

CITY OF PITTSBURG



NOTICE INVITING BIDS, BID PROPOSAL, SAMPLE CONTRACT DOCUMENTS,
GENERAL AND SPECIAL CONDITIONS, AND TECHNICAL SPECIFICATIONS

FOR THE CONSTRUCTION OF

Project NO. 3118

CORPORATION YARD FUELING SYSTEM REPLACEMENT PROJECT

IN

PITTSBURG, CALIFORNIA

TO BE USED IN CONJUNCTION WITH:

CITY OF PITTSBURG STANDARD PLANS
AND STANDARD SPECIFICATIONS

DECEMBER 2023

ACCEPTED FOR USE

 12/14/23

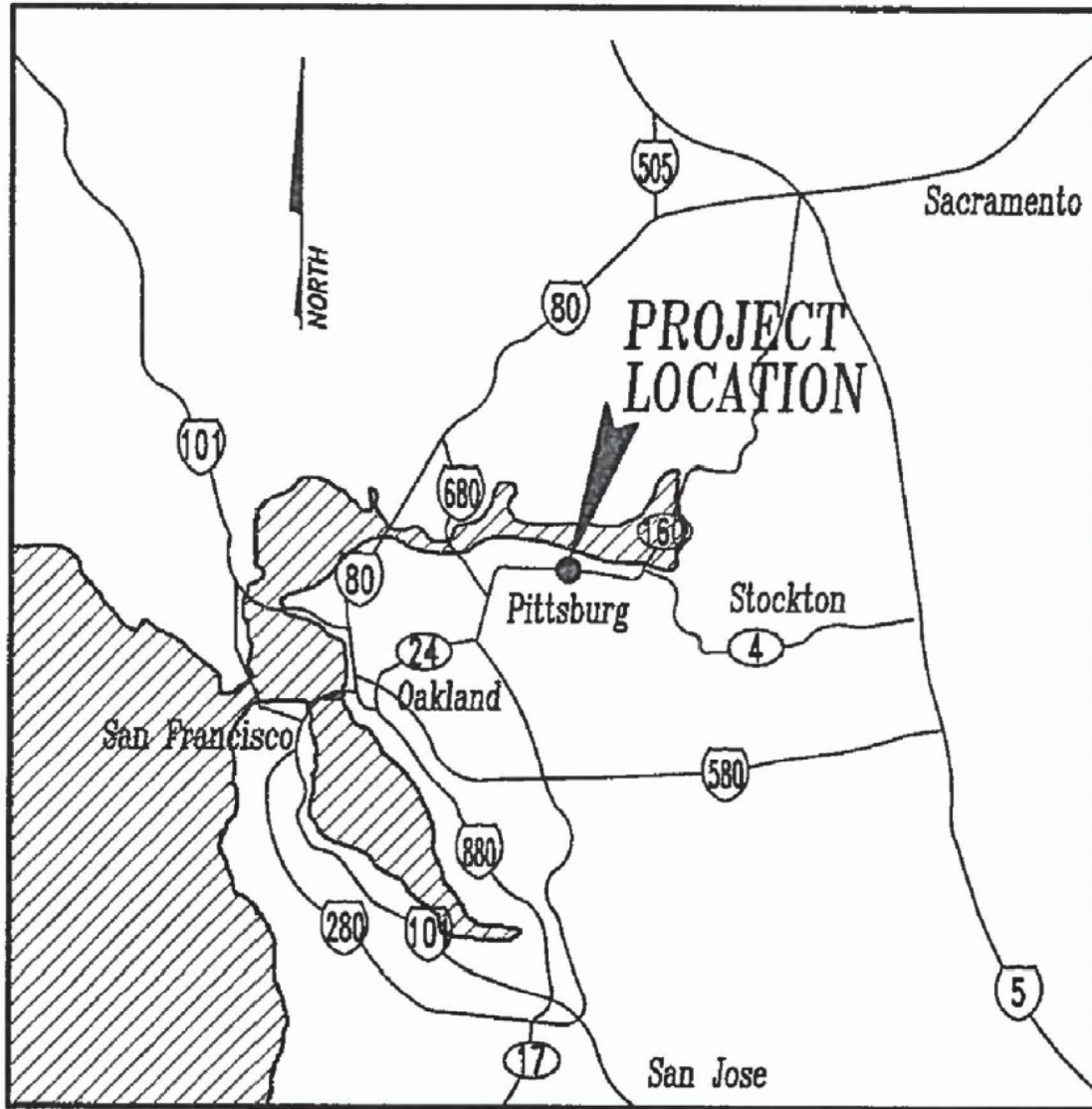
Dayne Johnson, PE, Assistant City Engineer Signed for

JOHN SAMUELSON
PUBLIC WORKS DIRECTOR/CITY ENGINEER



CHRIS HOWARD, C42285
CONSULTING ENGINEER





VICINITY MAP

1" = 20 Miles



MEASURES 3-INCHES ON ORIGINAL



**CITY OF
PITTSBURG**

NO.	DATE	REVISION	DRAWN BY: AP
			CHECKED BY: AP
			DATE: 3/13/2019
			SCALE: NOTED

VICINITY MAP

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Notice Inviting Bids

1. **Bid Submission.** City of Pittsburg (“City”) will accept sealed bids for its Corporation Yard Fueling System Replacement Project (“Project”), by or before Thursday December 21, 2023, at 2:00 p.m., at its City Engineer office, located at 65 Civic Avenue, First Floor, Pittsburg, California, at which time the bids will be publicly opened and read aloud.
2. **Project Information.**
 - 2.1 **Location and Description.** The Project is located at the Environmental Center at 2581 Harbor St, Pittsburg, CA 94565 and the primary components are generally described as follows:
 1. Demolition and Removal of (E) 1000 gal. Gasoline Tank and associated Gasoline Fuel Dispensing Equipment
 2. Provide new or Salvage / re-use (E) OPW PetroVend model: PV200 Fuel Island Controller.
 3. Install (N) 12,000 gal. UL 2085 AST Fuel Tank partitioned for 8,000 gal. Gasoline / 4,000 gal. Diesel. The City of Pittsburg to provide the 12,000 gal. Fuel Tank to be installed by the Contractor.
 4. Construct Structural Concrete Tank Pad, Tank Anchorage, Containment, Protective Bollards, etc.
 5. Furnish & Install Fuel Dispensing Equipment consisting of, but not limited to;
 - a. Qty 2 – 2Hp Submersible (Turbine) Fuel Pumps and Controllers
 - b. Qty 2 – Fuel Dispensing and Metering
 - c. Qty 2 – Remote Fuel Dispensers
 - d. Qty1 – Phase 1 Enhanced Vapor Recovery (EVR) System
 - e. Misc. Piping, Fittings, Valves, Instrumentation, Equipment, etc. – as required to construct a working Fleet Gasoline and Diesel Storage and Fueling System
 6. Furnish and Install Fuel Management System using (E) and (N) Equipment compatible with the City of Pittsburg’s (E) Fuel Management System.
 7. Furnish and Install (N) Electrical Infrastructure as required to Power and Control Fuel Dispensing and Tank Monitoring Systems.
 8. Construct (N) 10” Concrete Masonry Unit (CMU) Concealment Wall, 10’Ht x ~86 LF.
 9. Construct (N) 19’ Automatic Sliding Entry Gate and associated 8’ Chain Link fencing at the west entry point to the Environmental Center.
 10. Furnish and Install (N) Diesel Exhaust Fluid (DEF) Fabricated Enclosure, Dispensing and Metering Equipment. DEF Dispensing system to be tied into the PetroVend Fuel Management System.
 - 2.2 **Time for Final Completion.** The Project must be fully completed within 90 calendar days from the start date set forth in the Notice to Proceed. City anticipates that the Work will begin on or about January 29, 2024, but the anticipated start date is provided solely for convenience and is neither certain nor binding.
3. **License and Registration Requirements.**
 - 3.1 **License.** This Project requires a valid California contractor’s license for the following classification(s): Class A and Hazardous Waste Class HAZ.
 - 3.2 **DIR Registration.** City may not accept a Bid Proposal from or enter into the Contract with a bidder, without proof that the bidder is registered with the California

Department of Industrial Relations (“DIR”) to perform public work pursuant to Labor Code § 1725.5, subject to limited legal exceptions.

4. **Contract Documents.** The plans, specifications, bid forms and contract documents for the Project, and any addenda thereto (“Contract Documents”) may be downloaded from City’s website located at <https://www.pittsburgca.gov/business/current-bidding-opportunities>. A printed copy of the Contract Documents are not available.
5. **Bid Security.** The Bid Proposal must be accompanied by bid security of ten percent of the maximum bid amount, in the form of a cashier’s or certified check made payable to City, or a bid bond executed by a surety licensed to do business in the State of California on the Bid Bond form included with the Contract Documents. The bid security must guarantee that within ten days after City issues the Notice of Potential Award, the successful bidder will execute the Contract and submit the payment and performance bonds, insurance certificates and endorsements, and any other submittals required by the Contract Documents and as specified in the Notice of Potential Award.
6. **Prevailing Wage Requirements.**
 - 6.1 **General.** Pursuant to California Labor Code § 1720 et seq., this Project is subject to the prevailing wage requirements applicable to the locality in which the Work is to be performed for each craft, classification or type of worker needed to perform the Work, including employer payments for health and welfare, pension, vacation, apprenticeship and similar purposes.
 - 6.2 **Rates.** The prevailing rates are on file with the City and are available online at <http://www.dir.ca.gov/DLSR>. Each Contractor and Subcontractor must pay no less than the specified rates to all workers employed to work on the Project. The schedule of per diem wages is based upon a working day of eight hours. The rate for holiday and overtime work must be at least time and one-half.
 - 6.3 **Compliance.** The Contract will be subject to compliance monitoring and enforcement by the DIR, under Labor Code § 1771.4.
7. **Performance and Payment Bonds.** The successful bidder will be required to provide performance and payment bonds, each for 100% of the Contract Price, as further specified in the Contract Documents.
8. **Substitution of Securities.** Substitution of appropriate securities in lieu of retention amounts from progress payments is permitted under Public Contract Code § 22300.
9. **Subcontractor List.** Each Subcontractor must be registered with the DIR to perform work on public projects. Each bidder must submit a completed Subcontractor List form with its Bid Proposal, including the name, location of the place of business, California contractor license number, DIR registration number, and percentage of the Work to be performed (based on the base bid price) for each Subcontractor that will perform Work or service or fabricate or install Work for the prime contractor in excess of one-half of 1% of the bid price, using the Subcontractor List form included with the Contract Documents.
10. **Instructions to Bidders.** All bidders should carefully review the Instructions to Bidders for more detailed information before submitting a Bid Proposal. The definitions provided in Article 1 of the General Conditions apply to all of the Contract Documents, as defined therein, including this Notice Inviting Bids.



By: Dayne Johnson, PE
Assistant City Engineer Signed for Date: 12/4/2023

John Samuelson, Public Works Director/City Engineer

Publication Date: December 4, 2023

END OF NOTICE INVITING BIDS

Instructions to Bidders

Each Bid Proposal submitted to City of Pittsburg ("City") for its Corporation Yard Fueling System Replacement Project – Above Ground Fuel Storage Tank ("Project") must be submitted in accordance with the following instructions and requirements:

1. Bid Submission.

- 1.1 General.** Each Bid Proposal must be completed, using the form provided in the Contract Documents, signed, and submitted to City in a sealed envelope, with all required forms and attachments, by or before the date and time set forth in Section 1 of the Notice Inviting Bids, or as amended by subsequent addendum. Faxed or emailed Bid Proposals will not be accepted, unless otherwise specified. Late submissions will be returned unopened. City reserves the right to postpone the date or time for receiving or opening bids. Each bidder is solely responsible for all of its costs to prepare and submit its bid and by submitting a bid waives any right to recover those costs from City. The bid price(s) must include all costs to perform the Work as specified, including all labor, material, supplies, and equipment and all other direct or indirect costs such as applicable taxes, insurance and overhead.
- 1.2 Bid Envelope.** The sealed envelope containing the Bid Proposal and all required forms and attachments must be clearly labeled and addressed as follows:

BID PROPOSAL:

Corporation Yard Fueling System Replacement Project
Project No. 3118

City Clerk
65 Civic Avenue
Pittsburg, CA, 94565
Attn: Alice E. Evenson

The envelope must also be clearly labeled, as follows, with the bidder's name, address, and its registration number with the California Department of Industrial Relations ("DIR") for bidding on public works contracts (Labor Code §§ 1725.5 and 1771.1):

[Contractor company name]
[street address]
[city, state, zip code]
DIR Registration No: _____

- 1.3 DIR Registration.** Subject to limited legal exceptions for joint venture bids and federally-funded projects, City may not accept a Bid Proposal from a bidder without proof that the bidder is registered with the DIR to perform public work under Labor Code § 1725.5. If City is unable to confirm that the bidder is currently registered with the DIR, City may disqualify the bidder and return its bid unopened. (Labor Code §§ 1725.5 and 1771.1(a).)
- 2. Bid Proposal Form and Enclosures.** Each Bid Proposal must be completed in ink using the Bid Proposal form included with the Contract Documents. The Bid Proposal form must be fully completed without interlineations, alterations, or erasures. Any necessary corrections must be clear and legible, and must be initialed by the bidder's authorized representative. A Bid Proposal submitted with exceptions or terms such as "negotiable,"

“will negotiate,” or similar, will be considered nonresponsive. Each Bid Proposal must be accompanied by bid security, as set forth in Section 4 below, and by a completed Subcontractor List and Non-Collusion Declaration using the forms included with the Contract Documents, and any other required enclosures, as applicable.

