The next (fourth) employee shall be hired from the appropriate Union hiring hall and thereafter, such Contractor may employ, as needed, two (2) additional Core Employees in an alternating manner with Union referrals, up to a total of five (5) Core Employees. Thereafter, all additional employees in the affected trade or craft shall be requested and referred from the appropriate Union hiring hall. Notwithstanding the foregoing, Contractors must comply with the State of California Labor Code requirements for the utilization of Apprentices on Covered Work.

7.10.2 Contractors who are not certified as LSBE, DVBE or SE, and who are not otherwise signatory to a current MLA, may employ, as needed, first, a Core Employee, then an employee through a referral from the appropriate Union hiring hall, then a second Core Employee, then a second employee through the referral system, and so on until a maximum of five (5) Core Employees are employed, thereafter, all additional employees in the affected trade or craft shall be requested and referred from the appropriate Union hiring hall in accordance with this Article.

7.10.3 During any layoff or reduction in workforce, Contractors shall layoff employees in an order and manner consistent with the Core Employee hiring procedures and maintain the required Core Employee-to-Union referral ratios required by this Section for the duration of each Covered Project.

7.10.4 Section 7.10 only applies to Contractors who are not directly signatory to a current MLA for the craft worker in its employ and is not intended to limit the transfer provisions of the MLA of any trade. As part of this process, and in order to facilitate the Agreement's administration procedures, as well as appropriate fringe benefit fund coverage, all Contractors shall require their Core Employees and any other persons employed other than through the referral process, to register with the appropriate Union hiring hall, if any, prior to their first day of employment working under the Construction Contract at the project site.

7.10.5 Prior to each Contractor performing any work on a Covered Project, each Contractor shall provide a list of its Core Employees to the Project Labor Coordinator and the Council. Failure to do so will prohibit the Contractor from using any Core Employees for thirty (30) calendar days after the list is provided. Upon request by any Party to this Agreement, the Contractor hiring any Core Employee shall provide satisfactory proof (i.e., payroll records, quarterly tax records, and such other documentation) evidencing the Core Employee's qualification as a Core Employee to the Project Labor Coordinator and the Council.

7.11 In the event that the referral facilities maintained by the Unions are unable to fill the requisition of a Contractor for a craft's classifications requested by any Contractor within forty-eight (48) hours (excluding Saturdays, Sundays, and holidays) after having provided a fully completed Craft Employee Request Form to the Union, that Contractor may use employment sources other than the union registration and referral services, and may employ any qualified applicants, within the craft classification requested, meeting such standards from any other available source. The Contractor shall inform the Union of any applicants hired from such other sources within forty-eight (48) hours of such applicant being hired, and such applicants shall immediately register with the appropriate Union in accordance with Section 7.10.4 of this Agreement.

7.11.1 In the event that a Contractor, which has not then currently met its hiring goals for Local Residents and/or Targeted Workers, requests one or more Local Residents or Targeted Workers from the Union hiring hall in accordance with Section 7.5, and the Union is unable to fill such request for a Local Resident or a Targeted Worker within a forty-eight (48) hour period after such requisition is made

by the Contractor (Saturday, Sundays and holidays excepted), the Employer shall have five (5) working days to obtain the requested number of Local Residents or Targeted Workers, as requested in the Craft Employee Request Form, from another source. If the Contractor is unable to hire the requested number of Local Residents or Targeted Workers within such five (5) working days from such other source, Contractor shall hire the remaining unfulfilled number of employees from the Union hiring hall. The Employer shall inform the Union of any applicants hired from such other sources within 48 hours of such applicant being hired, and such applicants shall immediately register with the appropriate hiring hall, if any, in accordance with Section 7.10.4 of this Agreement.

7.12 Helmets to Hardhats:

7.12.1 The Parties recognize a desire to facilitate the entry into the building and construction trades of veterans, including female veterans, who are interested in careers in the building and construction trades industry. The Contractors and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center") and the Center's "Helmets to Hardhats" Program to serve as a resource for preliminary orientation, assessment of the construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the Parties.

7.12.2 The Unions and Contractors agree to coordinate with the Center to reach out to veterans, including women, interested in entering into a construction career.

7.12.3 The Unions will assist in providing relevant records and Contractors agree to maintain records of all efforts to assist Helmets to Hardhats employment candidates gain employment on the Covered Project(s). Such records shall include, but not be limited to, documentation of the number of Helmets to Hardhats employment candidates contacted and/or employed and/or indentured into an apprenticeship program or referred to a Union for assessment, including the number of such female candidates. Such records must be submitted to the Project Labor Coordinator, if requested by the County.

7.12.4 Any Helmets to Hardhats employment candidate for work on Covered Projects may be given credit by the Union for any provable past experience and training.

ARTICLE 8 WAGES AND BENEFITS

8.1 All employees covered by this Agreement shall be classified in accordance with work performed and paid by the Contractor at the hourly wage and benefit rates for those classifications in compliance with the Current Prevailing Wage Determination. Notwithstanding any other provision in this Agreement, Contractors directly signatory to one or more of the MLAs

are required to pay all of the wages set forth in those MLAs, provided those wages are not less than the applicable Current Prevailing Wage Determination.

8.2 All employees covered by this Agreement may be paid by check, paid no later than the end of the work shift each Friday. No more than five (5) days' wages may be withheld in any pay period. Any employee who is discharged or laid off shall be entitled to receive all accrued wages immediately upon discharge or layoff.

8.3 Contractors shall pay contributions to the established employee benefit funds on behalf of all employees performing covered work in the amounts designated in the appropriate MLA and make all employee authorized deductions in the amounts designated in the appropriate MLA; provided, that such contributions shall not exceed the contribution amount set forth in the Current Prevailing Wage Determination. Notwithstanding any other provision in this Agreement, Contractors directly signatory to one or more of the MLAs are required to pay all of the benefits set forth in those MLAs, provided those benefit contributions are not less than the applicable Current Prevailing Wage Determination.

8.4 Pursuant to and as limited by the Subscription Agreement (or for Contractors signatory to a MLA), the Contractor adopts and agrees to be bound by the written terms of the applicable, legally established, trust agreement(s) specifying the detailed basis on which payments are to be made into, and benefits paid out of, such trust funds for its employees. The Contractor authorizes the Parties to such trust funds to appoint trustees and successor trustees to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor. Nevertheless, the Contractor's obligation to the trust fund(s) is limited to the work within the scope of the Construction Contract.

8.5 Each Contractor is required to certify under penalty of perjury to the Project Labor Coordinator that it has paid all benefit contributions due and owing to the appropriate Trust(s) prior to the receipt of its final payment and/or retention. The Project Labor Coordinator shall work with any Contractor who is delinquent in payments to assure that proper benefit contributions are made, to the extent of requesting the County or the prime Contractor to withhold payments otherwise due such Contractor, until such contributions have been made or otherwise guaranteed.

ARTICLE 9 HOURS OF WORK, OVERTIME, SHIFTS AND HOLIDAYS

9.1 Hours of Work. Eight (8) hours per day between the hours of 6:00 a.m. and 5:30 p.m., plus one-half (1/2) hour unpaid lunch approximately mid-way through the shift, shall constitute the standard workday. Forty (40) hours per week shall constitute a regular week's work. The work week will start on Sunday and conclude on Saturday. The foregoing provisions of this Article are applicable unless otherwise provided in the Current Prevailing Wage Determination, or unless changes are permitted by law, and such are agreed upon by the Parties. Nothing herein shall be construed as guaranteeing any employee eight (8) hours per day or forty (40) hours per week, or a Monday through Friday standard work schedule.

9.2 Place of Work. Employees shall be at their place of work (as designated by the Contractor), at the starting time and shall remain at their place of work, performing their assigned functions, until quitting time. The place of work is defined as the gang or toolbox or equipment at

the employee's assigned work location or the place where the foreman gives instructions. The Parties reaffirm their policy of a fair day's work for a fair day's wage. There shall be no pay for time not worked, unless otherwise provided in this Agreement or under law, unless the employee is otherwise engaged at the direction of the Contractor.

9.3 Overtime. Overtime shall be paid in accordance with the requirements of the Current Prevailing Wage Determination. There shall be no restriction on the Contractor's scheduling of overtime or the nondiscriminatory designation of employees who will work overtime. There shall be no pyramiding of overtime (payment of more than one form of overtime compensation for the same hour) under any circumstances.

9.4 Shifts and Alternate Work Schedules.

9.4.1 Alternate starting and quitting time and/or shift work may be performed at the option of the Contractor upon three (3) days' prior notice to the affected Union(s) unless a shorter notice period is provided for in the applicable MLA and shall continue for a period of not less than five (5) working days. Saturdays and Sundays, if worked, may be used for establishing the five (5) day minimum work shift. If two shifts are worked, each shall consist of eight (8) hours of continuous work exclusive of a one-half (1/2) hour non-paid lunch period, for eight (8) hours pay. The first shift starting between 6:00 a.m. and 8:00 a.m., is designated as the first shift, with the second shift following eight (8) hours later.

9.4.2 Additional pay or differentials based upon the shift or work schedule of the employees shall only be paid by the Contractor if required by the Current Prevailing Wage Determination.

9.4.3 To the extent permitted by state and federal law, the Contractor may, upon five (5) days' notice to appropriate Union(s), establish a work week of four (4) consecutive ten (10) work hours days (exclusive of the one-half (1/2) hour unpaid lunch approximately halfway through the shift). Such work week should consist of the same four (4) days each week, with the fifth day available as a make-up day if needed.

9.4.4 Because of operational necessities, the second shift may, at the County's direction, be scheduled without the preceding shift having been worked. It is recognized that the County's operations and/or mitigation obligations may require restructuring of normal work schedules. Except in an emergency or when specified in the County's bid specification, the Contractor shall give the affected Union(s) at least three (3) days' notice of such schedule changes.

9.5 Holidays. Recognized holidays on the Covered Projects shall be those set forth and governed by the Current Prevailing Wage Determination.

9.6 Show-up Pay.

9.6.1 Unless the Current Prevailing Wage Determination requires a higher amount, employees reporting for work and for whom no work is provided, except

when given prior notification not to report to work, shall receive two (2) hours pay at their regular straight time hourly rate; while employees who are directed to start work shall receive four (4) hours of pay at the regular straight time hourly rate. Employees who work beyond four (4) hours shall be paid for actual hours worked. Whenever reporting pay is provided for employees, they will be required to remain at the project site and available for work for such time as they receive pay, unless released earlier by the Contractor. Each employee shall furnish the Contractor with his current address and telephone number and shall promptly report any changes to the Contractor.