3. **Authorization and Execution.** Each Bid Proposal must be signed by the bidder’s authorized representative. A Bid Proposal submitted by a partnership must be signed in the partnership name by a general partner with authority to bind the partnership. A Bid Proposal submitted by a corporation must be signed with the legal name of the corporation, followed by the signature and title of two officers of the corporation with full authority to bind the corporation to the terms of the Bid Proposal, under California Corporations Code § 313.
4. **Bid Security.** Each Bid Proposal must be accompanied by bid security of ten percent of the maximum bid amount, in the form of a cashier’s check or certified check, made payable to the City, or bid bond using the form included in the Contract Documents and executed by a surety licensed to do business in the State of California. The bid security must guarantee that, within ten days after issuance of the Notice of Potential Award, the bidder will: execute and submit the enclosed Contract for the bid price; submit payment and performance bonds for 100% of the maximum Contract Price; and submit the insurance certificates and endorsements and any other submittals, if any, required by the Contract Documents or the Notice of Potential Award. A Bid Proposal may not be withdrawn for a period of 60 days after the bid opening without forfeiture of the bid security, except as authorized for material error under Public Contract Code § 5100 et seq.
5. **Requests for Information.** Questions or requests for clarifications regarding the Project, the bid procedures, or any of the Contract Documents must be submitted in writing to Alex Ruiz, Assistant Engineer, at 3118bidinfo@pittsburgca.gov. Oral responses are not authorized and are not binding on the City. Bidders should submit any such written inquiries at least five Working Days before the scheduled bid opening. Questions received any later might not be addressed before the bid deadline. An interpretation or clarification by City in response to a written inquiry will be issued in an addendum.
6. **Pre-Bid Investigation.**
 - 6.1 **General.** Each bidder is solely responsible at its sole expense for diligent and thorough review of the Contract Documents, examination of the Project site, and reasonable and prudent inquiry concerning known and potential site and area conditions prior to submitting a Bid Proposal. Each bidder is responsible for knowledge of conditions and requirements which reasonable review and investigation would have disclosed. However, except for any areas that are open to the public at large, bidders may not enter property owned or leased by the City or the Project site without prior written authorization from City.

**A “NON—MANDATORY” PRE-BID MEETING SHALL BE AT THE SITE,
AT 2573 HARBOR STREET, PITTSBURG, CA 94565,
ON MONDAY, DECEMBER 11TH, 2023 AT 10:00 A.M.**

- 6.2 **Document Review.** Each bidder is responsible for review of the Contract Documents and any informational documents provided “For Reference Only,” e.g., as-builts, technical reports, test data, and the like. A bidder is responsible for notifying City of any errors, omissions, inconsistencies, or conflicts it discovers in the Contract Documents, acting solely in its capacity as a contractor and subject to the limitations of Public Contract Code § 1104. Notification of any such errors, omissions, inconsistencies, or conflicts must be submitted in writing to the City no later than five Working Days before the scheduled bid opening. (See Section 5,

above.) City expressly disclaims responsibility for assumptions a bidder might draw from the presence or absence of information provided by City.

- 6.3 Project Site.** Questions regarding the availability of soil test data, water table elevations, and the like should be submitted to the City in writing, as specified in Section 5, above. Any subsurface exploration at the Project site must be done at the bidder's expense, but only with prior written authorization from City. All soil data and analyses available for inspection or provided in the Contract Documents apply only to the test hole locations. Any water table elevation indicated by a soil test report existed on the date the test hole was drilled. The bidder is responsible for determining and allowing for any differing soil or water table conditions during construction. Because groundwater levels may fluctuate, difference(s) in elevation between ground water shown in soil boring logs and ground water actually encountered during Project construction will not be considered changed Project site conditions. Actual locations and depths must be determined by bidder's field investigation. The bidder may request access to underlying or background information on the Project site in City's possession that is necessary for the bidder to form its own conclusions, including, if available, record drawings or other documents indicating the location of subsurface lines, utilities, or other structures.
- 6.4 Utility Company Standards.** The Project must be completed in a manner that satisfies the standards and requirements of any affected utility companies or agencies (collectively, "utility owners"). The successful bidder may be required by the third party utility owners to provide detailed plans prepared by a California registered civil engineer showing the necessary temporary support of the utilities during coordinated construction work. Bidders are directed to contact the affected third party utility owners about their requirements before submitting a Bid Proposal.
- 7. Bidders Interested in More Than One Bid.** No person, firm, or corporation may submit or be a party to more than one Bid Proposal unless alternate bids are specifically called for. However, a person, firm, or corporation that has submitted a subcontract proposal or quote to a bidder may submit subcontract proposals or quotes to other bidders.
- 8. Addenda.** Any addenda issued prior to the bid opening are part of the Contract Documents. Subject to the limitations of Public Contract Code § 4104.5, City reserves the right to issue addenda prior to bid time. Each bidder is solely responsible for ensuring it has received and reviewed all addenda prior to submitting its bid. Bidders should check City's website periodically for any addenda or updates on the Project at: <https://www.pittsburgca.gov/business/current-bidding-opportunities>.
- 9. Brand Designations and "Or Equal" Substitutions.** Any specification designating a material, product, thing, or service by specific brand or trade name, followed by the words "or equal," is intended only to indicate quality and type of item desired, and bidders may request use of any equal material, product, thing, or service. All data substantiating the proposed substitute as an equal item must be submitted with the written request for substitution. A request for substitution must be submitted within 35 days after Notice of Potential Award unless otherwise provided in the Contract Documents. This provision does not apply to materials, products, things, or services that may lawfully be designated by a specific brand or trade name under Public Contract Code § 3400(c).
- 10. Bid Protest.** Any bid protest against another bidder must be submitted in writing and received by City at 65 Civic Avenue, Pittsburg, California or sent via email at 3118bidinfo@pittsburgca.gov before 5:00 p.m. no later than two Working Days following bid opening ("Bid Protest Deadline") and must comply with the following requirements:

- 10.1 General.** Only a bidder who has actually submitted a Bid Proposal is eligible to submit a bid protest against another bidder. Subcontractors are not eligible to submit bid protests. A bidder may not rely on the bid protest submitted by another bidder, but must timely pursue its own protest. For purposes of this Section 10, a “Working Day” means a day that City is open for normal business, and excludes weekends and holidays observed by City. Pursuant to Public Contract Code § 4104, inadvertent omission of a Subcontractor’s DIR registration number on the Subcontractor List form is not grounds for a bid protest, provided it is corrected within 24 hours of the bid opening or as otherwise provided under Labor Code § 1771.1(b).
- 10.2 Protest Contents.** The bid protest must contain a complete statement of the basis for the protest and must include all supporting documentation. Material submitted after the Bid Protest Deadline will not be considered. The protest must refer to the *specific* portion or portions of the Contract Documents upon which the protest is based. The protest must include the name, address, email address, and telephone number of the protesting bidder and any person submitting the protest on behalf of or as an authorized representative of the protesting bidder.
- 10.3 Copy to Protested Bidder.** Upon submission of its bid protest to City, the protesting bidder must also concurrently transmit the protest and all supporting documents to the protested bidder, and to any other bidder who has a reasonable prospect of receiving an award depending upon the outcome of the protest, by email or hand delivery to ensure delivery before the Bid Protest Deadline.
- 10.4 Response to Protest.** The protested bidder may submit a written response to the protest, provided the response is received by City before 5:00 p.m., within two Working Days after the Bid Protest Deadline or after actual receipt of the bid protest, whichever is sooner (the “Response Deadline”). The response must attach all supporting documentation. Material submitted after the Response Deadline will not be considered. The response must include the name, address, email address, and telephone number of the person responding on behalf of or representing the protested bidder if different from the protested bidder.
- 10.5 Copy to Protesting Bidder.** Upon submission of its response to the bid protest to the City, the protested bidder must also concurrently transmit by email or hand delivery, by or before the Response Deadline, a copy of its response and all supporting documents to the protesting bidder and to any other bidder who has a reasonable prospect of receiving an award depending upon the outcome of the protest.
- 10.6 Exclusive Remedy.** The procedure and time limits set forth in this Section are mandatory and are the bidder’s sole and exclusive remedy in the event of a bid protest. A bidder’s failure to comply with these procedures will constitute a waiver of any right to further pursue a bid protest, including filing a Government Code Claim or initiation of legal proceedings.
- 10.7 Right to Award.** City reserves the right, acting in its sole discretion, to reject any bid protest that it determines lacks merit, to award the Contract to the bidder it has determined to be the responsible bidder submitting the lowest responsive bid, and to issue a Notice to Proceed with the Work notwithstanding any pending or continuing challenge to its determination.
- 11. Reservation of Rights.** City reserves the unfettered right, acting in its sole discretion, to waive or to decline to waive any immaterial bid irregularities; to accept or reject any or all

bids; to cancel or reschedule the bid; to postpone or abandon the Project entirely; or to perform all or part of the Work with its own forces. The Contract will be awarded, if at all, within 60 days after opening of bids or as otherwise specified in the Special Conditions, to the responsible bidder that submitted the lowest responsive bid. Any planned start date for the Project represents the City's expectations at the time the Notice Inviting Bids was first issued. City is not bound to issue a Notice to Proceed by or before such planned start date, and it reserves the right to issue the Notice to Proceed when the City determines, in its sole discretion, the appropriate time for commencing the Work. The City expressly disclaims responsibility for any assumptions a bidder might draw from the presence or absence of information provided by the City in any form. Each bidder is solely responsible for its costs to prepare and submit a bid, including site investigation costs.

12. **Bonds.** Within ten calendar days following City's issuance of the Notice of Potential Award to the apparent low bidder, the bidder must submit payment and performance bonds to City as specified in the Contract Documents using the bond forms included in the Contract Documents. All required bonds must be calculated on the maximum total Contract Price as awarded, including additive alternates, if applicable.
13. **License(s).** The successful bidder and its Subcontractor(s) must possess the California contractor's license(s) in the classification(s) required by law to perform the Work. The successful bidder must also obtain a City business license within ten (10) days following City's issuance of the Notice of Potential Award. Subcontractors must also obtain a City business license before performing any Work.
14. **Ineligible Subcontractor.** Any Subcontractor who is ineligible to perform work on a public works project under Labor Code §§ 1777.1 or 1777.7 is prohibited from performing work on the Project.
15. **Safety Orders.** If the Project includes construction of a pipeline, sewer, sewage disposal system, boring and jacking pits, or similar trenches or open excavations, which are five feet or deeper, each bid must include a bid item for adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life or limb, which comply with safety orders as required by Labor Code § 6707.
16. **Bid Schedule.** Each bidder must complete the Bid Schedule form with unit prices as indicated, and submit the completed Bid Schedule with its Bid Proposal.
 - 16.1 **Incorrect Totals.** In the event a computational error for any bid item (base bid or alternate) results in an incorrect extended total for that item, the submitted base bid or bid alternate total will be adjusted to reflect the corrected amount as the product of the estimated quantity and the unit cost. In the event of a discrepancy between the actual total of the itemized or unit prices shown on the Bid Schedule for the base bid, and the amount entered as the base bid on the Bid Proposal form, the actual total of the itemized or unit prices shown on the Bid Schedule for the base bid will be deemed the base bid price. Likewise, in the event of a discrepancy between the actual total of the itemized or unit prices shown on the Bid Schedule for any bid alternate, and the amount entered for the alternate on the Bid Proposal form, the actual total of the itemized prices shown on the Bid Schedule for that alternate will be deemed the alternate price. Nothing in this provision is intended to prevent a bidder from requesting to withdraw its bid for material error under Public Contract Code § 5100 et seq.
 - 16.2 **Estimated Quantities.** Unless identified as a "Final Pay Quantity," the quantities shown on the Bid Schedule are estimated and the actual quantities required to perform the Work may be greater or less than the estimated amount. The Contract

Price will be adjusted to reflect the actual quantities required for the Work based on the itemized or unit prices provided in the Bid Schedule, with no allowance for anticipated profit for quantities that are deleted or decreased, and no increase in the unit price, and without regard to the percentage increase or decrease of the estimated quantity and the actual quantity.

- 17. Bidder's Questionnaire.** A completed, signed Bidder's Questionnaire using the form provided with the Contract Documents and including all required attachments must be submitted within 48 hours following a request by City. A bid that does not fully comply with this requirement may be rejected as nonresponsive. A bidder who submits a Bidder's Questionnaire which is subsequently determined to contain false or misleading information, or material omissions, may be disqualified as non-responsible.
- 18. Additive and Deductive Alternates.** As required by Public Contract Code § 20103.8, if this bid solicitation includes additive or deductive items, the method checked below will be used to determine the lowest bid. If no method is checked, subparagraph (A) will be used to determine the lowest bid. City retains the right to add to or deduct from the Contract any of the additive or deductive alternates included in the Bid Proposal.

(A) The lowest bid will be the lowest bid price on the base contract without consideration of the prices on the additive or deductive items.

(B) The lowest bid will be the lowest total of the bid prices on the base contract and those additive or deductive items that were specifically identified in the bid solicitation or Bid Proposal as being used for the purpose of determining the lowest bid price.

(C) The lowest bid will be the lowest total of the bid prices on the base contract and those additive or deductive items taken in order from a specifically identified list of those items that, when in the solicitation, and added to, or subtracted from, the base contract, are less than, or equal to, a funding amount publicly disclosed by City before the first bid is opened.

(D) The lowest bid will be determined in a manner that prevents any information that would identify any of the bidders or the proposed subcontractors or suppliers from being revealed to City before the ranking of all bidders from lowest to highest has been determined.

END OF INSTRUCTIONS TO BIDDERS

Bid Proposal

Corporation Yard Fueling System Replacement Project

_____ (“Bidder”) hereby submits this Bid Proposal to City of Pittsburgh (“City”) for the above-referenced project (“Project”) in response to the Notice Inviting Bids and in accordance with the Contract Documents referenced in the Notice.

1. **Base Bid.** Bidder proposes to perform and fully complete the Work for the Project as specified in the Contract Documents, within the time required for full completion of the Work, including all labor, materials, supplies, and equipment and all other direct or indirect costs including, but not limited to, taxes, insurance and all overhead, for the following price (“Base Bid”):
\$ _____.

2. **Addenda.** Bidder agrees that it has confirmed receipt of or access to, and reviewed, all addenda issued for this bid. Bidder waives any claims it might have against the City based on its failure to receive, access, or review any addenda for any reason. Bidder specifically acknowledges receipt of the following addenda:

Addendum:	Date Received:	Addendum:	Date Received:
#01	_____	#05	_____
#02	_____	#06	_____
#03	_____	#07	_____
#04	_____	#08	_____

3. **Bidder’s Certifications and Warranties.** By signing and submitting this Bid Proposal, Bidder certifies and warrants the following:

- 3.1 **Examination of Contract Documents.** Bidder has thoroughly examined the Contract Documents and represents that, to the best of Bidder’s knowledge, there are no errors, omissions, or discrepancies in the Contract Documents, subject to the limitations of Public Contract Code § 1104.
- 3.2 **Examination of Worksite.** Bidder has had the opportunity to examine the Worksite and local conditions at the Project location.
- 3.3 **Bidder Responsibility.** Bidder is a responsible bidder, with the necessary ability, capacity, experience, skill, qualifications, workforce, equipment, and resources to perform or cause the Work to be performed in accordance with the Contract Documents and within the Contract Time.
- 3.4 **Responsibility for Bid.** Bidder has carefully reviewed this Bid Proposal and is solely responsible for any errors or omissions contained in its completed bid. All statements and information provided in this Bid Proposal and enclosures are true and correct to the best of Bidder’s knowledge.
- 3.5 **Nondiscrimination.** In preparing this bid, the Bidder has not engaged in discrimination against any prospective or present employee or Subcontractor on grounds of race, color, ancestry, national origin, ethnicity, religion, sex, sexual orientation, age, disability, or marital status.
- 3.6 **Iran Contracting Act.** If the Contract Price exceeds \$1,000,000, Bidder is not identified on a list created under the Iran Contracting Act, Public Contract Code § 2200 et seq. (the “Act”),

as a person engaging in investment activities in Iran, as defined in the Act, or is otherwise expressly exempt under the Act.

4. **Award of Contract.** By signing and submitting this Bid Proposal, Bidder agrees that if Bidder is awarded the Contract for the Project, within ten days following issuance of the Notice of Potential Award to Bidder, Bidder will do all of the following:
- 4.1 **Execute Contract.** Enter into the Contract with City in accordance with the terms of this Bid Proposal, by signing and submitting to City the Contract prepared by City using the form included with the Contract Documents;
 - 4.2 **Submit Required Bonds.** Submit to City a payment bond and a performance bond, each for 100% of the Contract Price, using the bond forms provided and in accordance with the requirements of the Contract Documents; and
 - 4.3 **Insurance Requirements.** Submit to City the insurance certificate(s) and endorsement(s) as required by the Contract Documents.
5. **Bid Security.** As a guarantee that, if awarded the Contract, Bidder will perform its obligations under Section 4 above, Bidder is enclosing bid security in the amount of ten percent of its maximum bid amount in one of the following forms (check one):

_____ A cashier's check or certified check payable to City and issued by _____ [Bank name] in the amount of \$ _____.

_____ A bid bond, using the Bid Bond form included with the Contract Documents, payable to City and executed by a surety licensed to do business in the State of California.

This Bid Proposal is hereby submitted on _____, 20__.

s/ _____

Name and Title

s/ _____
[See Section 3 of Instructions to Bidders]

Name and Title

Company Name

License #, Expiration Date, and Classification

Address

DIR Registration #

City, State, Zip

Phone

Contact Name

Contact Email

END OF BID PROPOSAL

Bid Schedule

This Bid Schedule must be completed in ink and included with the sealed Bid Proposal. Pricing must be provided for each Bid Item as indicated. Items marked "(SW)" are Specialty Work that must be performed by a qualified Subcontractor. The lump sum or unit cost for each item must be inclusive of all costs, whether direct or indirect, including profit and overhead. The sum of all amounts entered in the "Extended Total Amount" column must be identical to the Base Bid price entered in Section 1 of the Bid Proposal form.

AL = Allowance CF = Cubic Feet CY = Cubic Yard EA = Each LB = Pounds
 LF = Linear Foot LS = Lump Sum SF = Square Feet TON = Ton (2000 lbs)

BID ITEM NO.	ITEM DESCRIPTION	EST. QTY.	UNIT	UNIT COST	EXTENDED TOTAL AMOUNT
1	Mobilization & Demobilization	LS	1	\$	\$
2	Surveying, Grade Control & Construction Staking	LS	1	\$	\$
3	Fuel Tank Removal & Disposal	LS	1	\$	\$
4	Demolition	LS	1	\$	\$
5	Clearing & Grubbing	LS	1	\$	\$
6	Temporary Fencing	LS	1	\$	\$
7	Tank Pad & CMU Wall Excavation, Backfill and Compaction	CY	360	\$	\$
8	10" CMU Wall 10'Ht	LF	78	\$	\$
9	16'-3"Wx46'-7"Lx14"t Concrete Tank Pad	LS	1	\$	\$
10	Dual Compartment 12,000 gal. AST	LS	1	\$	\$
11	AST Filling & Emissions Control Equipment	LS	1	\$	\$
12	Gasoline & Diesel Dispensing Equipment	LS	1	\$	\$
13	DEF Equipment & Enclosure	LS	1	\$	\$
14	Fuel System Electrical & Controls Enclosure	LS	1	\$	\$
15	Fuel System Local Electrical & Control Wiring	LS	1	\$	\$
16	Fuel System Site Electrical & Control Wiring	LS	1	\$	\$
17	Fuel System Programming, Testing & Start-Up	LS	1	\$	\$
18	19' Automatic Sliding Entry Gate	LS	1	\$	\$
19	Entry Gate Site Electrical & Control Wiring	LS	1	\$	\$
20	Site Entry Gate Programming, Testing & Start-Up	LS	1	\$	\$

* Final Pay Quantity

TOTAL BASE BID: Items 1 through _____ inclusive: \$_____

Note: The amount entered as the "Total Base Bid" should be identical to the Base Bid amount entered in Section 1 of the Bid Proposal form.

BIDDER NAME: _____

END OF BID SCHEDULE

Subcontractor List

For each Subcontractor that will perform a portion of the Work in an amount in excess of one-half of 1% of the Bidder’s total Base Bid,¹ the bidder must list a description of the Work, the name of the Subcontractor, its California contractor license number, the location of its place of business, its DIR registration number, and the portion of the Work that the Subcontractor is performing based on a percentage of the Base Bid price.

DESCRIPTION OF WORK	SUBCONTRACTOR NAME	CALIFORNIA CONTRACTOR LICENSE NO.	LOCATION OF BUSINESS	DIR REG. NO.	PERCENT OF WORK

END OF SUBCONTRACTOR LIST

¹ For street or highway construction, this requirement applies to any subcontract of \$10,000 or more.

Noncollusion Declaration

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

The undersigned declares:

I am the _____ [title] of _____
[business name], the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. 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. All statements contained in the bid are true. 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, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

This declaration is intended to comply with California Public Contract Code § 7106 and Title 23 U.S.C § 112.

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].

s/ _____

Name [print]

END OF NONCOLLUSION DECLARATION

Bid Bond

_____ (“Bidder”) has submitted a bid, dated _____, 20____ (“Bid”), to City of Pittsburg (“City”) for work on the Corporation Yard Fueling System Project (“Project”). Under this duly executed bid bond (“Bid Bond”), Bidder as Principal and _____, its surety (“Surety”), are bound to City as obligee in the penal sum of ten percent of the maximum amount of the Bid (the “Bond Sum”). Bidder and Surety bind themselves and their respective heirs, executors, administrators, successors and assigns, jointly and severally, as follows:

1. **General.** If Bidder is awarded the Contract for the Project, Bidder will enter into the Contract with City in accordance with the terms of the Bid.
2. **Submittals.** Within ten days following issuance of the Notice of Potential Award to Bidder, Bidder must submit to City the following:
 - 2.1 **Contract.** The executed Contract, using the form provided by City in the Project contract documents (“Contract Documents”);
 - 2.2 **Payment Bond.** A payment bond for 100% of the maximum Contract Price, executed by a surety licensed to do business in the State of California using the Payment Bond form included with the Contract Documents;
 - 2.3 **Performance Bond.** A performance bond for 100% of the maximum Contract Price, executed by a surety licensed to do business in the State of California using the Performance Bond form included with the Contract Documents; and
 - 2.4 **Insurance.** The insurance certificate(s) and endorsement(s) required by the Contract Documents, and any other documents required by the Instructions to Bidders or Notice of Potential Award.
3. **Enforcement.** If Bidder fails to execute the Contract or to submit the bonds and insurance certificates as required by the Contract Documents, Surety guarantees that Bidder forfeits the Bond Sum to City. Any notice to Surety may be given in the manner specified in the Contract and delivered or transmitted to Surety as follows:

Attn: _____
Address: _____
City/State/Zip: _____
Phone: _____
Fax: _____
Email: _____

4. **Duration and Waiver.** If Bidder fulfills its obligations under Section 2, above, then this obligation will be null and void; otherwise, it will remain in full force and effect for 60 days following the bid opening or until this Bid Bond is returned to Bidder, whichever occurs first. Surety waives the provisions of Civil Code §§ 2819 and 2845.

[Signatures are on the following page.]

This Bid Bond is entered into and effective on _____, 20_____.

SURETY:

Business Name

s/ _____

Date

Name, Title

(Attach Acknowledgment with Notary Seal and Power of Attorney)

BIDDER:

Business Name

s/ _____

Date

Name, Title

END OF BID BOND

Bidder's Questionnaire

CORPORATION YARD FUELING SYSTEM REPLACEMENT PROJECT – ABOVE GROUND FUEL STORAGE TANK

Within 48 hours following a request by City, a bidder must submit to City a completed, signed Bidder's Questionnaire using this form and all required attachments, including clearly labeled additional sheets as needed. City may request the Questionnaire from one or more of the apparent low bidders following the bid opening, and may use the completed Questionnaire as part of its investigation to evaluate a bidder's qualifications for this Project. The Questionnaire must be filled out completely, accurately, and legibly. Any errors, omissions, or misrepresentations in completion of the Questionnaire may be grounds for rejection of the bid or termination of a Contract awarded pursuant to the bid.

Part A: General Information

Bidder Business Name: _____ ("Bidder")

Check One: Corporation (State of incorporation: _____)
 Partnership
 Sole Proprietorship
 Joint Venture of: _____
 Other: _____

Main Office Address and Phone: _____

Local Office Address and Phone: _____

Website address: _____

Owner of Business: _____

Contact Name and Title: _____

Contact Phone and Email: _____

Bidder's California Contractor's License Number(s): _____

Bidder's DIR Registration Number: _____

Part B: Bidder Experience

1. How many years has Bidder been in business under its present business name? ____ years
2. Has Bidder completed projects similar in type and size to this Project as a general contractor?
____ Yes ____ No
3. Has Bidder ever been disqualified from a bid on grounds that it is not responsible, or otherwise disqualified or disbarred from bidding under state or federal law?
____ Yes ____ No

If yes, provide additional information on a separate sheet regarding the disqualification or disbarment, including the name and address of the agency or owner of the project, the type and size of the project, the reasons that Bidder was disqualified or disbarred, and the month and year in which the disqualification or disbarment occurred.

4. Has Bidder ever been terminated for cause, alleged default, or legal violation from a construction project, either as a general contractor or as a subcontractor?

_____ Yes _____ No

If yes, provide additional information on a separate sheet regarding the termination, including the name and address of the agency or owner of the subject project, the type and size of the project, whether Bidder was under contract as a general contractor or a subcontractor, the reasons that Bidder was terminated, and the month and year in which the termination occurred.

5. Provide information about Bidder's past projects performed as general contractor as follows:

- 5.1 Six most recently completed public works projects within the last three years;
- 5.2 Three largest completed projects within the last three years; and
- 5.3 Any project which is similar to this Project including scope and character of the work.

6. Use separate sheets to provide all of the following information for each project identified in response to the above three categories:

- 6.1 Project name, location, and description;
- 6.2 Owner (name, address, email, and phone number);
- 6.3 Prime contractor, if applicable (name, address, email, and phone number);
- 6.4 Architect or engineer (name, email, and phone number);
- 6.5 Project and/or construction manager (name, email, and phone number);
- 6.6 Scope of work performed (as general or as subcontractor);
- 6.7 Initial contract price and final contract price (including change orders);
- 6.8 Original scheduled completion date and actual date of completion;
- 6.9 Time extensions granted (number of days);
- 6.10 Number and amount of stop notices or mechanic's liens filed;
- 6.11 Amount of any liquidated damages assessed against Bidder; and
- 6.12 Nature and resolution of any project-related claim, lawsuit, mediation, or arbitration involving Bidder.

Part C: Safety

1. Provide Bidder's Experience Modification Rate (EMR) for the last three years:

Year	EMR

2. Complete the following, based on information provided in Bidder's CalOSHA Form 300 or Form 300A, Annual Summary of Work-Related Illnesses and Injuries, from the most recent past calendar year:

- 2.1 Number of lost workday cases: _____
- 2.2 Number of medical treatment cases: _____
- 2.3 Number of deaths: _____

3. Has Bidder ever been cited, fined, or prosecuted by any local, state, or federal agency, including OSHA, CalOSHA, or EPA, for violation of any law, regulation, or requirements pertaining to health and safety?

_____ Yes _____ No

If yes, provide additional information on a separate sheet regarding each such citation, fine, or prosecution, including the name and address of the agency or owner of the project, the type and size of the project, the reasons for and nature of the citation, fine, or prosecution, and the month and year in which the incident giving rise to the citation, fine, or prosecution occurred.

4. Name, title, and email for person responsible for Bidder's safety program:

Name Title Email

Part D: Verification

In signing this document, I, the undersigned, declare that I am duly authorized to sign and submit this Bidder's Questionnaire on behalf of the named Bidder, and that all responses and information set forth in this Bidder's Questionnaire and accompanying attachments are, to the best of my knowledge, true, accurate and complete as of the date of submission. **I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.**

Signature: _____ Date: _____

By: _____
Name and Title

END OF BIDDER'S QUESTIONNAIRE

Contract

This public works contract ("Contract") is entered into by and between City of Pittsburg ("City") and _____ ("Contractor"), for work on the Corporation Yard Fueling System Replacement Project – Above Ground Fuel Storage Tank (AST) ("Project").