9.6.2 An employee called out to work outside of his shift shall receive a minimum of two (2) hours pay at the appropriate rate, except as otherwise required by the Current Prevailing Wage Determination. This does not apply to time worked as an extension of (before or after) the employee's normal shift.

9.6.3 When an employee leaves the job or work location of his own volition or is discharged for cause or is not working as a result of the Contractor's invocation of Article 16, the employee shall only be paid for actual time worked.

9.7 Brassing. The Contractor may utilize "brassing" (or similar system) to check employees in and out. Each employee must check himself in and out. The Contractor will provide adequate facilities for checking in and out in an expeditious manner.

9.8 Meal Periods. The Contractor will schedule a meal period of no more than one-half (1/2) hour duration at the work location at approximately the mid-point of the scheduled shift; provided, however, that the Contractor may, for efficiency of the operation, establish a schedule which coordinates the meal periods of two (2) or more crafts. An employee may be required to work through his meal period because of an emergency or a threat to life or property, or for such other reasons as are in the applicable MLA, and if he is so required, he shall be compensated in accordance with state law, unless the Contractor is directly signatory to one or more MLA, in which case the provisions of such MLA will apply.

9.9 Make-up Days. To the extent permitted by the Current Prevailing Wage Determination, when an employee has been prevented from working for reasons beyond the control of the Contractor, including, but not limited to inclement weather or other natural causes, during the regularly scheduled work week, a make-up day may be worked on a non-regularly scheduled work day for which an employee shall receive eight (8) hours pay at the straight time rate of pay or any premium rate required for such hours under the prevailing wage law.

9.10 If the Current Prevailing Wage Determination is in conflict with the applicable prevailing wage determination under state law, then the Contractor shall ensure compliance with state law and this Agreement by implementing the terms and conditions of each determination that is most favorable to the Contractor's employees.

ARTICLE 10 COMPLIANCE

10.1 The County shall designate a Project Labor Coordinator, either from its own staff or an independent entity acting on behalf of the County, to monitor compliance with this Agreement. The Council shall actively assist the Project Labor Coordinator and the County in developing, implementing and administering the programs referenced in this Agreement, all of which are critical to fulfilling the intent and purposes of the Parties and this Agreement; and to otherwise implement and administer this Agreement.

10.2 All Contractors, Unions, and employees shall comply with all applicable federal, state and County laws, ordinances, and regulations, including, but not limited to, those relating to safety and health, vaccination reporting, employment, and applications for employment. All employees shall comply with the health and safety regulations and policies established by the state and the County and the Contractors. Employees must promptly report any injuries or accidents to a supervisor.

10.3 It shall be the responsibility of the Contractors and the Unions to comply with the provisions of this Agreement.

10.4 The Project Labor Coordinator shall be responsible for oversight in monitoring the compliance of all Contractors with all applicable prevailing wage laws and regulations to the extent required by law. All complaints regarding potential prevailing wage violations may be referred to the Project Labor Coordinator for processing, investigation and resolution, and if not resolved within thirty (30) calendar days of taking cognizance of the potential violation or complaint, the matter may be referred to the State Labor Commissioner by any Party or form the basis for a grievance under Article 11 of this Agreement.

10.5 If the County opts to implement an online certified payroll system for a Covered Project, the Contractors agree to use the County-required online certified payroll system for the submission of certified payroll records and any other documents required by the County or Project Labor Coordinator related to labor compliance and compliance with this Agreement.

ARTICLE 11 DISPUTE RESOLUTION PROCEDURE

11.1 This Agreement is intended to provide close cooperation between management and labor. Each of the Unions will assign a representative to the Covered Projects for the purpose of completing the construction of the Covered Projects economically, efficiently, continuously, and without interruptions, delays, or work stoppages.

11.2 The Contractors, Unions, and the employees, collectively and individually, realize the importance to all Parties to maintain continuous and uninterrupted performance of the work of the Covered Projects, and agree to resolve disputes in accordance with the grievance-arbitration provisions set forth in this Article.

11.3 Any question or dispute by or between a Contractor, employee and/or a Union and arising out of and during the term of this Agreement, other than disputes arising under Article 4 (Work Stoppages and Lockouts), Article 5 (No Discrimination or Harassment) or Article 13

(Jurisdictional Disputes) shall be considered a grievance and subject to resolution under the following steps:

Step 1: Should a Union, employee or any Contractor have a dispute with another party or parties, and if after conferring within five (5) working days after the disputing party knew or should have known of the facts or occurrence giving rise to the dispute, a settlement is not reached within five (5) working days, the dispute shall be reduced to writing and processed to Step 2.

Step 2: In the event that the representatives are unable to resolve the dispute at the Step 1 meeting, the grieving party shall, within five (5) working days after the Step 1 meeting, notify the responding party and the Project Labor Coordinator of a request to discuss the grievance. The business manager of the Union (or his/her designee) shall meet with the respective jobsite representative of the Contractor and the Project Labor Coordinator within ten (10) working days (or such longer time as all of the parties may mutually agree) after receipt of the request to discuss the grievance. If the grievance is not resolved at the Step 2 meeting, the grievance may be submitted to final and binding arbitration as described in Step 3.

Step 3: In the event a dispute cannot be satisfactorily resolved within the time limits established above in Step 2, either party may submit the dispute to arbitration by written notice to the Project Labor Coordinator and other party within ten (10) working days (or such longer time as mutually agreed) of the date on which the parties met at Step 2. An arbitrator shall be selected by the Project Labor Coordinator in sequential order from the listing of permanent arbitrators specified in Section 4.5.3, above. The arbitrator's decision shall be final and binding upon the parties. The arbitrator shall not have the authority to alter, amend, add to, or delete from the provisions of this Agreement in any way. The failure of any party to attend said hearing shall not delay the hearing of evidence or the issuance of any decision by the arbitrator. Should any party seek confirmation of the award made by the arbitrator, the prevailing party shall be entitled to receive its reasonable attorney fees and costs.

11.4 Failure of the grieving party to adhere to the time limits established herein shall render the grievance null and void. The time limits established herein may be extended only by written consent of the parties involved at the particular step where the extension is agreed upon. The arbitrator shall have the authority to make decisions only on issues presented and shall not have the authority to change, amend, add to or detract from any of the provisions of this Agreement.

11.5 The Project Labor Coordinator shall be notified of all actions at Step 2 or higher by the grieving party and shall, upon the Project Labor Coordinator's request, be permitted to participate in all grievance meetings.

11.6 The time limits specified in any step of this dispute resolution procedure may be extended by written mutual agreement of the parties initiated by the written request of one party to the other, at the appropriate step of the dispute procedure. However, failure to process a dispute

within the time limits provided above, without a request for an extension of time, shall be deemed a waiver of such dispute without prejudice, or without precedent to the processing and/or resolution of like or similar disputes.

11.7 In order to encourage the resolution of disputes at Steps 1 and 2 of this dispute resolution procedure, the Parties agree that any settlements made during such steps, shall not be precedent setting.

11.8 The fees and expenses incurred by the arbitrator, as well as those jointly utilized by the parties (i.e., conference room, court reporter, etc.) in arbitration, shall be divided equally by the parties to the arbitration, including the Union(s) and Contractor(s) involved, however in no circumstance will the Project Labor Coordinator or the County be assigned or assessed any such fees and expenses.

ARTICLE 12 LABOR/MANAGEMENT COLLABORATION

The Parties will conduct periodic labor/management cooperation meetings, which will be chaired jointly by a designee of the County and a designee of the Council. The co-chairs shall determine the frequency and scheduling of the meetings with the assistance of the Project Labor Coordinator. The purpose of the meetings shall be to update the Parties about the progress and schedule of Covered Projects, promote harmonious and stable labor management relations, ensure effective and constructive communication between labor and management Parties, advance the proficiency of work in the industry, and to evaluate and ensure an adequate supply of skilled labor for all Covered Projects. The County shall convey information detailing the outcomes of the LTWHP goals and progress of Article 19 implementation. All Parties will be invited to attend the labor/management cooperation meetings. Substantive grievances or disputes shall not be reviewed or discussed by this Committee, but instead shall be processed pursuant to the provisions of the applicable dispute resolution procedures of this Agreement.

ARTICLE 13 JURISDICTIONAL DISPUTES

13.1 The assignment of work will be solely the responsibility of the Contractor performing the work involved and such work assignments will be in accordance with the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry ("the Plan") or any successor Plan.

13.2 All jurisdictional disputes on Covered Projects between or among the building and construction trades Unions and the Contractors party to this Agreement, shall be settled and adjusted according to the present Plan established by North America's Building Trades Unions (NABTU) or any other plan or method of procedure that may be adopted in the future by NABTU. Decisions rendered shall be final, binding, and conclusive on the Contractors and Unions party to this Agreement.

13.3 If a dispute arising under this Article involves the Southwest Mountain States Regional Council of Carpenters or any of its subordinate bodies, an arbitrator shall be chosen by the procedures specified in Article V, Section 5, of the Plan from a list composed of John Kagel, Robert Hirsch, and Thomas Pagan, and the Arbitrator's hearing on the dispute shall be held at the

offices of the Council within fourteen (14) days of the selection of the arbitrator. All other procedures shall be as specified in the Plan.

13.4 All Jurisdictional Disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature, and the Contractor's assignment shall be adhered to until the dispute is resolved. Individuals violating this section shall be subject to immediate discharge.

ARTICLE 14 APPRENTICES

14.1 Importance of Training. The Parties recognize the need to maintain continuing support of the programs designed to develop adequate numbers of competent workers in the construction industry, the obligation to capitalize on the availability of the local workforce in the area served by the County, and the opportunities to provide continuing work during the construction of the Covered Projects. To these ends, the Parties will facilitate, encourage, and assist Local Residents and Targeted Workers to commence and progress in Apprenticeship Programs and/or other training programs in the construction industry leading to participation in Apprenticeship Programs. In accordance with Article 19, the County, the Project Labor Coordinator, and the Council, will work cooperatively to identify, or establish and maintain, effective programs and procedures for persons interested in entering the construction industry and which will help prepare them for entry into Apprenticeship Programs.

14.2 Use of Apprentices.

14.2.1 The Unions agree to cooperate with the Contractor in furnishing Apprentices as requested up to the maximum percentage allowed by each Apprenticeship Program. The County shall encourage such utilization, and, both as to Apprentices and the overall supply of Skilled Journeypersons, the Project Labor Coordinator and the Council will work to ensure appropriate and maximum utilization of Apprentices and the continuing availability of both Apprentices and Skilled Journeypersons.

14.2.2 All Apprentices shall work under the direct supervision of a Skilled Journeyperson from the trade in which the Apprentice is indentured. Should a question arise as to a Skilled Journeyperson's qualification under this subsection, the Contractor shall provide adequate proof evidencing the worker's qualification as a Skilled Journeyperson to the Project Labor Coordinator and the Council.

ARTICLE 15 MANAGEMENT RIGHTS

15.1 Contractor and County Rights. The Contractors and the County have the sole and exclusive right and authority to oversee and manage construction operations on Project work without any limitations unless expressly limited or required by the other Articles of this Agreement or a MLA. In addition to the following and other rights of the contractors enumerated in this Agreement, the Contractors expressly reserve their management rights and all the rights conferred upon them by law. The Contractor's rights include, but are not limited to, the right to:

(a) Plan, direct, and control operations of all work;

(b) To be the sole judge of the qualifications, number and classification of employees required to perform work subject to this Agreement and thus to reject any applicant for employment and to hire, promote, transfer and layoff their own employees at their discretion, respectively, as deemed appropriate to satisfy work and/or skill requirements;

(c) Promulgate and require all employees to observe reasonable jobsite rules, including security and safety policies;

(d) Discharge, suspend or discipline their own employees for just cause;

(e) Utilize, in accordance with County approval, any work methods, procedures or techniques, and select, use and install any types or kinds of materials, apparatus or equipment, regardless of source of manufacture or construction; assign and schedule work at their discretion; and

(f) Assign overtime, determine when it will be worked and the number and identity of employees engaged in such work, subject to such provisions in the applicable MLA(s) requiring such assignments be equalized or otherwise made in a non-discriminatory manner.

15.2 Specific County Rights. In addition to the following and other rights of the County enumerated in this Agreement, the County expressly reserves its management rights and all the rights conferred on it by law. The County's rights include but are not limited to the right to:

(a) Inspect any construction site or facility to ensure that the contractor follows the applicable safety and other work requirements;

(b) Require Contractors to establish a different work week or shift schedule for particular employees as required to meet the operational needs of the Covered Project work at a particular location or in order to accommodate any ongoing business at the Covered Project site where operations may be continuing during periods of construction activity;

(c) Require Contractors to implement additional health or safety measures, as determined necessary by the County.

(d) At its sole option, terminate, delay and/or suspend any or all portions of the Covered Project work at any time; prohibit some or all work on certain days or during certain hours of the day to accommodate any ongoing operations of the County at the Covered Project site and/or to mitigate the effect of ongoing Covered Project work on businesses and residents in the neighborhood of the Covered Project site; and/or require such other operational or schedule changes it deems necessary, in its sole judgment, to effectively maintain its primary operational mission at the Covered Project site and remain a good neighbor to those in the area of its facilities. In order to permit the Contractors and Unions to make appropriate scheduling plans, the County will provide the Project Labor Coordinator, and the affected Contractors(s) and Union(s) with reasonable notice of any

changes it requires pursuant to this section; provided, however, that if notice is not provided in time to advise employees not to report for work, show-up pay shall be due pursuant to the provision of Section 9.6;

(e) Approve any work methods, procedures and techniques used by contractors whether or not these methods, procedures or techniques are part of industry practices or customs; and

(f) Investigate and process complaints, through its Project Labor Coordinator, in the matter set forth in Articles 4 and 11.

15.3 Use of Materials. There should be no limitations or restriction by Union upon a contractor's choice of materials or design, nor, regardless of source or location, upon the full use and utilization, of equipment, machinery, packaging, precast, prefabricated, prefinished, or preassembled materials, tools or other labor-saving devices, subject to the application of the State Public Contracts and Labor Codes as required by law in reference to offsite construction. Generally, the onsite installation or application of such items shall be performed by the craft having jurisdiction over such work. The County and its Project Labor Coordinator shall advise all contractors of, and enforce as appropriate, the off-site application of the prevailing wage law as it affects Covered Project work.

ARTICLE 16 SAFETY, PROTECTION OF PERSON AND PROPERTY

16.1 It shall be the responsibility of each Contractor to ensure safe working conditions and employee compliance with any safety rules contained herein or established by the County, the State and the prime Contractor. It is understood that the employees have an individual obligation to use diligent care to perform their work in a safe manner and to protect themselves and the property of the Contractor and the County.

16.2 Unions and Employees shall be bound by the safety, security and visitor rules established by the Contractor and the County. These rules will be published and posted in conspicuous places by the Contractor throughout the work site. An employee's failure to satisfy his obligations under this Article will subject him to discipline, including discharge.

16.3 The Parties acknowledge that the County and Contractor have a policy, which prohibits the use, sale, transfer, purchase and/or possession of a controlled substance, alcohol and/or firearms while on the County's premises.

16.4 The Parties to this Agreement adopt the attached Drug and Alcohol Testing Policy set forth in Attachment C, which shall be the sole policy and procedure utilized under this Agreement.

16.5 A Contractor may suspend all or a portion of the job to protect the life and safety of employees. In such cases, employees will be compensated only for the actual time worked; provided, however, that where the Contractor requests employees to remain at the site and be available for work, the employees will be compensated for stand-by time at their appropriate hourly rate of pay.

ARTICLE 17 SAVINGS CLAUSE

17.1 The Parties agree that in the event any Article, provision, clause, sentence, or word of the Agreement is determined to be illegal or void as being in contravention of any applicable law, by a final court of competent jurisdiction, the remainder of the Agreement shall remain in full force and effect. The Parties further agree that if any Article, provision, clause, sentence or word of the Agreement is determined to be illegal or void, by a final court of competent jurisdiction, the Parties shall substitute, by mutual agreement, in its place and stead, an Article, provision, sentence or word which will meet the objections to its validity and which will be in accordance with the intent and purpose of the Article, provision, clause, sentence or word in question.

17.2 The Parties also agree that in the event that a decision of a court of competent jurisdiction materially alters the terms of the Agreement such that the intent of the Parties is defeated, then this entire Agreement shall be null and void.

17.3 The provisions of this Agreement shall not be applicable where prohibited by Presidential Executive Order, federal or state law, or where the application would be inconsistent with terms and conditions of a grant or a contract with the agency of the United States, State of California, or the instruction of an authorized representative of these agencies with respect to any grant or contract.

ARTICLE 18 PRE-JOB CONFERENCE

18.1 Each Contractor is required to conduct a pre-job conference with the Unions no less than six (6) working days prior to commencing work on each Covered Project. The purpose of the conference will be to, among other things, convey craft workforce needs, the schedule of work for the Covered Project, the Covered Project's rules, and propose Union work assignments.

18.2 The Project Labor Coordinator may work with the prime Contractor and Council to facilitate the scheduling of all pre-job conferences, but ensuring each Contractor conducts a pre-job conference in accordance with this CWA is the responsibility of the prime Contractor.

18.3 The prime Contractor shall make the relevant plans and specifications available to the Unions prior to each pre-job conference to the extent the County has not declared the plans and specifications to be confidential for security or other reasons. If the County has declared the plans and specifications to be confidential, the County shall make them available to the Unions upon the Unions' execution of a non-disclosure agreement.

18.4 All Union work assignments shall be disclosed by each Contractor at the pre-job conference. Should there be covered work that was not previously assigned at a pre-job conference, or additional covered work be added to the scope of the Covered Project, the Contractor(s) performing such work will conduct a separate pre-job conference.

18.5 Any Union in disagreement with a proposed preliminary assignment shall notify the affected Contractor of its position in writing, with a copy sent to the Project Labor Coordinator, within five (5) working days after the pre-job conference occurred. Within five (5) working days after the period allowed for Union notices of disagreement with the Contractor's proposed

assignments, but prior to the commencement of any work, the Contractor shall make final assignments in writing with copies sent to the Project Labor Coordinator and Council.

18.6 A Contractor's failure to conduct a pre-job conference in accordance with this CWA is considered a breach of contract, and any affected Union may pursue a grievance under Article 11 of this CWA to seek a remedy for such a violation. Provided, however, if the Contractor has conducted a pre-job conference in accordance with this CWA, that Contractor is not required to participate in any additional pre-job conferences or mark-up meetings related to the original scope(s) of work assigned at the pre-job conference. Contractor shall use its best efforts to provide information reasonably necessary upon the request of one of the Unions.

18.7 The Project Labor Coordinator may attend and facilitate each pre-job conference. At each pre-job conference, the Project Labor Coordinator may address the programs, goals and outcomes related to Local Resident and Targeted Worker employment, as well as the progress of implementing Article 19, Work and Economic Opportunity, on the project.

ARTICLE 19 WORK AND ECONOMIC OPPORTUNITY

19.1 The Parties recognize the proposed Covered Projects' economic opportunity and impact on County residents, businesses and the communities surrounding the proposed Covered Projects. The Parties are committed to working in partnership to create a skilled and trained local workforce that is reflective of the population of the communities surrounding the proposed Covered Projects and within the County. Towards that end, the Parties agree to establish and implement a framework for work and economic opportunity to maximize career opportunities for Local Residents and Targeted Workers, including those who have not previously qualified to be employed on construction projects, and to provide meaningful outreach, training and business opportunities for LSBE, DVBE, and SE Contractors to successfully work under this Agreement.

19.2 As coordinated by the Contractor and Unions, the Parties will work together with the County; SEs; non-profits; veteran assistance organizations; and other community groups, who work with Targeted Worker populations, to conduct outreach and recruit a sufficient number of Local Residents and Targeted Workers who are interested in beginning a construction career. Such Local Residents and Targeted Workers will be assessed by the Project Labor Coordinator or Jobs Coordinator to determine their career readiness level and coordinate potential entrance into a local MC3 pre-apprenticeship program or, if a veteran or otherwise qualified, potential direct entry into an Apprenticeship Program, or, if appropriate to their level of skill and training, join the Union as a Skilled Journeyperson. The recruitment and outreach level of effort, including the quantity of Local Residents and Targeted Workers recruited, will fluctuate based on the Projects' hiring needs and schedule.