The parties agree as follows:

1. **Award of Contract.** In response to the Notice Inviting Bids, Contractor has submitted a Bid Proposal to perform the Work to construct the Project. On _____, 20____, City authorized award of this Contract to Contractor for the amount set forth in Section 4, below. City has elected to include the following Project alternate(s) in the Contract: No alternates.
2. **Contract Documents.** The Contract Documents incorporated into this Contract include and are comprised of all of the documents listed below. The definitions provided in Article 1 of the General Conditions apply to all of the Contract Documents, including this Contract.
 - 2.1 Notice Inviting Bids;
 - 2.2 Instructions to Bidders;
 - 2.3 Addenda, if any;
 - 2.4 Bid Proposal and attachments thereto;
 - 2.5 Contract;
 - 2.6 Payment and Performance Bonds;
 - 2.7 General Conditions;
 - 2.8 Special Conditions;
 - 2.9 Project Plans and Specifications;
 - 2.10 Change Orders, if any;
 - 2.11 Notice of Potential Award;
 - 2.12 Notice to Proceed; and
 - 2.13 The following: No other documents.
3. **Contractor's Obligations.** Contractor will perform all of the Work required for the Project, as specified in the Contract Documents. Contractor must provide, furnish, and supply all things necessary and incidental for the timely performance and completion of the Work, including all necessary labor, materials, supplies, tools, equipment, transportation, onsite facilities, and utilities, unless otherwise specified in the Contract Documents. Contractor must use its best efforts to diligently prosecute and complete the Work in a professional and expeditious manner and to meet or exceed the performance standards required by the Contract Documents.
4. **Payment.** As full and complete compensation for Contractor's timely performance and completion of the Work in strict accordance with the terms and conditions of the Contract Documents, City will pay Contractor \$ _____ ("Contract Price") for all of Contractor's direct and indirect costs to perform the Work, including all labor, materials, supplies, equipment, taxes, insurance, bonds and all overhead costs, in accordance with the payment provisions in the General Conditions.
5. **Time for Completion.** Contractor will fully complete the Work for the Project, meeting all requirements for Final Completion, within 90 calendar days from the commencement date given in the Notice to Proceed ("Contract Time"). By signing below, Contractor expressly waives any claim for delayed early completion.
6. **Liquidated Damages.** As further specified in Section 5.4 of the General Conditions, if Contractor fails to complete the Work within the Contract Time, City will assess liquidated

damages in the amount of \$3,600 per day for each day of unexcused delay in achieving Final Completion, and such liquidated damages may be deducted from City's payments due or to become due to Contractor under this Contract.

7. Labor Code Compliance.

7.1 General. This Contract is subject to all applicable requirements of Chapter 1 of Part 7 of Division 2 of the Labor Code, including requirements pertaining to wages, working hours and workers' compensation insurance, as further specified in Article 9 of the General Conditions.

7.2 Prevailing Wages. This Project is subject to the prevailing wage requirements applicable to the locality in which the Work is to be performed for each craft, classification or type of worker needed to perform the Work, including employer payments for health and welfare, pension, vacation, apprenticeship and similar purposes. Copies of these prevailing rates are available online at <http://www.dir.ca.gov/DLSR>.

7.3 DIR Registration. City may not enter into the Contract with a bidder without proof that the bidder and its Subcontractors are registered with the California Department of Industrial Relations to perform public work pursuant to Labor Code § 1725.5, subject to limited legal exceptions.

8. Workers' Compensation Certification. Pursuant to Labor Code § 1861, by signing this Contract, Contractor certifies as follows: "I am aware of the provisions of Labor Code § 3700 which require every employer to be insured against liability for workers' 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 on this Contract."

9. Conflicts of Interest. Contractor, its employees, Subcontractors and agents, may not have, maintain or acquire a conflict of interest in relation to this Contract in violation of any City ordinance or requirement, or in violation of any California law, including Government Code § 1090 et seq., or the Political Reform Act, as set forth in Government Code § 81000 et seq. and its accompanying regulations. Any violation of this Section constitutes a material breach of the Contract.

10. Independent Contractor. Contractor is an independent contractor under this Contract and will have control of the Work and the means and methods by which it is performed. Contractor and its Subcontractors are not employees of City and are not entitled to participate in any health, retirement, or any other employee benefits from City.

11. Notice. Any notice, billing, or payment required by or pursuant to the Contract Documents must be made in writing, signed, dated and sent to the other party by personal delivery, U.S. Mail, a reliable overnight delivery service, or by email as a PDF file. Notice is deemed effective upon delivery, except that service by U.S. Mail is deemed effective on the second working day after deposit for delivery. Notice for each party must be given as follows:

City:

Public Works Department/Engineering Division
65 Civic Avenue
Pittsburg, CA, 94565
Attn: Alex Ruiz
AlexRuiz@pittsburgca.gov

Copy to: Dayne Johnson, Assistant City Engineer
DBJohnson@pittsburgca.gov

Contractor:

Name: _____
Address: _____
City/State/Zip: _____
Phone: _____
Attn: _____
Email: _____
Copy to: _____

12. General Provisions.

- 12.1 Assignment and Successors.** Contractor may not assign its rights or obligations under this Contract, in part or in whole, without City's written consent. This Contract is binding on Contractor's and City's lawful heirs, successors and permitted assigns.
- 12.2 Third Party Beneficiaries.** There are no intended third party beneficiaries to this Contract.
- 12.3 Governing Law and Venue.** This Contract will be governed by California law and venue will be in the Contra Costa County Superior Court, and no other place. Contractor waives any right it may have pursuant to Code of Civil Procedure § 394, to file a motion to transfer any action arising from or relating to this Contract to a venue outside of Contra Costa County, California.
- 12.4 Amendment.** No amendment or modification of this Contract will be binding unless it is in a writing duly authorized and signed by the parties to this Contract.
- 12.5 Integration.** This Contract and the Contract Documents incorporated herein, including authorized amendments or Change Orders thereto, constitute the final, complete, and exclusive terms of the agreement between City and Contractor.
- 12.6 Severability.** If any provision of the Contract Documents is determined to be illegal, invalid, or unenforceable, in whole or in part, the remaining provisions of the Contract Documents will remain in full force and effect.
- 12.7 Iran Contracting Act.** If the Contract Price exceeds \$1,000,000, Contractor certifies, by signing below, that it is not identified on a list created under the Iran Contracting Act, Public Contract Code § 2200 et seq. (the "Act"), as a person engaging in investment activities in Iran, as defined in the Act, or is otherwise expressly exempt under the Act.
- 12.8 Authorization.** Each individual signing below warrants that he or she is authorized to do so by the party that he or she represents, and that this Contract is legally binding on that party. If Contractor is a corporation, signatures from two officers of the corporation are required pursuant to California Corporation Code § 313.

[Signatures are on the following page.]

The parties agree to this Contract as witnessed by the signatures below:

CITY:

Approved as to form:

s/ _____

s/ _____

Name, Title

Name, Title

Date: _____

Date: _____

Attest:

s/ _____

Name, Title

Date: _____

CONTRACTOR: _____
Business Name

s/ _____

Seal:

Name, Title

Date: _____

Second Signature (See Section 12.8):

s/ _____

Name, Title

Date: _____

Contractor's California License Number(s) and Expiration Date(s)

END OF CONTRACT

Payment Bond

City of Pittsburg ("City") and _____ ("Contractor") have entered into a contract for work on the Corporation Yard Fueling System Replacement Project – Above Ground Fuel Storage Tank (AST) ("Project"). The Contract is incorporated by reference into this Payment Bond ("Bond").

1. **General.** Under this Bond, Contractor as principal and _____, its surety ("Surety"), are bound to City as obligee in an amount not less than \$ _____, under California Civil Code § 9550 et seq., to ensure payment to authorized claimants. This Bond is binding on the respective successors, assigns, owners, heirs, or executors of Surety and Contractor.
2. **Surety's Obligation.** If Contractor or any of its Subcontractors fails to pay a person authorized in California Civil Code § 9100 to assert a claim against a payment bond, any amounts due under the Unemployment Insurance Code with respect to work or labor performed under the Contract, or any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of Contractor and its Subcontractors under California Unemployment Insurance Code § 13020 with respect to the work and labor, then Surety will pay the obligation.
3. **Beneficiaries.** This Bond inures to the benefit of any of the persons named in California Civil Code § 9100, so as to give a right of action to those persons or their assigns in any suit brought upon this Bond. Contractor must promptly provide a copy of this Bond upon request by any person with legal rights under this Bond.
4. **Duration.** If Contractor promptly makes payment of all sums for all labor, materials, and equipment furnished for use in the performance of the Work required by the Contract, in conformance with the time requirements set forth in the Contract and as required by California law, Surety's obligations under this Bond will be null and void. Otherwise, Surety's obligations will remain in full force and effect.
5. **Waivers.** Surety waives any requirement to be notified of alterations to the Contract or extensions of time for performance of the Work under the Contract. Surety waives the provisions of Civil Code §§ 2819 and 2845. City waives the requirement of a new bond for any supplemental contract under Civil Code § 9550. Any notice to Surety may be given in the manner specified in the Contract and delivered or transmitted to Surety as follows:

Attn: _____
Address: _____
City/State/Zip: _____
Phone: _____
Email: _____

6. **Law and Venue.** This Bond will be governed by California law, and venue for any dispute pursuant to this Bond will be in the Contra Costa County Superior Court, and no other place. Surety will be responsible for City's attorneys' fees and costs in any action to enforce the provisions of this Bond.

[Signatures are on the following page.]

7. **Effective Date; Execution.** This Bond is entered into and is effective on _____,
20__.

SURETY:

Business Name

s/ _____

Date

Name, Title

(Attach Acknowledgment with Notary Seal and Power of Attorney)

CONTRACTOR:

Business Name

s/ _____

Date

Name, Title

APPROVED BY CITY:

s/ _____

Date

Name, Title

END OF PAYMENT BOND

Performance Bond

City of Pittsburg ("City") and _____ ("Contractor") have entered into a contract for work on the Corporation Yard Fueling System Replacement Project – Above Ground Fuel Storage Tank (AST) ("Project"). The Contract is incorporated by reference into this Performance Bond ("Bond").

1. **General.** Under this Bond, Contractor as principal and _____, its surety ("Surety"), are bound to City as obligee for an amount not less than \$_____ to ensure Contractor's faithful performance of its obligations under the Contract. This Bond is binding on the respective successors, assigns, owners, heirs, or executors of Surety and Contractor.
2. **Surety's Obligations.** Surety's obligations are co-extensive with Contractor's obligations under the Contract. If Contractor fully performs its obligations under the Contract, including its warranty obligations under the Contract, Surety's obligations under this Bond will become null and void. Otherwise, Surety's obligations will remain in full force and effect.
3. **Waiver.** Surety waives any requirement to be notified of and further consents to any alterations to the Contract made under the applicable provisions of the Contract Documents, including changes to the scope of Work or extensions of time for performance of Work under the Contract. Surety waives the provisions of Civil Code §§ 2819 and 2845.
4. **Application of Contract Balance.** Upon making a demand on this Bond for completion of the Work prior to acceptance of the Project, City will make the Contract Balance available to Surety for completion of the Work under the Contract. For purposes of this provision, the Contract Balance is defined as the total amount payable by City to Contractor as the Contract Price minus amounts already paid to Contractor, and minus any liquidated damages, credits, or backcharges to which City is entitled under the terms of the Contract.
5. **Contractor Default.** Upon written notification from City of Contractor's termination for default under Article 13 of the Contract General Conditions, time being of the essence, Surety must act within the time specified in Article 13 to remedy the default through one of the following courses of action:
 - 5.1 Arrange for completion of the Work under the Contract by Contractor, with City's consent, but only if Contractor is in default solely due to its financial inability to complete the Work;
 - 5.2 Arrange for completion of the Work under the Contract by a qualified contractor acceptable to City, and secured by performance and payment bonds issued by an admitted surety as required by the Contract Documents, at Surety's expense; or
 - 5.3 Waive its right to complete the Work under the Contract and reimburse City the amount of City's costs to have the remaining Work completed.
6. **Surety Default.** If Surety defaults on its obligations under the Bond, City will be entitled to recover all costs it incurs due to Surety's default, including legal, design professional, or delay costs.
7. **Notice.** Any notice to Surety may be given in the manner specified in the Contract and sent to Surety as follows:

Attn: _____

Address: _____
City/State/Zip: _____
Phone: _____
Fax: _____
Email: _____

8. **Law and Venue.** This Bond will be governed by California law, and venue for any dispute pursuant to this Bond will be in the Contra Costa County Superior Court, and no other place. Surety will be responsible for City's attorneys' fees and costs in any action to enforce the provisions of this Bond.
9. **Effective Date; Execution.** This Bond is entered into and effective on _____, 20____.

SURETY:

Business Name

s/ _____

Date

Name, Title

(Attach Acknowledgment with Notary Seal and Power of Attorney)

CONTRACTOR:

Business Name

s/ _____

Date

Name, Title

APPROVED BY CITY:

s/ _____

Date

Name, Title

END OF PERFORMANCE BOND

General Conditions

Article 1 - Definitions

Definitions. The following definitions apply to all of the Contract Documents unless otherwise indicated, e.g., additional definitions that apply solely to the Specifications or other technical documents. Defined terms and titles of documents are capitalized in the Contract Documents, with the exception of the following (in any tense or form): “day,” “furnish,” “including,” “install,” “work day” or “working day.”

Allowance means a specific amount that must be included in the Bid Proposal for a specified purpose.

Article, as used in these General Conditions, means a numbered Article of the General Conditions, unless otherwise indicated by the context.

Change Order means a written document duly approved and executed by City, which changes the scope of Work, the Contract Price, or the Contract Time.

City means the municipality which has entered into the Contract with Contractor for performance of the Work, acting through its City Council, officers, employees, City Engineer, and any other authorized representatives.

City Engineer means the City Engineer for City and his or her authorized delegee(s).

Claim means a separate demand by Contractor for a change in the Contract Time or Contract Price, that has previously been submitted to City in accordance with the requirements of the Contract Documents, and which has been rejected by City, in whole or in part; or a written demand by Contractor objecting to the amount of Final Payment.

Contract means the signed agreement between City and Contractor for performing the Work required for the Project, and all documents expressly incorporated therein.