19.3 The Council and the Unions will work with the Project Labor Coordinator and Jobs Coordinators to identify and support local outreach events and programs designed to recruit and develop adequate numbers of qualified workers in the construction industry, to arrange for tours of their joint apprenticeship committees and programs, and to provide contact information for Union representatives.

19.4 The Parties recognize the importance of providing direct assistance to Local Residents and Targeted Workers to help them overcome barriers to employment. Towards that end, if necessary, Local Residents and Targeted Workers will be referred by the Project Labor Coordinator or Jobs Coordinator to America's Job Centers of California (AJCC) or other community-based organizations and SE firms or agencies that provide supportive services. The Project Labor Coordinator, in coordination with the County, will monitor and report the outcomes of all referrals to employment support service providers. If the initiation and enrollment fees present a barrier to a potential Local Resident or Targeted Worker, then the Council and the Unions, along with the Project Labor Coordinator and the Jobs Coordinator, will assist in working with Department of Economic Opportunity, or any such successor agency, and other similar organizations to secure such funds.

19.5 In order to create career pathways for Local Residents and Targeted Workers who may need additional training and preparation for a construction career, the Parties will partner with local pre-apprenticeship programs that are authorized by the Council to teach the Multi-Craft Core Curriculum (MC3). The Parties recognize the need to continue to develop pre-apprenticeship training programs to meet the significant demand for local skilled craft labor at each Covered Project location. Towards that end, the Parties will collaborate to determine and develop the optimal MC3 pre-apprenticeship training plan for each Covered Project location.

19.6 After successful graduation from the MC3 pre-apprenticeship program, the Contractor will work together with the Council's Apprenticeship Readiness Fund, Project Labor Coordinator, and Unions to assist such graduates with preferential entry into an Apprenticeship Program and finding employment on a Covered Project. Both the Unions and Contractors recognize the importance of increasing the supply of local skilled craft labor by assisting Local Residents and Targeted Workers start their construction careers on Covered Projects.

19.7 For Veterans, Local Residents and other Targeted Workers who have verifiable past experience and do not require additional training or assistance, the Unions agree to give them credit for provable past experience in their relevant craft or trade, including experience gained working for Contractors not otherwise signatory to a MLA, in order to bring them directly into an Apprenticeship Programs at a higher level, or as a Skilled Journeyperson, if qualified. The Unions shall put on their rolls qualified bona fide Local Residents and Targeted Workers for work on Covered Projects.

19.8 The Project Labor Coordinator, with the assistance of the Council, the Unions and Contractors, will produce detailed monthly reports for the County measuring compliance with this Agreement, including but not limited to, the cumulative Local Resident and Targeted Worker hiring goals for each Covered Project and the economic impact on Local Residents and Targeted Workers. The reports may be produced, in part, by utilizing an online certified payroll reporting system if the County ultimately implements such a system.

19.9 The Project Labor Coordinator, with the assistance of the Council, the Unions, and Contractors, will produce detailed reports to the County on the progress of implementing the programs specified in this Article, including an evaluation of the successes and obstacles in the implementations of these provisions. This report will be produced at least annually, or more frequently at the sole discretion of the County.

19.10 The Council and the Unions will, in coordination with the Project Labor Coordinator and Jobs Coordinators, participate in orientations at least twice per year for LSBE, DVBE, and SE contractors regarding the CWA and the employee benefit trust funds.

19.11 The Council and Unions will support local events and programs designed to recruit, develop, educate and inform certified LSBE, DVBE, and SE contractors seeking access and readiness to contract for work on Covered Projects. In order to attract and promote participation of LSBE, DVBE, and SE Contractors, the Unions will work with the Project Labor Coordinator to identify Contractors who are certified or may be qualified to become certified as a LSBE, DVBE or SE for outreach related to contracting opportunities on Covered Projects.

19.12 Women in Trades Advisory Council

19.12.1 The County and Council have established and co-chair the Los Angeles County Women in Trades Advisory Council to provide a forum to engage in recommending, planning, development, and implementation of strategies to increase female recruitment, training, placement and retention.

19.12.2 The Council's Executive Secretary and County will each designate a co-chair of the Women in Trades Advisory Council and coordinate the participation of each Union and affiliated Apprenticeship Program with the assistance of the Project Labor Coordinator.

19.12.3 In order to increase the participation and retention of female craft workers, each Union shall use a good faith effort to establish a Tradeswomen Mentoring Program for their female apprentices and journeyman that provide support, mentoring, and fosters a neutral, unbiased and supportive environment where female craft workers may express their thoughts and career objectives. The Council shall report annually to the Project Labor Coordinator about the efforts to establish each Unions' Tradeswomen Mentoring Program.

19.12.4 Members of the Tradeswomen Mentoring Program are encouraged to engage with female pre-apprentices through the network of apprenticeship readiness programs and youth organizations to facilitate support and access to apprenticeship.

19.13 LSBE, DVBE, and SE Programs

19.13.1 The Parties recognize that the proposed Covered Projects are subject to the County's LSBE, DVBE, and SE Preference Programs.

19.13.2 In order to encourage participation of certified LSBE, DVBE, and SE businesses, the Parties agree that individual subcontracts awarded to certified LSBE, DVBE, and SE businesses on Covered Projects with a subcontract award value of $50,000 or less will be entirely exempt from this Agreement. Any subcontracts excluded from this Agreement pursuant to this Article shall not be subject to the terms of this Agreement, and the Unions and Council shall have no obligations to provide workers for or reporting of workers for work performed under any such excluded subcontracts.

19.13.3 No Union shall undertake any strike, work stoppage, or other action against a certified LSBE, DVBE or SE business performing work excluded pursuant to this Article, and the Parties expressly agree that any such work shall not be subject to trust fund contributions by application of this Agreement. This Agreement shall not limit the rights of Unions to seek to organize and to utilize legal and administrative remedies not precluded by this Agreement, according to applicable federal or state laws, to secure such rights.

ARTICLE 20 STEWARDS

20.1 Each Union shall have the right to designate one working craft employee as steward for each Contractor employing such craft on the Covered Project. Such designated steward shall be a qualified workman assigned to a crew and shall perform the work of the craft. The steward shall not perform supervisory duties. Under no circumstances shall there be nonworking stewards. Stewards shall be permitted a reasonable amount of time during working hours to perform applicable Union duties related to the work being performed by the craft employees of his Contractor and not to the work being performed by other Contractors or their employees.

20.2 Authorized representatives of the Union(s) shall have access to the Covered Project, provided that such representatives fully comply with posted visitor, security, and safety rules, and provided that they do not unnecessarily interfere with the employees or cause them to neglect their work.

ARTICLE 21 TERM

21.1 This Agreement shall become effective for a term of five (5) years on the date it becomes fully executed by the County, the Council, and each Union for which a signature line is included below. The Agreement applies to Covered Projects with a bid advertisement date or a request for proposals advertisement date during the effective term of the Agreement and shall continue in full force and effect until all the work within the scope of the Construction Contracts for the Covered Projects is completed and accepted by the County.

21.2 Construction of any phase, portion, section, or segment of work within the scope of a Construction Contract shall be deemed complete when such phase, portion, section or segment has been turned over to the County by the Contractor and the County has accepted such phase, portion, section, or segment. As areas and systems of the Covered Project are inspected and construction-tested and/or approved and accepted by the County or third parties with the approval of the County, the Agreement shall have no further force or effect on such items or areas, except when and if the Contractor is directed by the County to engage in repairs or modifications required by its contract(s) with the County.

21.3 Notice of each final acceptance received by the Contractor on a Covered Project will be available to the Project Labor Coordinator and the Council with the description of what portion, segment, etc. has been accepted. Final acceptance may be subject to a "punch" list, and in such case, the Agreement will continue to apply to each such item on the list until it is completed to the satisfaction of the County and notice of acceptance is given by the County or its representative to the Contractor. At the request of the Union, complete information describing any

"punch" list work involving otherwise turned-over and completed facilities which have been accepted by the County, will be available upon request from the Project Labor Coordinator.

ARTICLE 22 RESPONSIBILITY FOR COSTS

22.1 The County and the Unions shall each be responsible for their own legal costs including all attorneys' fees and associated disbursements that might accrue with regard to any legal challenge over the adoption by the County of this Agreement and related to claims directly challenging the legality of this Agreement, or a particular section of language that has been adopted herein.

ARTICLE 23 MISCELLANEOUS PROVISIONS

23.1 This Agreement shall be construed and interpreted both as to validity and to performance of the Parties in accordance with the laws of the State of California. Legal actions concerning any dispute, claim or matter arising out of or in relation to this Agreement shall be instituted in the Superior Court of the County of Los Angeles, State of California, or any other appropriate court in such county.

23.2 Any notice, demand, request, document, consent, approval, or communication required by or to be given to the County shall be sent to the office or individual designated by the County.

23.3 The terms of this Agreement shall be construed in accordance with the meaning of the language used and shall not be construed for or against any Party by reason of the authorship of this Agreement or any other rule of construction which might otherwise apply.

23.4 The persons executing this Agreement on behalf of the Parties hereto warrant that (i) such party is duly organized and existing, (ii) they are duly authorized to execute and deliver this Agreement on behalf of said party, (iii) by so executing this Agreement, such party is formally bound to the provisions of this Agreement, and (iv) the entering into this Agreement does not violate any provision of any other agreement to which said party is bound.

23.5 Any amendment or modification to this Agreement must be in writing and executed by the County and Council.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement on the day and year written below.

THE UNION OFFICIALS signing this Agreement warrant and represent that they are authorized to collectively bargain on behalf of the organizations whom they represent and the members of such organizations.

COUNTY OF LOS ANGELES

By _____ Date: 6/7/2023
Fesia A. Davenport
Chief Executive Officer

APPROVED AS TO FORM:

_____ Date: 05/22/2023
Michael Simon
~~Acting~~ Assistant County Counsel

LOS ANGELES/ORANGE COUNTIES BUILDING AND CONSTRUCTION TRADES COUNCIL

By: _____ Date: 5-18-2023
Chris Hannan
Executive Secretary

DocuSign Envelope ID: 2FDA59F7-353C-4E84-90F3-6A94B9F93C18

Union Signatory Page

Asbestos Heat & Frost Insulators (Local 5)

Boilermakers (Local 92)

Bricklayers & Allied Craftworkers (Local 4)

Cement Masons (Local 500)

Cement Masons (Local 600)

Electricians (Local 11)

Elevator Constructors (Local 18)

Gunite Workers (Local 345)

Iron Workers (Reinforced – Local 416)

Iron Workers (Structural – Local 433)

Laborers (Local 300)

Laborers (Local 1184)

District Council of Laborers

Laborers (Local 1309)

Operating Engineers (Local 12)

Operating Engineers (Local 12)

Operating Engineers (Local 12)

Painters & Allied Trades DC 36

Pipe Trades (Local 250)

Pipe Trades (Local 345)

Pipe Trades (Plumbers Local 78)

Pipe Trades (Plumbers/Fitters Local 761)

Pipe Trades (Plumbers/Fitters Local 398)

Pipe Trades (Sprinkler Fitters Local 709)

Pipe Trades (Road Sprinkler Local 669)

Plasterers (Local 200)

Plaster Tenders (Local 1414)

Roofers & Waterproofers (Local 36)

Sheet Metal Workers (Local 105)

Southwest Mountain States Regional Council of Carpenters

Teamsters (Local 986)

LOS ANGELES COUNTYWIDE CWA
ATTACHMENT A: LETTER OF ASSENT

PLACE ON COMPANY LETTERHEAD

Ms. Soo Kim
Contracting and Business Relations Manager
Los Angeles County Public Works
900 S. Fremont Ave.
Alhambra, CA 91803

TRANSMIT ELECTRONICALLY TO: CWA@pw.lacounty.gov and upload to LCPTracker

COVERED PROJECT NAME: (Project Name)

Dear Ms. Kim:

This is to certify that the undersigned Contractor has read and understood the Countywide Community Workforce Agreement (CWA) entered into between the County of Los Angeles (County) and the Los Angeles/Orange Counties Building and Construction Trades Council (Council) and the signatory craft unions and district councils signing the CWA. The undersigned Contractor hereby agrees to comply with all of the terms and conditions of the aforementioned duly signed CWA.

The undersigned Contractor acknowledges that compliance with the provisions of Articles 7 and 19 relating to Local Residents, Targeted Workers, workforce referral and development and apprenticeship participation are of particular importance.

It is understood that the signing of this Letter of Assent shall be as binding on the undersigned Contractor as though the Contractor had signed the CWA and Contractor shall require all its subcontractors, of whatever tier, to become similarly bound for all work within the scope of this CWA.

(Name of Construction Company)

By: _____ _____
(Name and Title of Authorized Executive) Date

_____
(Contractor's State License No.)

This Letter of Assent shall become effective and binding upon the undersigned Contractor as of below date of execution and shall remain in full force and effect until the completion of the above stated project.

Sincerely,

ATTACHMENT B: APPLICABLE UNION MASTER LABOR AGREEMENTS

1. Southern California Chapter, Western Insulation Contractors Association and Local No. 5, International Association of heat and Frost Insulators and Allied Workers Master Labor Agreement.

2. Western States Articles of Agreement Between the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers AFL-CIO and the Signatory Contractors.

3. The Executive Council of the Mason Contractors Exchange of Southern California, Inc. and Bricklayers and Allied Craftworkers Local #4.

4. Master Labor Agreement between Southern California General Contractors and Eleven Southern California Counties Cement Masons.

5. Southern California Master Labor Agreement between Southern California General Contractors and The Southern California District Council of Laborers.

   Tunnel Master Agreement between Associated General Contractors of California, Inc. and Southern California District Council of Laborers Affiliated with the Laborers' International Union of North America, AFL-CIO.

6. Inside Wireman's Agreement between Local Union 11 International Brotherhood of Electrical Workers and Los Angeles County Chapter National Electrical Contractors Association.

   Southern California 9th District Sound & Communications Agreement Addendum No. 1 to the 9th District Sound & Communications Agreement by and Between International Brotherhood of Electrical Workers and National Electrical Contractors Association.

   Intelligent Transportation Systems Agreement between Local Union 11 International Brotherhood of Electrical Workers and Los Angeles County Chapter National Electrical Workers and Los Angeles County Chapter National Electrical Contractors Association.

7. National Elevator Bargaining Association Agreement with Intentional Union of Elevator Constructors.

8. Gunite/Shotcrete Commercial Agreement by between Gunite and/or Shotcrete Contractors and The Southern California District Council of Laborers and its Affiliate Gunite Local #345.

9. District Council of Iron Workers of the State of California and vicinity and its Locals 416 and 433 and the Western Steel Council et al.

10. Master Labor Agreement between Southern California Contractors Association, Inc. and International Union of Operating Engineers Local Union No. 12.

11. Master Labor Agreement between Painters and Allied Trades District Council No. 36 and the Los Angeles Paint & Finishing Contractors Association et al..

    Southern California Drywall Finishers Joint Agreement between Painters and Allied Trades District Council No. 36 and the Western Wall & Ceiling Contractors Association

Master Labor Agreement between Painters and Allied Trades District Council No. 36 on behalf of Glaziers, Architectural Metal and Glass Workers Local Union No. 636 and Individual Contractors

Master Labor Agreement between Floor Covering Association of Southern California, Inc. and Painters and Allied Trades District Council No. 36 of the International Union of Painters and Allied Trades AFL-CIO-CLC on behalf of Resilient Floor and Decorative Covering Local Union No. 1247.

12. Master Agreement for the Plumbing and Piping Industry of Southern California between California Plumbing and Mechanical Contractors Association and Southern California Pipe Trades District Council No. 16 of the United Association.

13. Agreement between National Fire Sprinkler Association, Inc. and Sprinkler Fitters Local Union No. 709, Los Angeles, California, of the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada

14. Labor Agreement between Western Walls & Ceiling Contractors Association, Inc. California Plastering Conference and Operative Plasterers' and Cement Masons' International Association, AFL-CIO Local Union 200.

15. Plaster Tenders' Master Agreement between Western Wall and Ceiling Contractors Association, Inc. and Southern California District Council of Laborers and its affiliated Plaster Tenders of Southern California Local Union 1414.

16. Master Labor Agreement by and between Local #36 and 220 of the United Union of Roofers, Waterproofers and Allied Workers and the Individual Roofing Contractors and Others.

17. Collective Bargaining Agreement between International Association of Sheet Metal, Air, Rail and Transportation Workers Local Union No. 105 & SMACNA Los Angeles & Orange Empire SMACNA.

18. Southern California Master Labor Agreement between Southern California General Contractors and Teamsters Joint Council #42 and Teamsters Local Union #87.

19. Southern California Master Labor Agreement Between United General Contractors, Inc. and the Southern Regional Council of Carpenters and Local Unions in the Twelve Southern California Counties and Nevada affiliated with the United Brotherhood of Carpenters and Joiners of America

ATTACHMENT C - DRUG AND ALCOHOL TESTING POLICY

The Parties recognize the problems that drug and alcohol abuse have created in the construction industry and the need to develop drug and alcohol abuse prevention programs. Accordingly, the Parties agree that in order to enhance the safety of the workplace and to maintain a drug and alcohol-free work environment, individual Contractors shall require applicants or employees to undergo drug and alcohol testing in accordance with this CWA and this policy, Attachment C – Drug and Alcohol Testing Policy, hereafter "Policy."

1. It is understood that the use, possession, transfer, or sale of illegal drugs, narcotics, or other unlawful substances, as well as being under the influence of alcohol and the possession of or consuming alcohol is absolutely prohibited while employees are on the Contractor's job premises or while working on any jobsite in connection with work performed under the CWA.

2. No Contractor may implement a drug and alcohol testing program that does not conform in all respects to the provisions of this Policy.

3. No Contractor may implement drug and alcohol testing at any jobsite unless written notice is given to the Union setting forth the location of the jobsite, a description of the project under construction, and the name and telephone number of the prime Contractor's project manager. Said notice shall be provided at the pre-job conferences for each Covered Project. Failure to give such notice shall make any drug and alcohol testing engaged in by the Contractor a violation of the CWA and subject to the Article 11 grievance procedure.

4. A Contractor who elects to implement drug and alcohol testing pursuant to this Policy shall require all craft employees on the Covered Project to be tested. With respect to individuals who become employed on the Covered Project subsequent to the proper implementation of a valid drug and alcohol testing program, such test shall be administered upon the commencement of employment on the project, whether by referral from a Union dispatch office, transfer from another project, or another method. Individuals who were employed on the project prior to proper implementation of a valid drug and alcohol testing program may only be subjected to testing for the reasons set forth in paragraphs 5(g)(l) through 5(g)(3) and paragraphs 6(a) through 6(e) of this Policy. Refusal to undergo such testing shall be considered sufficient grounds to deny employment on the project.

5. The following procedure shall apply to all drug and alcohol testing:

    a. The Contractor may request urine samples only. The applicant or employee shall not be observed when the urine specimen is given. An applicant or employee, at his or her sole option, shall, upon request, receive a blood test in lieu of a urine test. No employee of the Contractor shall draw blood from a bargaining unit employee, touch or handle urine specimens, or in any way become involved in the chain of custody of urine or blood specimens. A Union business representative, subject to the approval of the individual applicant or employee, shall be permitted to accompany the applicant or

employee to the collection facility to observe the collection, bottling, and sealing of the specimen.

b. A Contractor may request an applicant or employee promptly, within four (4) hours of the Contractor's request, perform an alcohol breathalyzer test at a certified laboratory only, and cutoff levels shall be those mandated by applicable state or federal law.

c. The testing shall be done by a laboratory approved by the Substance Abuse & Mental Health Services Administration (SAMHSA), which is chosen by the Contractor and the Union.

d. An initial test shall be performed using the Enzyme Multiplied Immunoassay Technique (EMIT). In the event a question or positive result arises from the initial test, a confirmation test must be utilized before action can be taken against the applicant or employee. The confirmation test will be by Gas Chromatography/Mass Spectrometry (GC/MS). Cutoff levels for both the initial test and confirmation test will be those established by SAMHSA and this Policy. Should these SAMHSA levels be changed during the course of the CWA or new testing procedures are approved, then these new regulations will be deemed as part of this existing CWA. Confirmed positive samples will be retained by the testing laboratory in secured long-term frozen storage for a minimum of one (1) year. Handling and transportation of each sample must be documented through strict chain-of-custody procedures.

e. In the event of a confirmed positive test result, the applicant or employee may request, within forty-eight (48) hours, a sample of his/her specimen from the testing laboratory for purposes of a second test to be performed at a second laboratory, designated by the Union and approved by SAMHSA. The retest must be performed within ten (10) days of the request. Chain of custody for this sample shall be maintained by the Contractor between the original testing laboratory and the Union's designated laboratory. Retesting shall be performed at the applicant's or employee's expense. In the event of conflicting test results, the Contractor may require a third test, at the Contractor's expense.

f. If, as a result of the above testing procedure, it is determined that an applicant or employee has tested positive, this shall be considered sufficient grounds to deny the applicant or employee his/her employment on the project.

g. No individual who tests negative for drugs and alcohol pursuant to the above procedure and becomes employed on the project shall again be subjected to drug and alcohol testing with the following exceptions:

    1) Employees who are involved in industrial accidents resulting in damage to plant, property, or equipment or injury to him/her or others may be tested for drugs or alcohol pursuant to the procedures stated hereinabove.