Contract Documents means, collectively, all of the documents listed as such in Section 2 of the Contract, including the Notice Inviting Bids; the Instructions to Bidders; addenda, if any; the Bid Proposal, and attachments thereto; the Contract; the Notice of Potential Award and Notice to Proceed; the payment and performance bonds; the General Conditions; the Special Conditions; the Project Plans and Specifications; any Change Orders; and any other documents which are clearly and unambiguously made part of the Contract Documents. The Contract Documents do not include documents provided “For Reference Only,” or documents that are intended solely to provide information regarding existing conditions.

Contract Price means the total compensation to be paid to Contractor for performance of the Work, as set forth in the Contract and as may be amended by Change Order or adjusted for an Allowance. The Contract Price is not subject to adjustment due to inflation or due to the increased cost of labor, material, supplies or equipment following submission of the Bid Proposal.

Contract Time means the time specified for complete performance of the Work, as set forth in the Contract and as may be amended by Change Order.

Contractor means the individual, partnership, corporation, or joint-venture that has signed the Contract with City to perform the Work.

Day means a calendar day unless otherwise specified.

Design Professional means the licensed individual(s) or firm(s) retained by City to provide architectural, engineering, or electrical engineering design services for the Project. If no Design Professional has been retained for this Project, any reference to Design Professional is deemed to refer to the Engineer.

DIR means the California Department of Industrial Relations.

Drawings has the same meaning as Plans.

Engineer means the City Engineer for the City of Pittsburg and his or her authorized delegees.

Excusable Delay is defined in Section 5.3(B), Excusable Delay.

Extra Work means new or unforeseen work added to the Project, as determined by the Engineer in his or her sole discretion, including Work that was not part of or incidental to the scope of the Work when the Contractor's bid was submitted; Work that is substantially different from the Work as described in the Contract Documents at bid time; or Work that results from a substantially differing and unforeseeable condition.

Final Completion means Contractor has fully completed all of the Work required by the Contract Documents to the City's satisfaction, including all punch list items and any required commissioning or training, and has provided the City with all required submittals, including the instructions and manuals, product warranties, and as-built drawings.

Final Payment means payment to Contractor of the unpaid Contract Price, including release of undisputed retention, less amounts withheld or deducted pursuant to the Contract Documents.

Furnish means to purchase and deliver for the Project.

Government Code Claim means a claim submitted pursuant to California Government Code § 900 et seq.

Hazardous Materials means any substance or material identified now or in the future as hazardous under any Laws, or any other substance or material that may be considered hazardous or otherwise subject to Laws governing handling, disposal, or cleanup.

Including, whether or not capitalized, means "including, but not limited to," unless the context clearly requires otherwise.

Inspector means the individual(s) or firm(s) retained or employed by City to inspect the workmanship, materials, and manner of construction of the Project and its components to ensure compliance with the Contract Documents and all Laws.

Install means to fix in place for materials, and to fix in place and connect for equipment.

Laws means all applicable local, state, and federal laws, regulations, rules, codes, ordinances, permits, orders, and the like enacted or imposed by or under the auspices of any governmental entity with jurisdiction over any of the Work or any performance of the Work, including health and safety requirements.

Non-Excusable Delay is defined in Section 5.3(D), Non-Excusable Delay.

Plans means the City-provided plans, drawings, details, or graphical depictions of the Project requirements, but does not include Shop Drawings.

Project means the public works project referenced in the Contract, as modified by any Project alternates elected by City, if any.

Project Manager means the individual designated by City to oversee and manage the Project on City's behalf and may include his or her authorized delegee(s) when the Project Manager is unavailable. If no Project Manager has been designated for this Project, any reference to Project Manager is deemed to refer to the Engineer.

Recoverable Costs is defined in Section 5.3(F), Recoverable Costs.

Request for Information or **RFI** means Contractor's written request for information about the Contract Documents, the Work or the Project, submitted to City in the manner and format specified by City.

Section, when capitalized in these General Conditions, means a numbered section or subsection of the General Conditions, unless the context clearly indicates otherwise.

Shop Drawings means drawings, plan details or other graphical depictions prepared by or on behalf of Contractor, and subject to City acceptance, which are intended to provide details for fabrication, installation, and the like, of items required by or shown in the Plans or Specifications.

Specialty Work means Work that must be performed by a specialized Subcontractor with the specified license or other special certification, and that the Contractor is not qualified to self-perform.

Specifications means the technical, text specifications describing the Project requirements, which are prepared for and incorporated into the Contract by or on behalf of City, and does not include the Contract, General Conditions or Special Conditions.

Subcontractor means an individual, partnership, corporation, or joint-venture retained by Contractor directly or indirectly through a subcontract to perform a specific portion of the Work. The term Subcontractor applies to subcontractors of all tiers, unless otherwise indicated by the context. A third party such as a utility performing related work on the Project is not a Subcontractor, even if Contractor must coordinate its Work with the third party.

Technical Specifications has the same meaning as Specifications.

Work means all of the construction and services necessary for or incidental to completing the Project in conformance with the requirements of the Contract Documents.

Work Day or **Working Day**, whether or not capitalized, means a weekday when the City is open for business, and does not include holidays observed by the City.

Worksite means the place or places where the Work is performed, which includes, but may extend beyond the Project site, including separate locations for staging, storage, or fabrication.

Article 2 - Roles and Responsibilities

2.1 City.

(A) **City Council.** The City Council has final authority in all matters affecting the Project, except to the extent it has delegated authority to the Engineer.

(B) **Engineer.** The Engineer, acting within the authority conferred by the City Council, is responsible for administration of the Project on behalf of City, including

authority to provide directions to the Design Professional and to Contractor to ensure proper and timely completion of the Project. The Engineer's decisions are final and conclusive within the scope of his or her authority, including interpretation of the Contract Documents.

(C) **Project Manager.** The Project Manager assigned to the Project will be the primary point of contact for the Contractor and will serve as City's representative for daily administration of the Project on behalf of City. Unless otherwise specified, all of Contractor's communications to City (in any form) will go to or through the Project Manager. City reserves the right to reassign the Project Manager role at any time or to delegate duties to additional City representatives, without prior notice to or consent of Contractor.

(D) **Design Professional.** The Design Professional is responsible for the overall design of the Project and, to the extent authorized by City, may act on City's behalf to ensure performance of the Work in compliance with the Plans and Specifications, including any design changes authorized by Change Order. The Design Professional's duties may include review of Contractor's submittals, visits to any Worksite, inspecting the Work, evaluating test and inspection results, and participation in Project-related meetings, including any pre-construction conference, weekly meetings, and coordination meetings. The Design Professional's interpretation of the Plans or Specifications is final and conclusive.

2.2 Contractor.

(A) **General.** Contractor must provide all labor, materials, supplies, equipment, services, and incidentals necessary to perform and timely complete the Work in strict accordance with the Contract Documents, and in an economical and efficient manner in the best interests of City, and with minimal inconvenience to the public.

(B) **Responsibility for the Work and Risk of Loss.** Contractor is responsible for supervising and directing all aspects of the Work to facilitate the efficient and timely completion of the Work. Contractor is solely responsible for and required to exercise full control over the Work, including the construction means, methods, techniques, sequences, procedures, safety precautions and programs, and coordination of all portions of the Work with that of all other contractors and Subcontractors, except to the extent that the Contract Documents provide other specific instructions. Contractor's responsibilities extend to any plan, method or sequence suggested, but not required by City or specified in the Contract Documents. From the date of commencement of the Work until either the date on which City formally accepts the Project or the effective date of termination of the Contract, whichever is later, Contractor bears all risks of injury or damage to the Work and the materials and equipment delivered to any Worksite, by any cause including fire, earthquake, wind, weather, vandalism or theft.

(C) **Project Administration.** Contractor must provide sufficient and competent administration, staff, and skilled workforce necessary to perform and timely complete the Work in accordance with the Contract Documents. Before starting the Work, Contractor must designate in writing and provide complete contact information, including telephone numbers and email address, for the officer or employee in Contractor's organization who is to serve as Contractor's primary representative for the Project, and who has authority to act on Contractor's behalf. A Subcontractor may not serve as Contractor's primary representative.

(D) **On-Site Superintendent.** Contractor must, at all times during performance of the Work, provide a qualified and competent full-time superintendent acceptable to City, and assistants as necessary, who must be physically present at the Project site while any

aspect of the Work is being performed. The superintendent must have full authority to act and communicate on behalf of Contractor, and Contractor will be bound by the superintendent's communications to City. City's approval of the superintendent is required before the Work commences. If City is not satisfied with the superintendent's performance, City may request a qualified replacement of the superintendent. Failure to comply may result in temporary suspension of the Work, at Contractor's sole expense and with no extension of Contract Time, until an approved superintendent is physically present to supervise the Work. Contractor must provide written notice to City, as soon as practicable, before replacing the superintendent.

(E) **Standards.** Contractor must, at all times, ensure that the Work is performed in an efficient, skillful manner following best practices and in full compliance with the Contract Documents and Laws and applicable manufacturer's recommendations. Contractor has a material and ongoing obligation to provide true and complete information, to the best of its knowledge, with respect to all records, documents, or communications pertaining to the Project, including oral or written reports, statements, certifications, Change Order requests, or Claims.

(F) **Meetings.** Contractor, its project manager, superintendent and any primary Subcontractors requested by City, must attend a pre-construction conference, if requested by City, as well as weekly Project progress meetings scheduled with City. If applicable, Contractor may also be required to participate in coordination meetings with other parties relating to other work being performed on or near the Project site or in relation to the Project, including work or activities performed by City, other contractors, or other utility owners.

(G) **Construction Records.** Contractor will maintain up-to-date, thorough, legible, and dated daily job reports, which document all significant activity on the Project for each day that Work is performed on the Project. The daily report for each day must include the number of workers at the Project site; primary Work activities; major deliveries; problems encountered, including injuries, if any; weather and site conditions; and delays, if any. Contractor will take date and time-stamped photographs to document general progress of the Project, including site conditions prior to construction activities, before and after photographs at offset trench laterals, existing improvements and utilities, damage and restoration. Contractor will maintain copies of all subcontracts, Project-related correspondence with Subcontractors, and records of meetings with Subcontractors. Upon request by the City, Contractor will permit review of and/or provide copies of any of these construction records.

(H) **Responsible Party.** Contractor is solely responsible to City for the acts or omissions of any Subcontractors, or any other party or parties performing portions of the Work or providing equipment, materials or services for or on behalf of Contractor or the Subcontractors. Upon City's written request, Contractor must promptly and permanently remove from the Project, at no cost to City, any employee or Subcontractor or employee of a Subcontractor who the Engineer has determined to be incompetent, intemperate or disorderly, or who has failed or refused to perform the Work as required under the Contract Documents.

(I) **Correction of Defects.** Contractor must promptly correct, at Contractor's sole expense, any Work that is determined by City to be deficient or defective in any way, including workmanship, materials, parts or equipment. Workmanship, materials, parts or equipment that do not conform to the requirements under the Plans, Specifications and every other Contract Document, as determined by City, will be considered defective and subject to rejection. Contractor must also promptly correct, at Contractor's sole expense, any Work performed beyond the lines and grades shown on the Plans or established by City, and any Extra Work performed without City's prior written approval. If Contractor

fails to correct or to take reasonable steps toward correcting defective Work within five days following notice from City, or within the time specified in City's notice to correct, City may elect to have the defective Work corrected by its own forces or by a third party, in which case the cost of correction will be deducted from the Contract Price. If City elects to correct defective Work due to Contractor's failure or refusal to do so, City or its agents will have the right to take possession of and use any equipment, supplies, or materials available at the Project site or any Worksite on City property, in order to effectuate the correction, at no extra cost to City. Contractor's warranty obligations under Section 11.2, Warranty, will not be waived nor limited by City's actions to correct defective Work under these circumstances. Alternatively, City may elect to retain defective Work, and deduct the difference in value, as determined by the Engineer, from payments otherwise due to Contractor. This paragraph applies to any defective Work performed by Contractor during the one-year warranty period under Section 11.2.

(J) **Contractor's Records.** Contractor must maintain all of its records relating to the Project in any form, including paper documents, photos, videos, electronic records, approved samples, and the construction records required pursuant to paragraph (G), above. Project records subject to this provision include complete Project cost records and records relating to preparation of Contractor's bid, including estimates, take-offs, and price quotes or bids.

(1) Contractor's cost records must include all supporting documentation, including original receipts, invoices, and payroll records, evidencing its direct costs to perform the Work, including, but not limited to, costs for labor, materials and equipment. Each cost record should include, at a minimum, a description of the expenditure with references to the applicable requirements of the Contract Documents, the amount actually paid, the date of payment, and whether the expenditure is part of the original Contract Price, related to an executed Change Order, or otherwise categorized by Contractor as Extra Work. Contractor's failure to comply with this provision as to any claimed cost operates as a waiver of any rights to recover the claimed cost.

(2) Contractor must continue to maintain its Project-related records in an organized manner for a period of five years after City's acceptance of the Project or following Contract termination, whichever occurs first. Subject to prior notice to Contractor, City is entitled to inspect or audit any of Contractor's records relating to the Project during Contractor's normal business hours. The record-keeping requirements set forth in this subsection 2.2(J) will survive expiration or termination of the Contract.

(K) **Copies of Project Documents.** Contractor and its Subcontractors must keep copies, at the Project site, of all Work-related documents, including the Contract, permit(s), Plans, Specifications, Addenda, Contract amendments, Change Orders, RFIs and RFI responses, Shop Drawings, as-built drawings, schedules, daily records, testing and inspection reports or results, and any related written interpretations. These documents must be available to City for reference at all times during construction of the Project.

2.3 Subcontractors.

(A) **General.** All Work which is not performed by Contractor with its own forces must be performed by Subcontractors. City reserves the right to approve or reject any and all Subcontractors proposed to perform the Work, for reasons including the subcontractor's poor reputation, lack of relevant experience, financial instability, and lack of technical ability or adequate trained workforce. Each Subcontractor must obtain a City business license before performing any Work.

(B) **Contractual Obligations.** Contractor must require each Subcontractor to comply with the provisions of the Contract Documents as they apply to the Subcontractor's portion(s) of the Work, including the generally applicable terms of the Contract Documents, and to likewise bind their subcontractors. Contractor will provide that the rights that each Subcontractor may have against any manufacturer or supplier for breach of warranty or guarantee relating to items provided by the Subcontractor for the Project, will be assigned to City. Nothing in these Contract Documents creates a contractual relationship between a Subcontractor and City, but City is deemed to be a third-party beneficiary of the contract between Contractor and each Subcontractor.