    2) The Contractor may test employees following thirty (30) days' advance written notice to the employee(s) to be tested and to the applicable Union. Notice to the applicable Union shall be sent by certified mail to the affected Union with a copy to the Project Labor Coordinator. Such testing shall be pursuant to the procedures stated hereinabove.

3) The Contractor may test an employee where the Contractor has reasonable cause to believe that the employee is impaired from performing his/her job. Reasonable cause shall be defined as being aberrant or unusual behavior, the type of which is a recognized and accepted symptom of impairment (e.g., slurred speech, unusual lack of muscular coordination). Such behavior must be actually observed by at least two (2) persons, one (1) of whom shall be a supervisor who has been trained to recognize the symptoms of drug and alcohol abuse or impairment and the other of whom shall be the Job Steward. If the Job Steward is unavailable or there is no Job Steward on the Covered Project, the other person shall be a member of the applicable Union's bargaining unit. Testing shall be pursuant to the procedures stated hereinabove. Employees who are tested pursuant to the exceptions set forth in this paragraph and who test positive will be removed from the Contractor's payroll.

h. Applicants or employees who do not test positive shall be paid for all time lost while undergoing drug and alcohol testing. Payment shall be at the applicable wage and benefit rates set forth in the Current Prevailing Wage Determination. Applicants who have been dispatched from the Union and who are not put to work pending the results of a test will be paid waiting time until such time as they are put to work. It is understood that an applicant must pass the test as a condition of employment. Applicants who are put to work pending the results of a test will be considered probationary employees.

6. The Contractors will be allowed to conduct periodic jobsite drug and alcohol testing on the Project under the following conditions:

   a. The entire jobsite must be tested, including any employee or subcontractor's employee who worked on that project three (3) working days before or after the date of the test;

   b. Jobsite testing cannot commence sooner than fifteen (15) days after start of the work on the project;

   c. Prior to start of periodic testing, a Union business representative will be allowed to conduct an educational period on company time to explain periodic jobsite testing program to affected employees;

   d. Testing shall be conducted by an SAMHSA-certified laboratory, pursuant to the provisions set forth in paragraph 5 hereinabove.

   e. Only two (2) periodic tests may be performed in a twelve (12)-month period.

7. It is understood that the unsafe use of prescribed medication, or where the use of prescribed medication impairs the employee's ability to perform work, is a basis for the Contractor to remove the employee from the jobsite.

8. Any grievance or dispute that may arise out of the application of this Policy shall be subject to the grievance and arbitration procedures set forth in the CWA.

9. The establishment or operation of this Policy shall not curtail any right of any employee found in any law, rule, or regulation. Should any part of this Policy be found unlawful by a court of competent jurisdiction or a public agency having jurisdiction over the Parties, the remaining portions of the CWA shall be unaffected, and the Parties shall enter negotiations to replace the affected provision.

10. Present employees, if tested positive, shall have the prerogative for rehabilitation program at the employee's expense. When such program has been successfully completed, the Contractor shall not discriminate in any way against the employee. If work for which the employee is qualified exists, he/she may be reinstated.

11. The Contractor agrees that results of urine and blood tests performed hereunder will be considered medical records held confidential to the extent permitted or required by law. Such records shall not be released to any persons or entities other than designated Contractor representatives and the applicable Union. Such release to the applicable Union shall only be allowed upon the signing of a written release by the employee, and the information contained therein shall not be used to discourage the employment of the individual applicant or employee on any subsequent occasion.

12. Employees who seek voluntary assistance for substance abuse may not be disciplined for seeking such assistance. Requests from employees for such assistance shall remain confidential and shall not be revealed to other employees or management personnel without the employee's consent. Employees enrolled in substance abuse programs will be subject to all Contractor rules, regulations, and job performance standards with the understanding that an employee enrolled in such a program is receiving treatment for an illness.

13. The Contractor shall indemnify and hold the Union harmless against any and all claims, demands, suits, or liabilities that may arise out of the application of this Policy.

14. This Policy shall constitute the only Policy in effect between the Parties and Contractors concerning drug and alcohol abuse, prevention, and testing. Any modifications thereto must be accomplished pursuant to collective bargaining negotiations between the Parties.

SPECIMEN REPORTING CRITERIA

Initial Test Analyte	Initial Test Cutoff [1]	Confirmatory Test Analyte	Confirmatory Test Cutoff Concentration
Marijuana metabolites (THCA)[2]	50 ng/ml [3]	THCA	15 ng/ml
Cocaine metabolite (Benzoylecgonine)	150 ng/ml 3	Benzoylecgonine	100 ng/ml
Codeine/ Morphine	2000 ng/ml	Codeine Morphine	2000 ng/ml 2000 ng/ml
Hydrocodone/ Hydromorphone	300 ng/ml	Hydrocodone Hydromorphone	100 ng/ml 100 ng/ml
Alcohol	0.02%	Ethanol	0.02%
Oxycodone/ Oxymorphone	100 ng/ml	Oxycodone Oxymorphone	100 ng/ml 100 ng/ml
6-Acetylmorphine	10 ng/ml	6-Acetylmorphine	10 ng/ml
Phencyclidine	25 ng/ml	Phencyclidine	25 ng/ml
Amphetamine/ Methamphetamine	500 ng/ml	Amphetamine Methamphetamine	250 ng/ml 250 ng/ml
MDMA[4]/MDA[5]	500 ng/ml	MDMA MDA	250 ng/ml 250 ng/ml
Initial Test Analyte	Initial Test Cutoff	Confirmatory Test Analyte	Confirmatory Test Cutoff Concentration
Barbiturates	300 ng/ml	Barbiturates	200 ng/ml
Benzodiazepines	300 ng/ml	Benzodiazepines	300 ng/ml
Methadone[6]	300 ng/ml	Methadone	100 ng/ml
Methaqualone	300 ng/ml	Methaqualone	300 ng/ml
Propoxyphene	300 ng/ml	Propoxyphene	100 ng/ml

[1] For grouped analytes (i.e., two or more analytes that are in the same drug class and have the same initial test cutoff):

Immunoassay: The test must be calibrated with one analyte from the group identified as the target analyte. The cross-reactivity of the immunoassay to the other analyte(s) within the group must be 80 percent or greater; if not, separate immunoassays must be used for the analytes within the group.

Alternate technology: Either one analyte or all analytes from the group must be used for calibration, depending on the technology. At least one analyte within the group must have a concentration equal to or greater than the initial test cutoff or, alternatively, the sum of the analytes present (i.e., equal to or greater than the laboratory's validated limit of quantification) must be equal to or greater than the initial test cutoff.

[2] An immunoassay must be calibrated with the target analyte, 9-tetrahydrocannabinoJ-9- carboxylic acid (THCA).

[3] **Alternate technology (THCA and benzoylecgonine):** The confirmatory test cutoff must be used for an alternate technology initial test that is specific for the target analyte (i.e., 15 ng/ml for THCA, 100 ng/ ml for benzoylecgonine).

[4] Methylenedioxymethamphetamine (MDMA)

[5] Methylenedioxyamphetamine (MDA)

[6] Employees with a prescription for methadone who are using the medication as prescribed, and are not impaired and can safely perform their work, will not be considered to have violated this Policy.

MEMORANDUM OF UNDERSTANDING REGARDING

"QUICK" DRUG SCREENING TESTS PURSUANT TO

ATTACHMENT C – DRUG AND ALCOHOL TESTING POLICY

It is hereby agreed between the Parties hereto that a Contractor who has otherwise properly implemented drug and alcohol testing, as set forth in the Policy, shall have the right to offer an applicant or employee a "quick" drug screening test. This "quick" screen test shall consist either of the "ICUP" urine screen or similar test or an oral screen test. The applicant or employee shall have the absolute right to select either of the two "quick" screen tests, or to reject both and request a full drug test.

An applicant or employee who selects one of the "quick" screen tests, and who passes the test, shall be put to work immediately. An applicant or employee who fails the "quick" screen test, or who rejects the "quick" screen tests, shall be tested pursuant to the procedures set forth in the Policy. The sample used for the "quick" screen test shall be discarded immediately upon conclusion of the test. An applicant or employee shall not be deprived of any rights granted to them by the Policy as a result of any occurrence related to the "quick" screen test.

SACHI A. HAMAI
Chief Executive Officer

County of Los Angeles
CHIEF EXECUTIVE OFFICE

Kenneth Hahn Hall of Administration
500 West Temple Street, Room 713, Los Angeles, California 90012
(213) 974-1101
http://ceo.lacounty.gov

"To Enrich Lives Through Effective And Caring Service"

Board of Supervisors
HILDA L. SOLIS
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June 11, 2019

ADOPTED
BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES
20 June 11, 2019
CELIA ZAVALA
EXECUTIVE OFFICER

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Dear Supervisors:

APPROVAL OF UPDATED BOARD POLICY
COUNTYWIDE LOCAL AND TARGETED WORKER HIRING POLICY
(ALL DISTRICTS)
(3 VOTES)

SUBJECT

The Chief Executive Office recommends approval of the updated Board Policy for Countywide Local and Targeted Worker Hiring.

IT IS RECOMMENDED THAT THE BOARD:

Approve the updated Countywide Local and Targeted Worker Hiring Policy.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

The recommended action will update the Countywide Local and Targeted Worker Hiring Policy (Policy) incorporating requirements that reflect lessons learned, best practices and recently adopted Board motion. In response to the September 6, 2016, the Board adopted a motion by Supervisors Ridley-Thomas and Solis, which established a Countywide Policy and directed the Chief Executive Officer to adopt a consolidated Policy consistent with the Chief Executive Office Report to the Board dated August 1, 2016. The Policy has been updated in consultation with the Directors of Public Works, Internal Services, Parks and Recreation, Workforce Development, Aging and Community Services, Consumer and Business Affairs, and the Executive Director of the Los Angeles County Development Authority (formerly known as Community Development Commission/Housing Authority of the County of Los Angeles).

CWA ATTACHMENT D

FISCAL IMPACT/FINANCING

There will be no fiscal impact to the County resulting from the approval of the proposed Board Policy.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

NA

IMPACT ON CURRENT SERVICES (OR PROJECTS)

The proposed updated Policy does not impact current services or projects.

CONCLUSION

Upon approval of the recommended updated Policy, please return one adopted copy to the Chief Executive Office, Capital Programs Division.

Respectfully submitted,

Sachi A. Hamai

SACHI A. HAMAI
Chief Executive Officer

SAH:JJ:DPH
BMB:AMA:KAV:kb

Enclosures

c: Executive Office, Board of Supervisors
County Counsel
Auditor-Controller
Audit Committee
Economic Development Policy Committee
Internal Services
Los Angeles County Development Authority
Parks and Recreation
Public Works

Los Angeles County
BOARD OF SUPERVISORS POLICY MANUAL

Policy #:	Title:	Effective Date:
0.000	COUNTYWIDE LOCAL AND TARGETED WORKER HIRING	

PURPOSE

Establishes the Countywide Local and Targeted Worker Hiring Policy for all County-sponsored construction and development projects, including local hiring for Targeted Workers, Veterans, Job Order Contracts, and Affordable Housing and Mixed-Use Affordable Housing projects.

REFERENCE

October 27, 2015 Board Order 21

February 9, 2016 Board Order 47-A

August 1, 2016 Chief Executive Office memo to the County Board of Supervisors, *"Development of a Countywide Local Worker Hire Policy Board Motion of October 27, 2015, Agenda Item No. 21 and Board Motion of February 9, 2016, Agenda item No. 47-A"*

September 6, 2016 Board Order 14

March 21, 2017 Board Order 2

POLICY

On September 6, 2016, the Board of Supervisors approved the Countywide Local and Targeted Worker Hiring Policy [LTWHP or Policy]. This Policy was approved to provide Los Angeles County's investment in public works, County-financed affordable housing projects and developer-financed economic development projects on County property as a catalyst for local job creation, construction careers training, and revenue generation for the County. Additionally, the Policy establishes a pathway for the County to enhance employment opportunities particularly for qualified Local and Targeted Workers who face multiple barriers to employment, such as homelessness, former foster youth, and formerly incarcerated individuals.

The Policy requires that all County departments, commissions and agencies administering project development agreements, including but not limited to; ground leases, loan agreements, grant agreements, design-build contracts, and contracts for County capital and construction projects that require Board approval to comply with the Policy as set by the County Board of Supervisors.

CWA ATTACHMENT D

This Policy is also a component of the Community Benefits for County Economic Development Projects Policy which establishes criteria and procedures for economic development projects in the Los Angeles County in order to generate economic benefits for the businesses, community, and residential, commercial or industrial area surrounding each project.

All prime Contractors providing services under the above-mentioned project agreements and/or contracts must comply with the LTWHP requirements and hiring goals established by the County, as outlined below. Additionally, depending on the total project budget as determined by the County, one of the following hiring goals of the LTWHP requirements shall apply:

- Mandatory Hiring Goals
- Best Efforts Hiring Goals
- No LTWHP Hiring Goals

POLICY REQUIREMENT FOR LOCAL RESIDENCY PREFERENCE AREA FOR TIER 1 AND 2

A **Tier 1 Qualified Local Resident** is defined as a County resident whose primary residency is: (1) within five (5) miles of the proposed project site; and (2) is within a qualifying Zip Code. If a qualifying Zip Code is partially located within the 5-mile radius, then the entire Zip Code is considered as Tier I Zip Code, and workers living in that entire Zip Code area may qualify as Tier I hire.

A **Tier 2 Qualified Local Resident** is defined as a County resident whose primary residency is: (1) within a qualifying Zip code; and (2) that qualifying Zip Code is beyond five (5) miles of the proposed project site.

A **qualifying Zip Code** is defined as a Zip Code within the County of Los Angeles, where either: (1) the average percentage of households living below 200 percent of the Federal Poverty Level (FPL) for that individual's primary residency's Zip Code is greater than the County average for such households; or (2) the Zip Code is one of 11 additional Zip Codes determined by the Board on September 6, 2011 to be a Zip Code where at least 30 percent of the population is living in poverty, and with an unemployment rate of at least 150 percent of the national average.

POLICY REQUIREMENT FOR TARGETED WORKERS ELIGIBILITY

A **Targeted Worker** is an individual who is both a County resident and who faces one or more of the following barriers to employment:

1. Has a documented annual income at or below 100 percent of the Federal Poverty Level;
2. Has no high school diploma or GED;
3. Has a history of involvement with the criminal justice system;
4. Is experiencing protracted unemployment (receiving unemployment benefits for at least 6 months);
5. Is a current recipient of government cash or food assistance benefits;
6. Is homeless or has been homeless within the last year;
7. Is a custodial single parent;
8. Is a former foster youth;
9. Is a veteran, or is the eligible spouse of a veteran of the United States armed forces, under Section 2(a) of the Jobs for Veterans Act (38 U.S.C.4215[a]);
10. Is an eligible migrant and seasonal farmworker;

11. Is currently an English language learner;
12. Is an older Individual (55+);
13. Is disabled; or
14. Is an individual with a low level of literacy.

POLICY REQUIREMENT HIRING GOALS

Project Budget Greater than $2.5 Million (Mandatory Hiring Goals)

For projects with a total project budget greater than $2.5 million, with the exception of affordable housing projects, there shall be a ***mandatory*** hiring goal of at least 30 percent of California construction labor hours performed by either Tier 1 or Tier 2 Qualified Local Residents on each project.

California construction labor hours is defined as all craft worker hours performed on the project by California residents, excluding the hours performed by off-site material fabricators, designers, project office staff, or vendors.

For projects with a total project budget greater than $2.5 million, with the exception of affordable housing projects, there shall be a ***mandatory*** hiring goal of at least 10 percent of California construction labor hours on the project performed by those classified as a Targeted Worker. Hours worked by a Targeted Worker who is also a Tier 1 or Tier 2 Qualified Local Resident may be applied towards the 30 percent goal;

For projects with a total project budget greater than $2.5 million, with the exception of affordable housing projects, there shall be a ***mandatory*** requirement to use a Jobs Coordinator, as that term is defined in the Implementation Policy Guidelines issued by the CEO, to facilitate implementation of the targeted hiring requirement of this Policy. The Jobs Coordinator shall work closely with Workforce Development, Aging and Community Services, local agencies such as America's Job Centers of California, Social Enterprises, and local community-based organizations to outreach, recruit and create a pipeline to employ residents from the community in which the project is located; and

The Contractor shall ensure the ***mandatory*** hiring requirements provided for Local and Targeted Workers are met in accordance with this Policy.

Project Budget of $500,000 to $2.5 million (Best Efforts Hiring Goals)

For projects with a total project budget of $500,000 to $2.5 million, with the exception of affordable housing projects, there shall be a ***best effort*** hiring goal of at least 30 percent of California construction labor hours worked on each project performed by either Tier 1 or Tier 2 qualified local residents on each project. There is no Targeted Worker hiring requirement;

For affordable housing projects and mixed-use affordable housing projects that include County-funded facilities receiving funds administered by Community Development Commission (CDC), and Housing Authority of County of Los Angeles (HACOLA) projects with a project budget greater than $2.5 million, there shall be a ***best effort*** hiring goal of at least 30 percent qualified local residents and 10 percent Targeted Workers of California construction labor hours performed; and

The Contractor shall ensure posting a wide array of its construction job advertisements and/or seeking the assistance of a community service provider organization if necessary to ensure the ***best efforts*** hiring requirement provided for Local Workers is met in accordance with this Policy.

All Projects Hiring Goals

For all projects, with the exception of affordable housing projects, a minimum ratio of one apprentice hour for every five journeyman hours shall be enforced, per State Labor code requirement, and contractors will strive to obtain half of all apprentice hours on the project be performed by Local and Targeted Workers. Hours worked by an apprentice who is also a Targeted Worker or a local resident may be applied towards the 30 percent local resident and/or the 10 percent Targeted Worker hire goal.

Policy Exemptions

Exceptions for projects in jurisdictions enforcing their own local hiring policy, and for projects with federal or State funding prohibitions on geographic preferences will be determined on a case-by-case basis by Chief Executive Office (CEO), in consultation with the County Board of Supervisors Offices and County Counsel, and the exemption shall be stated in the corresponding Board letter.

Affordable housing projects financed with federal funds subject to 24 CFR Part 135 will follow local hiring and training guidelines promulgated through Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u) (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by certain Housing and Urban Development (HUD) financial assistance can be directed to low- and very low-income persons, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low- and very low-income persons.

Contractors working with the Housing Authority of the County of Los Angeles on public housing modernization construction projects that exceed $2.5 million and are funded with non-federal funding will partner with Workforce Development, Aging and Community Services and other local agencies, such as America's Job Centers of California, Social Enterprises, community-based organizations, etc. to outreach, recruit and train public housing residents for employment opportunities.

POLICY IMPLEMENTATION

Details of the implementation of this Policy shall be provided in the latest version of the Implementation Policy Guidelines issued by the CEO.

Applicable referenced Policy language shall be included in all Board-awarded County construction and development project documents. In addition:

- All requests for Solicitation/Proposal/Invitations for Bid (RFP/IFB), specifications must require all contractors submitting bids or proposals to agree to the terms of the County of Los Angeles (County) LTWHP.

- All construction project general contracts must include a provision obligating the contractor and its subcontractors to comply with the terms of the County's LTWHP through execution of an agreement.

- The construction contract must include provisions establishing enforcement and compliance of the LTWHP.