(C) **Termination.** If the Contract is terminated, each Subcontractor's agreement must be assigned by Contractor to City, subject to the prior rights of any surety, but only if and to the extent that City accepts, in writing, the assignment by written notification, and assumes all rights and obligations of Contractor pursuant to each such subcontract agreement.

(D) **Substitution of Subcontractor.** If Contractor requests substitution of a listed Subcontractor under Public Contract Code § 4107, Contractor is solely responsible for all costs City incurs in responding to the request, including legal fees and costs to conduct a hearing, and any increased subcontract cost to perform the Work that was to be performed by the listed Subcontractor. If City determines that a Subcontractor is unacceptable to City based on the Subcontractor's failure to satisfactorily perform its Work, or for any of the grounds for substitution listed in Public Contract Code § 4107(a), City may request removal of the Subcontractor from the Project. Upon receipt of a written request from City to remove a Subcontractor pursuant to this paragraph, Contractor will immediately remove the Subcontractor from the Project and, at no further cost to City, will either (1) self-perform the remaining Work to the extent that Contractor is duly licensed and qualified to do so, or (2) substitute a Subcontractor that is acceptable to City, in compliance with Public Contract Code § 4107, as applicable.

2.4 Coordination of Work.

(A) **Concurrent Work.** City reserves the right to perform, have performed, or permit performance of other work on or adjacent to the Project site while the Work is being performed for the Project. Contractor is responsible for coordinating its Work with other work being performed on or adjacent to the Project site, including by any utility companies or agencies, and must avoid hindering, delaying, or interfering with the work of other contractors, individuals, or entities, and must ensure safe and reasonable site access and use as required or authorized by City. To the full extent permitted by law, Contractor must hold harmless and indemnify City against any and all claims arising from or related to Contractor's avoidable, negligent, or willful hindrance of, delay to, or interference with the work of any utility company or agency or another contractor or subcontractor.

(B) **Coordination.** If Contractor's Work will connect or interface with work performed by others, Contractor is responsible for independently measuring and visually inspecting such work to ensure a correct connection and interface. Contractor is responsible for any failure by Contractor or its Subcontractors to confirm measurements before proceeding with connecting Work. Before proceeding with any portion of the Work affected by the construction or operations of others, Contractor must give the Project Manager prompt written notification of any defects Contractor discovers which will prevent the proper execution of the Work. Failure to give notice of any known or reasonably discoverable defects will be deemed acknowledgement by Contractor that the work of others is not defective and will not prevent the proper execution of the Work. Contractor must also promptly notify City if work performed by others, including work or activities performed by

City's own forces, is operating to hinder, delay, or interfere with Contractor's timely performance of the Work. City reserves the right to backcharge Contractor for any additional costs incurred due to Contractor's failure to comply with the requirements in this Section 2.4.

2.5 Submittals. Unless otherwise specified, Contractor must submit to the Engineer for review and acceptance, all schedules, Shop Drawings, samples, product data, and similar submittals required by the Contract Documents, or upon request by the Engineer. Unless otherwise specified, all submittals, including Requests for Information, are subject to the general provisions of this Section, as well as specific submittal requirements that may be included elsewhere in the Contract Documents, including the Special Conditions or Specifications. The Engineer may require submission of a submittal schedule at or before a pre-construction conference, as may be specified in the Notice to Proceed.

(A) **General.** Contractor is responsible for ensuring that its submittals are accurate and conform to the Contract Documents.

(B) **Time and Manner of Submission.** Contractor must ensure that its submittals are prepared and delivered in a manner consistent with the current City-accepted schedule for the Work and within the applicable time specified in the Contract Documents, or if no time is specified, in such time and sequence so as not to delay the performance of the Work or completion of the Project.

(C) **Required Contents.** Each submittal must include the Project name and contract number, Contractor's name and address, the name and address of any Subcontractor or supplier involved with the submittal, the date, and references to applicable Specification section(s) and/or drawing and detail number(s).

(D) **Required Corrections.** If corrections are required, Contractor must promptly make and submit any required corrections as specified in full conformance with the requirements of this Section, or other requirements that apply to that submittal.

(E) **Effect of Review and Acceptance.** Review and acceptance of a submittal by City will not relieve Contractor from complying with the requirements of the Contract Documents. Contractor is responsible for any errors in any submittal, and review or acceptance of a submittal by City is not an assumption of risk or liability by City.

(F) **Enforcement.** Any Work performed or any material furnished, installed, fabricated or used without City's prior acceptance of a required submittal is performed or provided at Contractor's risk, and Contractor may be required to bear the costs incident thereto, including the cost of removing and replacing such Work, repairs to other affected portions of the Work or material, and the cost of additional time or services required of City, including costs for the Design Professional, Project Manager, or Inspector.

(G) **Excessive RFIs.** A RFI will be considered excessive or unnecessary if City determines that the explanation or response to the RFI is clearly and unambiguously discernable from the Contract Documents. City's costs to review and respond to excessive or unnecessary RFIs may be deducted from payments otherwise due to Contractor.

2.6 Shop Drawings. When Shop Drawings are required by the Specifications or requested by the Engineer, they must be prepared according to best practices at Contractor's expense. The Shop Drawings must be of a size and scale to clearly show all necessary details. Unless otherwise specified by City, Shop Drawings must be provided to the Engineer for review and acceptance at least 30 days before the Work will be performed. If City requires changes, the corrected Shop Drawings must be resubmitted to the

Engineer for review within the time specified by the Engineer. For all Project components requiring Shop Drawings, Contractor will not furnish materials or perform any Work until the Shop Drawings for those components are accepted by City. Contractor is responsible for any errors or omissions in the Shop Drawings, shop fits and field corrections; any deviations from the Contract Documents; and for the results obtained by the use of Shop Drawings. Acceptance of Shop Drawings by City does not relieve Contractor of Contractor's responsibility.

- 2.7 Access to Work.** Contractor must afford prompt and safe access to any Worksite by City and its employees, agents, or consultants authorized by City; and upon request by City, Contractor must promptly arrange for City representatives to visit or inspect manufacturing sites or fabrication facilities for items to be incorporated into the Work.
- 2.8 Personnel.** Contractor and its Subcontractors must employ only competent and skillful personnel to perform the Work. Contractor and its Subcontractor's supervisors, security or safety personnel, and employees who have unescorted access to the Project site must possess proficiency in English sufficient to read, understand, receive, and implement oral or written communications or instructions relating to their respective job functions, including safety and security requirements. Upon written notification from the Engineer, Contractor and its Subcontractors must immediately discharge any personnel who are incompetent, disorderly, disruptive, threatening, abusive, or profane, or otherwise refuse or fail to comply with the requirements of the Contract Documents or Laws, including Laws pertaining to health and safety. Any such discharged personnel may not be re-employed or permitted on the Project in any capacity without City's prior written consent.

Article 3 - Contract Documents

3.1 Interpretation of Contract Documents.

(A) **Plans and Specifications.** The Plans and Specifications included in the Contract Documents are complementary. If Work is shown on one but not on the other, Contractor must perform the Work as though fully described on both, consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. The Plans and Specifications are deemed to include and require everything necessary and reasonably incidental to completion of the Work, whether or not particularly mentioned or shown. Contractor must perform all Work and services and supply all things reasonably related to and inferable from the Contract Documents. In the event of a conflict between the Plans and Specifications, the Specifications will control, unless the drawing(s) at issue are dated later than the Specification(s) at issue. Detailed drawings take precedence over general drawings, and large-scale drawings take precedence over smaller scale drawings. Any arrangement or division of the Plans and Specifications into sections is for convenience and is not intended to limit the Work required by separate trades. A conclusion presented in the Plans or Specifications is only a recommendation. Actual locations and depths must be determined by Contractor's field investigation. Contractor may request access to underlying or background information in City's possession that is necessary for Contractor to form its own conclusions.

(B) **Duty to Notify and Seek Direction.** If Contractor becomes aware of a changed condition in the Project, or of any ambiguity, conflict, inconsistency, discrepancy, omission, or error in the Contract Documents, including the Plans or Specifications, Contractor must promptly submit a Request for Information to the Engineer and wait for a response from City before proceeding further with the related Work. The RFI must notify City of the issue and request clarification, interpretation or direction. The Engineer's clarification, interpretation or direction will be final and binding on Contractor. If Contractor proceeds with the related Work before obtaining City's response, Contractor

will be responsible for any resulting costs, including the cost of correcting any incorrect or defective Work that results. Timely submission of a clear and complete RFI is essential to avoiding delay. Delay resulting from Contractor's failure to submit a timely and complete RFI to the Engineer is Non-Excusable Delay. If Contractor believes that City's response to an RFI justifies a change to the Contract Price or Contract Time, Contractor must perform the Work as directed, but may submit a timely Change Order request in accordance with the Contract Documents. (See Article 5 and 6.)

(C) **Figures and Dimensions.** Figures control over scaled dimensions.

(D) **Technical or Trade Terms.** Any terms that have well-known technical or trade meanings will be interpreted in accordance with those meanings, unless otherwise specifically defined in the Contract Documents.

(E) **Measurements.** Contractor must verify all relevant measurements in the Contract Documents and at the Project site before ordering any material or performing any Work, and will be responsible for the correctness of those measurements or for costs that could have been avoided by independently verifying measurements.

(F) **Compliance with Laws.** The Contract Documents are intended to comply with Laws and will be interpreted to comply with Laws.

3.2 Order of Precedence. Information included in one Contract Document but not in another will not be considered a conflict or inconsistency. Unless otherwise specified in the Special Conditions, in case of any conflict or inconsistency among the Contract Documents, the following order of precedence will apply, beginning from highest to lowest, with the most recent version taking precedent over an earlier version:

- (A) Change Orders;
- (B) Addenda;
- (C) Contract;
- (D) Notice to Proceed;
- (E) Attachment B – Federal Contract Requirements (only if used);
- (F) Special Conditions;
- (G) General Conditions;
- (H) Payment and Performance Bonds;
- (I) Specifications;
- (J) Plans;
- (K) Notice of Potential Award;
- (L) Notice Inviting Bids;
- (M) Attachment A – Federal Bidding Requirements (only if used);
- (N) Instructions to Bidders;
- (O) Contractor's Bid Proposal and attachments;
- (P) the City's standard specifications, as applicable; and
- (Q) Any generic documents prepared by and on behalf of a third party, that were not prepared specifically for this Project, such as the Caltrans Standard Specifications or Caltrans Special Provisions.

3.3 Caltrans Standard Specifications. Any reference to or incorporation of the Standard Specifications of the State of California, Department of Transportation ("Caltrans"), including "Standard Specifications," "Caltrans Specifications," "State Specifications," or "CSS," means the most current edition of Caltrans' Standard Specifications, unless otherwise specified ("Caltrans Standard Specifications"), including the most current amendments as of the date that Contractor's bid was submitted for this Project. The following provisions apply to use of or reference to the Caltrans Standard Specifications or Special Provisions:

(A) **Limitations.** The “General Provisions” of the Caltrans Standard Specifications, i.e., sections 1 through 9, do not apply to these Contract Documents with the exception of any specific provisions, if any, which are expressly stated to apply to these Contract Documents.

(B) **Conflicts or Inconsistencies.** If there is a conflict or inconsistency between any provision in the Caltrans Standard Specifications or Special Provisions and a provision of these Contract Documents, as determined by City, the provision in the Contract Documents will govern.

(C) **Meanings.** Terms used in the Caltrans Standard Specifications or Special Provisions are to be interpreted as follows:

(1) Any reference to the “Engineer” is deemed to mean the City Engineer.

(2) Any reference to the “Special Provisions” is deemed to mean the Special Conditions, unless the Caltrans Special Provisions are expressly included in the Contract Documents listed in Section 2 of the Contract.

(3) Any reference to the “Department” or “State” is deemed to mean City.

3.4 For Reference Only. Contractor is responsible for the careful review of any document, study, or report provided by City or appended to the Contract Documents solely for informational purposes and identified as “For Reference Only.” Nothing in any document, study, or report so appended and identified is intended to supplement, alter, or void any provision of the Contract Documents. Contractor is advised that City or its representatives may be guided by information or recommendations included in such reference documents, particularly when making determinations as to the acceptability of proposed materials, methods, or changes in the Work. Any record drawings or similar final or accepted drawings or maps that are not part of the Contract Documents are deemed to be For Reference Only. The provisions of the Contract Documents are not modified by any perceived or actual conflict with provisions in any document that is provided For Reference Only.

3.5 Current Versions. Unless otherwise specified by City, any reference to standard specifications, technical specifications, or any City or state codes or regulations means the latest specification, code or regulation in effect on the date that bids were due.

3.6 Conformed Copies. If City prepares a conformed set of the Contract Documents following award of the Contract, it will provide Contractor with two hard copy (paper) sets and one copy of the electronic file in PDF format. It is Contractor’s responsibility to ensure that all Subcontractors, including fabricators, are provided with the conformed set of the Contract Documents at Contractor’s sole expense.

3.7 Ownership. No portion of the Contract Documents may be used for any purpose other than construction of the Project, without prior written consent from City. Contractor is deemed to have conveyed the copyright in any designs, drawings, specifications, Shop Drawings, or other documents (in paper or electronic form) developed by Contractor for the Project, and City will retain all rights to such works, including the right to possession.

Article 4 - Bonds, Indemnity, and Insurance

4.1 Payment and Performance Bonds. Within ten days following issuance of the Notice of Potential Award, Contractor is required to provide a payment bond and a performance

bond, each in the penal sum of not less than 100% of the Contract Price, and each executed by Contractor and its surety using the bond forms included with the Contract Documents.

(A) **Surety.** Each bond must be issued and executed by a surety admitted in California. If an issuing surety cancels the bond or becomes insolvent, within seven days following written notice from City, Contractor must substitute a surety acceptable to City. If Contractor fails to substitute an acceptable surety within the specified time, City may, at its sole discretion, withhold payment from Contractor until the surety is replaced to City's satisfaction, or terminate the Contract for default.