Reporting Requirements

The contractor, on behalf of itself and its subcontractors, shall submit Local and Targeted Worker Hiring data to the County Project Manager or designated County representative.

Monthly Mandatory Compliance Withholding

The Contractor's compliance with the approved the Local and Targeted Workforce and Hire Status Reports will be evaluated monthly.

To enforce compliance on contracts containing ***mandatory*** hiring goals, an amount will be withheld from the monthly progress payment to the contractor in proportion to the deficit percentage of the mandated Local and Targeted Hiring Goal percentage and the actual percentage obtained. The maximum that may be withheld during the duration of the project is one percent of the total construction contract amount, but not to exceed $500,000, comprised of 0.75 percent for Local Worker goal compliance, and 0.25 percent for Targeted Worker goal compliance. This amount is called the Monthly Mandatory Compliance Withholding (MMCW) amount. The percentage of the MMCW that will be withheld for a given month will be the same as the percentage of the deficit in achieving the LTWHP targets for that month.

The maximum MMCW amount is determined as follows:

Construction Contract Value X .75% ÷ Number of months in baseline construction schedule = Monthly Mandatory Compliance Withholding (MMCW) for Local Workers

Construction Contract Value X .25% ÷ Number of months in baseline construction schedule = Monthly Mandatory Compliance Withholding (MMCW) for Targeted Workers

If the Targeted Worker Hiring mandatory requirements of the Policy have not been satisfied as required for a project, the contractor nonetheless may be deemed to be in compliance if the contractor demonstrates both (a) that the Contractor and each of its subcontractors have complied with all other requirements of the Policy, and (b) that the contractor and each of its subcontractors have satisfactorily demonstrated the following:

- Documented contact with the Department of Workforce Development, Aging and Community Services, America Job Centers or with an agency that supports and provides employment and training services for Targeted Workers in construction employment, and in which instance the agency did not refer a qualified Targeted Worker to the contractor or subcontractor within 48 hours of the job request for fair consideration of the Targeted Worker.

County Reporting:

County departments, commissions, and agencies shall provide quarterly reports to the CEO on compliance with the LTWHP for their construction projects during the quarter. CEO shall provide consolidated quarterly reports to the Board and the Economic Development Policy Committee on the compliance of data measures of the Local and Targeted and Apprentice Worker Hire Policy requirements.

County departments, commissions, and agencies administering construction projects under this Policy will be required to monitor and provide enforcement of the Policy. It should be noted the contractor is ultimately responsible for their and their subcontractors compliance with the County's LTWHP requirements.

Referral Process for LTWHP

The following resources may be used to connect contractors to workers meeting the definition of a Local Worker or a Target Worker, should the contractor require assistance. Additional Community Service Providers may be used by contractors and subcontractors to identify local residents and Targeted Workers.

- Los Angeles County Workforce Development, Aging, and Community Services: http://wdacs.lacounty.gov/
- LA Jobs: https://www.jobsla.org/vosnet/Default.aspx
- Cal Jobs: http://www.caljobs.ca.gov/vosnet/Default.aspx
- Helmets to Hardhats: https://www.helmetstohardhats.org
- America's Job Center of California: http://www.americasjobcenter.ca.gov

RESPONSIBLE DEPARTMENTS

Chief Executive Office
County Counsel

DATE ISSUED/SUNSET DATE

Issue Date: XX,XX, 2019 **Sunset Date: XX,XX, 20XX**

Exhibit B

LOS ANGELES REGIONAL

CONTRACTOR DEVELOPMENT AND BONDING PROGRAM











The Contractor Development and Bonding Program assists contractors with their contracting capacity and business growth.

THE FOUR PILLARS OF CONTRACTOR DEVELOPMENT



Assessment & Technical Assistance

- Enrollment in our Contractor Development and Bonding Program.
- Personal Account Manager to provide a professional assessment of your current capacity and growth needs.
- One-on-one consultation to develop a work plan aligned with your business needs and goals.
- Facilitated referrals to Program Partners and resources.
- Contracting opportunities and industry-related workshops and events sent via our *LA Contractor Weekly* bulletin.
- Referrals to specific project opportunities.

Bonding, Contract Financing & Project Assistance

- Assistance with obtaining or increasing bonding.
- Access to collateral support for bid performance and payment bonds for qualified contractors.*
- Contract review, project assessment, and field support for Program-bonded or financed contracts.
- Assistance with project risk identification and mitigation.
- Access to contract cash flow funding.
- Accounting cost subsidy for CPA-prepared financial statements.

**L.A. County has limited capacity.*

Education, Training & Contract Support

- Group Classes on public construction best practices led by industry experts.
- Contract-specific support on Regional Bond Program-supported contracts.
- Creation of individualized Contractor Profile to assist with business marketing.

Prime Contractor Partnerships

- Strategic alliances with Program Prime contractors including matchmaking and referrals.
- Networking with public agency staff and peer contractors.

PROGRAM SPONSORS

ADMINISTERED BY

Merriwether & Williams
INSURANCE SERVICES
... Of Like Minds

550 S Hope St., Suite 1835 | Los Angeles, CA 90071
Phone: 213-259-3000 | mwisinfo@imwis.com
www.imwis.com

Exhibit C



Los Angeles County
Contractor Development and Bonding Program

FREQUENTLY ASKED QUESTIONS

"An inclusionary program to build a stronger region"

What services does the County's Contractor Development and Bonding Program (CDABP) provide?

The County's CDABP extends comprehensive capacity building, technical, bonding and contract financing assistance to small and diverse contractors seeking to pursue County construction-related contracts. Starting with a thorough assessment of your current business status, we identify areas of opportunity in order to help you better position your firm to successfully compete for and complete County contracts.

After your assessment, you'll be assigned a dedicated Account Manager who will work closely with you to tailor a technical assistance work plan and financial resources specific to your needs, which may include:

- ✓ One-on-one consultations
- ✓ Training clinics and learning immersion academies
- ✓ Help with prime contractor pre-qualifications
  - » Facilitation of prime or prime-sub contractor introductions
  - » Project/bid matches
- ✓ Assistance obtaining bonding, including bonding collateral support, if needed, and contract financing
- ✓ If you are awarded a County-related contract with bonding support, you will also receive on-going project assistance to help you successfully complete your contract.

Who is eligible to participate in the CDABP? Eligible firms include local small and diverse businesses who are certified or eligible for certification within one of the County's business enterprise categories. For detailed information on the County's certification programs, visit their Small Business Certifications webpage (https://iddweb.isd.lacounty.gov/DCA_eComplaint/SmallBusinessCertifications).

Why should small and diverse businesses enroll in the CDABP? LA County's CDABP provides game-changing resources for small and diverse businesses who want to expand their capacity and improve their opportunities for winning County contracts. For example, the inability to secure or increase bonding often impedes small and diverse contractors from bidding and/or pre-qualifying with prime firms and participating on public works projects. This program helps reduce such barriers, even offering bonding collateral support (standard surety bond premiums and commissions charged are not covered by the CDABP).

Similarly, not having access to the capital needed to fund the cost of doing the contract work that you've been awarded can be a major challenge, and little to no assistance is available through traditional lending sources. Through the CDABP, the County provides for up to $250,000 of contract-based financing with a low origination fee and very low interest rate, and not tied to your financials or credit.

This is a particularly good time to enroll, because in November 2021, President Joe Biden signed a $1.2 trillion infrastructure investment plan supporting a range of construction projects in localities across the nation, including Los Angeles County. If you are a small or diverse local business, the CDABP can assist you in competing for upcoming construction contracts!

My subcontracted work hasn't required bonding in the past, so how would I benefit from participating in the CDABP? While you may not always need to provide a bond for some subcontracted work, a bond will always be required if you want to bid directly with the County on small prime contracts – and being "bondable" is a significant competitive advantage when bidding on many subcontracting opportunities. Becoming "bondable" demonstrates that your company's capacity to perform work has been assessed and vetted by a third party, which is then reflected in the dollar amount for which you can bond. Even when a bond for subcontract work is not required, it is quite common to be asked to demonstrate that your company is "bondable" in order to meet contract owner or prime requirements. Pre-qualification requirements often include demonstrating your bond underwriting and/or financial capacity to perform work. The CDABP will assist you in meeting advance requirements with primes or prime-sub contractors pursuing or performing County work.

What is the cost to participate in the CDABP? The CDABP is sponsored by the County of Los Angeles, so, with one exception, all services are offered at no cost to participating contractors! If needed, the only cost you may incur is for having a Certified Public Accountant (CPA) prepare a financial statement for your company, a requirement for bonding. For those who qualify, the program even provides a one-time subsidy toward this CPA-prepared company financial statement. If the subsidy is provided to you, you will be asked to pay the first $500 toward the preparation of your financial statement and any costs in excess of what the $3,200 subsidy covers.

The CDABP is one of the County's tools to effectively support and increase the inclusion and participation of small and diverse contractors on County projects. Because barriers impede access, CDABP is intended to reduce and eliminate barriers wherever possible.

When should I look to enroll in the County's program? Should I wait until I've identified a County project for which I want to bid? Don't wait, enroll now! The earlier you enroll and have your company assessed, the sooner you'll be able to receive expert guidance and support in bidding suitable County projects. For example, getting pre-approved for a specific bonding amount will not only boost your company's credentials, but will also help you confidently identify and pursue County contracting opportunities within that range. Your CDABP Account Manager will be helping you every step of the way, including steering you toward opportunities with CDABP program prime partners. By planning ahead, your firm will be better positioned for consideration by the County's prime and larger contractors, who are always seeking qualified and certified firms to meet their project participation goals.

How long will it take for me to get approved for bonding or contract financing? The timing of the bonding or contract financing process depends mostly on you. The initial steps of preparing an underwriting package for bonding or prequalifying you for contract financing require gathering information about your company. If you have the necessary documentation and information complete and readily available, then the next steps of the process can move quickly. Your CDABP Account Manager is always on hand to answer questions and help guide you through the process.

Must I already be working with a bonding broker in order to participate? You do not already need to be working with a bonding broker. The CDABP will work with any bonding broker with whom you've already established a relationship that you wish to continue. In fact, the program can also work with your current surety agent to increase your existing bonding capacity with them as well. However, if you do not have a current broker, the program can provide for your consideration a list of brokers who work with smaller contractors and with program surety partners.

We look forward to hearing from you! Reach us at:

213-258-3000 | MWISInfo@imwis.com | www.LAConDev.com