(B) **Supplemental Bonds for Increase in Contract Price.** If the Contract Price increases during construction by five percent or more over the original Contract Price, Contractor must provide supplemental or replacement bonds within ten days of written notice from City pursuant to this Section, covering 100% of the increased Contract Price and using the bond forms included with the Contract Documents.

4.2 Indemnity. To the fullest extent permitted by law, Contractor must indemnify, defend, and hold harmless City, its Council, officers, officials, employees, agents, volunteers, and consultants (individually, an "Indemnitee," and collectively the "Indemnitees") from and against any and all liability, loss, damage, claims, causes of action, demands, charges, fines, costs, and expenses (including, without limitation, attorney fees, expert witness fees, paralegal fees, and fees and costs of litigation or arbitration) (collectively, "Liability") of every nature arising out of or in connection with the acts or omissions of Contractor, its employees, Subcontractors, representatives, or agents, in bidding or performing the Work or in failing to comply with any obligation of Contractor under the Contract, except such Liability caused by the active negligence, sole negligence, or willful misconduct of an Indemnitee. This indemnity requirement applies to any Liability arising from alleged defects in the content or manner of submission of Contractor's bid for the Contract. Contractor's failure or refusal to timely accept a tender of defense pursuant to this Contract will be deemed a material breach of the Contract. City will timely notify Contractor upon receipt of any third-party claim relating to the Contract, as required by Public Contract Code § 9201. Contractor waives any right to express or implied indemnity against any Indemnitee. Contractor's indemnity obligations under this Contract will survive the expiration or any early termination of the Contract.

4.3 Insurance. No later than ten days following issuance of the Notice of Potential Award, Contractor must procure and provide proof of the insurance coverage required by this Section in the form of certificates and endorsements acceptable to City. The required insurance must cover the activities of Contractor and its Subcontractors relating to or arising from the performance of the Work, and must remain in full force and effect at all times during the period covered by the Contract, through the date of City's acceptance of the Project. All required insurance must be issued by a company licensed to do business in the State of California, and each such insurer must have an A.M. Best's financial strength rating of "A" or better and a financial size rating of "VIII" or better. If Contractor fails to provide any of the required coverage in full compliance with the requirements of the Contract Documents, City may, at its sole discretion, purchase such coverage at Contractor's expense and deduct the cost from payments due to Contractor, or terminate the Contract for default. The procurement of the required insurance will not be construed to limit Contractor's liability under this Contract or to fulfill Contractor's indemnification obligations under this Contract.

(A) **Policies and Limits.** The following insurance policies and limits are required for this Contract, unless otherwise specified in the Special Conditions:

(1) *Commercial General Liability (“CGL”) Insurance*: The CGL insurance policy must be issued on an occurrence basis, written on a comprehensive general liability form, and must include coverage for liability arising from Contractor’s or its Subcontractor’s acts or omissions in the performance of the Work, including contractor’s protected coverage, contractual liability, products and completed operations, and broad form property damage, with limits of at least \$2,000,000 per occurrence and at least \$4,000,000 general aggregate. The CGL insurance coverage may be arranged under a single policy for the full limits required or by a combination of underlying policies with the balance provided by excess or umbrella policies, provided each such policy complies with the requirements set forth in this Section, including required endorsements.

(2) *Automobile Liability Insurance*: The automobile liability insurance policy must provide coverage of at least \$2,000,000 combined single-limit per accident for bodily injury, death, or property damage, including hired and non-owned auto liability.

(3) *Workers’ Compensation Insurance and Employer’s Liability*: The workers’ compensation and employer’s liability insurance policy must comply with the requirements of the California Labor Code, providing coverage of at least \$1,000,000 or as otherwise required by the statute. If Contractor is self-insured, Contractor must provide its Certificate of Permission to Self-Insure, duly authorized by the DIR.

(4) *Pollution Liability Insurance*: The pollution liability insurance policy must be issued on an occurrence basis, providing coverage of at least \$2,000,000 for all loss arising out of claims for bodily injury, death, property damage, or environmental damage caused by pollution conditions resulting from the Work.

(5) *Builder’s Risk Insurance*: The builder’s risk insurance policy must be issued on an occurrence basis, for all-risk or “all perils” coverage on a 100% completed value basis on the insurable portion of the Project for the benefit of City.

(B) **Notice**. Each certificate of insurance must state that the coverage afforded by the policy or policies will not be reduced, cancelled or allowed to expire without at least 30 days written notice to City, unless due to non-payment of premiums, in which case ten days written notice must be made to City.

(C) **Waiver of Subrogation**. Each required policy must include an endorsement providing that the carrier will waive any right of subrogation it may have against City.

(D) **Required Endorsements**. The CGL policy, automobile liability policy, pollution liability policy, and builder’s risk policy must include the following specific endorsements:

(1) The City, including its Council, officials, officers, employees, agents, volunteers and consultants (collectively, “Additional Insured”) must be named as an additional insured for all liability arising out of the operations by or on behalf of the named insured, and the policy must protect the Additional Insured against any and all liability for personal injury, death or property damage or destruction arising directly or indirectly in the performance of the Contract. The additional insured endorsement must be provided using ISO form CG 20 10 11 85 or an equivalent form approved by the City.

(2) The inclusion of more than one insured will not operate to impair the rights of one insured against another, and the coverages afforded will apply as though separate policies have been issued to each insured.

(3) The insurance provided by Contractor is primary and no insurance held or owned by any Additional Insured may be called upon to contribute to a loss.

(4) This policy does not exclude explosion, collapse, underground excavation hazard, or removal of lateral support.

(E) **Contractor's Responsibilities.** This Section 4.3 establishes the minimum requirements for Contractor's insurance coverage in relation to this Project, but is not intended to limit Contractor's ability to procure additional or greater coverage. Contractor is responsible for its own risk assessment and needs and is encouraged to consult its insurance provider to determine what coverage it may wish to carry beyond the minimum requirements of this Section. Contractor is solely responsible for the cost of its insurance coverage, including premium payments, deductibles, or self-insured retentions, and no Additional Insured will be responsible or liable for any of the cost of Contractor's insurance coverage.

(F) **Deductibles and Self-Insured Retentions.** Any deductibles or self-insured retentions that apply to the required insurance (collectively, "deductibles") in excess of \$100,000 are subject to approval by the City's Risk Manager, acting in his or her sole discretion, and must be declared by Contractor when it submits its certificates of insurance and endorsements pursuant to this Section 4.3. If the City's Risk Manager determines that the deductibles are unacceptably high, at City's option, Contractor must either reduce or eliminate the deductibles as they apply to City and all required Additional Insured; or must provide a financial guarantee, to City's satisfaction, guaranteeing payment of losses and related investigation, claim administration, and legal expenses.

(G) **Subcontractors.** Contractor must ensure that each Subcontractor is required to maintain the same insurance coverage required under this Section 4.3, with respect to its performance of Work on the Project, including those requirements related to the Additional Insureds and waiver of subrogation, but excluding pollution liability or builder's risk insurance unless otherwise specified in the Special Conditions. A Subcontractor may be eligible for reduced insurance coverage or limits, but only to the extent approved in writing in advance by the City's Risk Manager. Contractor must confirm that each Subcontractor has complied with these insurance requirements before the Subcontractor is permitted to begin Work on the Project. Upon request by the City, Contractor must provide certificates and endorsements submitted by each Subcontractor to prove compliance with this requirement. The insurance requirements for Subcontractors do not replace or limit the Contractor's insurance obligations.

Article 5 - Contract Time

5.1 Time is of the Essence. Time is of the essence in Contractor's performance and completion of the Work, and Contractor must diligently prosecute the Work and complete it within the Contract Time.

(A) **General.** Contractor must commence the Work on the date indicated in the Notice to Proceed and must fully complete the Work in strict compliance with all requirements of the Contract Documents and within the Contract Time. Contractor may not begin performing the Work before the date specified in the Notice to Proceed.

(B) **Authorization.** Contractor is not entitled to compensation or credit for any Work performed before the date specified in the Notice to Proceed, with the exception of any schedules, submittals, or other requirements, if any, that must be provided or performed before issuance of the Notice to Proceed.

(C) **Rate of Progress.** Contractor and its Subcontractors must, at all times, provide workers, materials, and equipment sufficient to maintain the rate of progress necessary to ensure full completion of the Work within the Contract Time. If City determines that Contractor is failing to prosecute the Work at a sufficient rate of progress, City may, in its sole discretion, direct Contractor to provide additional workers, materials, or equipment, or to work additional hours or days without additional cost to City, in order to achieve a rate of progress satisfactory to City. If Contractor fails to comply with City's directive in this regard, City may, at Contractor's expense, separately contract for additional workers, materials, or equipment or use City's own forces to achieve the necessary rate of progress. Alternatively, City may terminate the Contract based on Contractor's default.

5.2 Schedule Requirements. Contractor must prepare all schedules using standard, commercial scheduling software acceptable to the Engineer, and must provide the schedules in electronic and paper form as requested by the Engineer. In addition to the general scheduling requirements set forth below, Contractor must also comply with any scheduling requirements included in the Special Conditions or in the Technical Specifications.

(A) **Baseline (As-Planned) Schedule.** Within ten calendar days following City's issuance of the Notice to Proceed (or as otherwise specified in the Notice to Proceed), Contractor must submit to City for review and acceptance a baseline (as-planned) schedule using critical path methodology showing in detail how Contractor plans to perform and fully complete the Work within the Contract Time, including labor, equipment, materials and fabricated items. The baseline schedule must show the order of the major items of Work and the dates of start and completion of each item, including when the materials and equipment will be procured. The schedule must also include the work of all trades, reflecting anticipated labor or crew hours and equipment loading for the construction activities, and must be sufficiently comprehensive and detailed to enable progress to be monitored on a day-by-day basis. For each activity, the baseline schedule must be dated, provided in the format specified in the Contract Documents or as required by City, and must include, at a minimum, a description of the activity, the start and completion dates of the activity, and the duration of the activity.

(1) **Specialized Materials Ordering.** Within five calendar days following issuance of the Notice to Proceed, Contractor must order any specialized material or equipment for the Work that is not readily available from material suppliers. Contractor must also retain documentation of the purchase order date(s).

(B) **City's Review of Schedules.** City will review and may note exceptions to the baseline schedule, and to the progress schedules submitted as required below, to assure completion of the Work within the Contract Time. Contractor is solely responsible for resolving any exceptions noted in a schedule and, within seven days, must correct the schedule to address the exceptions. City's review or acceptance of Contractor's schedules will not operate to waive or limit Contractor's duty to complete the Project within the Contract Time, nor to waive or limit City's right to assess liquidated damages for Contractor's unexcused failure to do so.

(C) **Progress Schedules.** After City accepts the final baseline schedule with no exceptions, Contractor must submit an updated progress schedule and three-week look-ahead schedule, in the format specified by City, for review and acceptance with each application for a progress payment, or when otherwise specified by City, until completion of the Work. The updated progress schedule must: show how the actual progress of the Work as constructed to date compares to the baseline schedule; reflect any proposed changes in the construction schedule or method of operations, including to achieve Project milestones within the Contract Time; and identify any actual or potential impacts

to the critical path. Contractor must also submit periodic reports to City of any changes in the projected material or equipment delivery dates for the Project.

(1) *Float*. The progress schedule must show early and late completion dates for each task. The number of days between those dates will be designated as the "float." Any float belongs to the Project and may be allocated by the Engineer to best serve timely completion of the Project.

(2) *Failure to Submit Schedule*. Reliable, up-to-date schedules are essential to efficient and cost-effective administration of the Project and timely completion. If Contractor fails to submit a schedule within the time periods specified in this Section, or submits a schedule to which City has noted exceptions that are not corrected, City may withhold up to ten percent from payment(s) otherwise due to Contractor until the exceptions are resolved, the schedule is corrected and resubmitted, and City has accepted the schedule. In addition, Contractor's failure to comply with the schedule requirements in this Section 5.2 will be deemed a material default and a waiver of any claims for Excusable Delay or loss of productivity arising during any period when Contractor is out of compliance, subject only to the limits of Public Contract Code § 7102.

(D) **Recovery Schedule**. If City determines that the Work is more than one week behind schedule, within seven days following written notice of such determination, Contractor must submit a recovery schedule, showing how Contractor intends to perform and complete the Work within the Contract Time, based on actual progress to date.

(E) **Effect of Acceptance**. Contractor and its Subcontractors must perform the Work in accordance with the most current City-accepted schedule unless otherwise directed by City. City's acceptance of a schedule does not operate to extend the time for completion of the Work or any component of the Work, and will not affect City's right to assess liquidated damages for Contractor's unexcused delay in completing the Work within the Contract Time.

(F) **Posting**. Contractor must at all times prominently post a copy of the most current City-accepted progress or recovery schedule in its on-site office.

(G) **Reservation of Rights**. City reserves the right to direct the sequence in which the Work must be performed or to make changes in the sequence of the Work in order to facilitate the performance of work by City or others, or to facilitate City's use of its property. The Contract Time or Contract Price may be adjusted to the extent such changes in sequence actually increase or decrease Contractor's time or cost to perform the Work.

(H) **Authorized Working Days and Times**. Contractor is limited to working Monday through Friday, excluding holidays, during City's normal business hours, except as provided in the Special Conditions or as authorized in writing by City. City reserves the right to charge Contractor for additional costs incurred by City due to Work performed on days or during hours not expressly authorized in the Contract Documents, including reimbursement of costs incurred for inspection, testing, and construction management services.

5.3 Delay and Extensions of Contract Time.

(A) **Notice of Delay**. If Contractor becomes aware of any actual or potential delay affecting the critical path, Contractor must promptly notify the Engineer in writing, regardless of the nature or cause of the delay, so that City has a reasonable opportunity to mitigate or avoid the delay.

(B) **Excusable Delay.** The Contract Time may be extended if Contractor encounters "Excusable Delay," which is an unavoidable delay in completing the Work within the Contract Time due to causes completely beyond Contractor's control, and which Contractor could not have avoided or mitigated through reasonable care, planning, foresight, and diligence, provided that Contractor is otherwise fully performing its obligations under the Contract Documents. Grounds for Excusable Delay may include fire, natural disasters including earthquake or unusually severe weather, acts of terror or vandalism, epidemic, unforeseeable adverse government actions, unforeseeable actions of third parties, encountering unforeseeable hazardous materials, unforeseeable site conditions, or suspension for convenience under Article 13. The Contract Time will not be extended based on circumstances which will not unavoidably delay completing the Work within the Contract Time based on critical path analysis.

(C) **Weather Delays.** A "Weather Delay Day" is a Working Day during which Contractor and its forces, including Subcontractors, are unable to perform more than 40% of the critical path Work scheduled for that day due to adverse weather conditions which impair the ability to safely or effectively perform the scheduled critical path Work that day. Adverse weather conditions may include rain, saturated soil, and Project site clean-up required due to adverse weather. Determination of what constitutes critical path Work scheduled for that day will be based on the most current, City-approved schedule. Contractor will be entitled to a non-compensable extension of the Contract Time for each Weather Delay Day in excess of the normal Weather Delay Days within a given month as determined by reliable records, including monthly rainfall averages, for the preceding ten years (or as otherwise specified in the Special Conditions or Specifications).

(1) Contractor must fully comply with the applicable procedures in Articles 5 and 6 of the General Conditions regarding requests to modify the Contract Time.

(2) Contractor will not be entitled to an extension of time for a Weather Delay Day to the extent Contractor is responsible for concurrent delay on that day.

(3) Contractor must take reasonable steps to mitigate the consequences of Weather Delay Days, including prudent workforce management and protecting the Work, Project Site, materials, and equipment.

(D) **Non-Excusable Delay.** Delay which Contractor could have avoided or mitigated through reasonable care, planning, foresight and diligence is "Non-Excusable Delay." Contractor is not entitled to an extension of Contract Time or any compensation for Non-Excusable Delay, or for Excusable Delay that is concurrent with Non-Excusable Delay. Non-Excusable Delay includes delay caused by:

(1) weather conditions which are normal for the location of the Project, as determined by reliable records, including monthly rainfall averages, for the preceding ten years;

(2) Contractor's failure to order equipment and materials sufficiently in advance of the time needed for completion of the Work within the Contract Time;

(3) Contractor's failure to provide adequate notification to utility companies or agencies for connections or services necessary for completion of the Work within the Contract Time;

- (4) foreseeable conditions which Contractor could have ascertained from reasonably diligent inspection of the Project site or review of the Contract Documents or other information provided or available to Contractor;
- (5) Contractor's failure, refusal, or financial inability to perform the Work within the Contract Time, including insufficient funds to pay its Subcontractors or suppliers;
- (6) performance or non-performance by Contractor's Subcontractors or suppliers;
- (7) the time required to respond to excessive RFIs (see Section 2.5(G));
- (8) delayed submission of required submittals, or the time required for correction and resubmission of defective submittals;
- (9) time required for repair of, re-testing, or re-inspection of defective Work;
- (10) enforcement of Laws by City, or outside agencies with jurisdiction over the Work; or
- (11) City's exercise or enforcement of any of its rights or Contractor's duties pursuant to the Contract Documents, including correction of defective Work, extra inspections or testing due to non-compliance with Contract requirements, safety compliance, environmental compliance, or rejection and return of defective or deficient submittals.

(E) **Compensable Delay.** Pursuant to Public Contract Code § 7102, in addition to entitlement to an extension of Contract Time, Contractor is entitled to compensation for costs incurred due to delay caused solely by City, when that delay is unreasonable under the circumstances involved and not within the contemplation of the parties ("Compensable Delay"). Contractor is not entitled to an extension of Contract Time or recovery of costs for Compensable Delay that is concurrent with Non-Excusable Delay. Delay due to causes that are beyond the control of either City or Contractor, including Weather Delay Days, discovery of Historic or Archeological Items pursuant to Section 7.18, or the actions or inactions of third parties or other agencies, is not Compensable Delay, and will only entitle Contractor to an extension of time commensurate with the time lost due to such delay.

(F) **Recoverable Costs.** Contractor is not entitled to compensation for Excusable Delay unless it is Compensable Delay, as defined above. Contractor is entitled to recover only the actual, direct, reasonable, and substantiated costs ("Recoverable Costs") for each working day that the Compensable Delay prevents Contractor from proceeding with more than 50% of the critical path Work scheduled for that day, based on the most recent progress schedule accepted by City. Recoverable Costs will not include home office overhead or lost profit.

(G) **Request for Extension of Contract Time or Recoverable Costs.** A request for an extension of Contract Time or any associated Recoverable Costs must be submitted in writing to City within ten calendar days of the date the delay is first encountered, even if the duration of the delay is not yet known at that time, or any entitlement to the Contract Time extension or to the Recoverable Costs will be deemed waived. In addition to complying with the requirements of this Article 5, the request must be submitted in compliance with the Change Order request procedures in Article 6 below. Strict compliance with these requirements is necessary to ensure that any delay or consequences of delay may be mitigated as soon as possible, and to facilitate cost-

efficient administration of the Project and timely performance of the Work. Any request for an extension of Contract Time or Recoverable Costs that does not strictly comply with all of the requirements of Article 5 and Article 6 will be deemed waived.

(1) *Required Contents.* The request must include a detailed description of the cause(s) of the delay and must also describe the measures that Contractor has taken to mitigate the delay and/or its effects, including efforts to mitigate the cost impact of the delay, such as by workforce management or by a change in sequencing. If the delay is still ongoing at the time the request is submitted, the request should also include Contractor's plan for continued mitigation of the delay or its effects.

(2) *Delay Days and Costs.* The request must specify the number of days of Excusable Delay claimed or provide a realistic estimate if the duration of the delay is not yet known. If Contractor believes it is entitled to Recoverable Costs for Compensable Delay, the request must specify the amount and basis for the Recoverable Costs that are claimed or provide a realistic estimate if the amount is not yet known. Any estimate of delay duration or cost must be updated in writing and submitted with all required supporting documentation as soon as the actual time and cost is known. The maximum extension of Contract Time will be the number of days, if any, by which an Excusable Delay or a Compensable Delay exceeds any concurrent Non-Excusable Delay. Contractor is entitled to an extension of Contract Time, or compensation for Recoverable Costs, only if, and only to the extent that, such delay will unavoidably delay Final Completion.

(3) *Supporting Documentation.* The request must also include any and all supporting documentation necessary to evidence the delay and its actual impacts, including scheduling and cost impacts with a time impact analysis using critical path methodology and demonstrating the unavoidable delay to Final Completion. The time impact analysis must be submitted in a form or format acceptable to City.

(4) *Burden of Proof.* Contractor has the burden of proving that: the delay was an Excusable Delay or Compensable Delay, as defined above; Contractor has fully complied with its scheduling obligations in Section 5.2, Schedule Requirements; Contractor has made reasonable efforts to mitigate the delay and its schedule and cost impacts; the delay will unavoidably result in delaying Final Completion; and any Recoverable Costs claimed by Contractor were actually incurred and were reasonable under the circumstances.

(5) *Legal Compliance.* Nothing in this Section 5.3 is intended to require the waiver, alteration, or limitation of the applicability of Public Contract Code § 7102.

(6) *No Waiver.* Any grant of an extension of Contract Time, or compensation for Recoverable Costs due to Compensable Delay, will not operate as a waiver of City's right to assess liquidated damages for Non-Excusable Delay.

(7) *Dispute Resolution.* In the event of a dispute over entitlement to an extension of Contract Time or compensation for Recoverable Costs, Contractor may not stop Work pending resolution of the dispute, but must continue to comply with its duty to diligently prosecute the performance and timely completion of the Work. Contractor's sole recourse for an unresolved dispute based on City's rejection of a Change Order request for an extension of Contract Time or compensation for Recoverable Costs is to comply with the dispute resolution provisions set forth in Article 12 below.

5.4 Liquidated Damages. It is expressly understood that if Final Completion is not achieved within the Contract Time, City will suffer damages from the delay that are difficult to determine and accurately specify. Pursuant to Public Contract Code § 7203, if Contractor fails to achieve Final Completion within the Contract Time due to Contractor's Non-Excusable Delay, City will charge Contractor in the amount specified in the Contract for each calendar day that Final Completion is delayed beyond the Contract Time, as liquidated damages and not as a penalty. Any waiver of accrued liquidated damages, in whole or in part, is subject to approval of the City Council or its authorized delegee.

(A) **Liquidated Damages.** Liquidated damages will not be assessed for any Excusable Delay or Compensable Delay, as set forth above.

(B) **Milestones.** Liquidated damages may also be separately assessed for failure to meet milestones specified elsewhere in the Contract Documents.

(C) **Setoff.** City is entitled to deduct the amount of liquidated damages assessed against any payments otherwise due to Contractor, including progress payments, Final Payment, or unreleased retention. If there are insufficient Contract funds remaining to cover the full amount of liquidated damages assessed, City is entitled to recover the balance from Contractor or its performance bond surety.

(D) **Occupancy or Use.** Occupancy or use of the Project in whole or in part prior to Final Completion does not constitute City's acceptance of the Project and will not operate as a waiver of City's right to assess liquidated damages for Contractor's Non-Excusable Delay in achieving Final Completion.

(E) **Other Remedies.** City's right to liquidated damages under this Section applies only to damages arising from Contractor's Non-Excusable Delay or failure to complete the Work within the Contract Time. City retains its right to pursue all other remedies under the Contract for other types of damage, including damage to property or persons, costs or diminution in value from defective materials or workmanship, costs to repair or complete the Work, or other liability caused by Contractor.

Article 6 - Contract Modification

6.1 Contract Modification. Subject to the limited exception set forth in subsection (D) below, any change in the Work or the Contract Documents, including the Contract Price or Contract Time, will not be a valid and binding change to the Contract unless it is formalized in a Change Order, including a "no-cost" Change Order or a unilateral Change Order. Changes in the Work pursuant to this Article 6 will not operate to release, limit, or abridge Contractor's warranty obligations pursuant to Article 11 or any obligations of Contractor's bond sureties.

(A) **City-Directed Changes.** City may direct changes in the scope or sequence of Work or the requirements of the Contract Documents, without invalidating the Contract. Such changes may include Extra Work as set forth in subsection (C) below, or deletion or modification of portions of the Work. Contractor must promptly comply with City-directed changes in the Work in accordance with the original Contract Documents, even if Contractor and City have not yet reached agreement as to adjustments to the Contract Price or Contract Time for the change in the Work or for the Extra Work. Contractor is not entitled to extra compensation for cost savings resulting from "value engineering" pursuant to Public Contract Code § 7101, except to the extent authorized in advance by City in writing, and subject to any applicable procedural requirements for submitting a proposal for value engineering cost savings.

(B) **Disputes.** In the event of a dispute over entitlement to or the amount of a change in Contract Time or a change in Contract Price related to a City-directed change in the Work, Contractor must perform the Work as directed and may not delay its Work or cease Work pending resolution of the dispute, but must continue to comply with its duty to diligently prosecute the performance and timely completion of the Work, including the Work in dispute. Likewise, in the event that City and Contractor dispute whether a portion or portions of the Work are already required by the Contract Documents or constitute Extra Work, or otherwise dispute the interpretation of any portion(s) of the Contract Documents, Contractor must perform the Work as directed and may not delay its Work or cease Work pending resolution of the dispute, but must continue to comply with its duty to diligently prosecute the performance and timely completion of the Work, including the Work in dispute, as directed by City. If Contractor refuses to perform the Work in dispute, City may, acting in its sole discretion, elect to delete the Work from the Contract and reduce the Contract Price accordingly, and self-perform the Work or direct that the Work be performed by others. Alternatively, City may elect to terminate the Contract for convenience or for cause. Contractor's sole recourse for an unresolved dispute related to changes in the Work or performance of any Extra Work is to comply with the dispute resolution provisions set forth in Article 12, below.

(C) **Extra Work.** City may direct Contractor to perform Extra Work related to the Project. Contractor must promptly perform any Extra Work as directed or authorized by City in accordance with the original Contract Documents, even if Contractor and City have not yet reached agreement on adjustments to the Contract Price or Contract Time for such Extra Work. If Contractor believes it is necessary to perform Extra Work due to changed conditions, Contractor must promptly notify the Engineer in writing, specifically identifying the Extra Work and the reason(s) the Contractor believes it is Extra Work. This notification requirement does not constitute a Change Order request pursuant to Section 6.2, below. Contractor must maintain detailed daily records that itemize the cost of each element of Extra Work, and sufficiently distinguish the direct cost of the Extra Work from the cost of other Work performed. For each day that Contractor performs Extra Work, or Work that Contractor contends is Extra Work, Contractor must submit no later than the following Working Day, a daily report of the Extra Work performed that day and the related costs, together with copies of certified payroll, invoices, and other documentation substantiating the costs ("Extra Work Report"). The Engineer will make any adjustments to Contractor's Extra Work Report(s) based on the Engineer's records of the Work. When an Extra Work Report(s) is agreed on and signed by both City and Contractor, the Extra Work Report(s) will become the basis for payment under a duly authorized and signed Change Order. Failure to submit the required documentation by close of business on the next Working Day is deemed a full and complete waiver for any change in the Contract Price or Contract Time for any Extra Work performed that day.

(D) **Minor Changes and RFIs.** Minor field changes, including RFI replies from City, that do not affect the Contract Price or Contract Time and that are approved by the Engineer acting within his or her scope of authority, do not require a Change Order. By executing an RFI reply from City, Contractor agrees that it will perform the Work as clarified therein, with no change to the Contract Price or Contract Time.

(E) **Remedy for Non-Compliance.** Contractor's failure to promptly comply with a City-directed change is deemed a material breach of the Contract, and in addition to all other remedies available to it, City may, at its sole discretion, hire another contractor or use its own forces to complete the disputed Work at Contractor's sole expense, and may deduct the cost from the Contract Price.

6.2 Contractor Change Order Requests. Contractor must submit a request or proposal for a change in the Work, compensation for Extra Work, or a change in the Contract Price or Contract Time as a written Change Order request or proposal.

(A) **Time for Submission.** Any request for a change in the Contract Price or the Contract Time must be submitted in writing to the Engineer within ten calendar days of the date that Contractor first encounters the circumstances, information or conditions giving rise to the Change Order request, even if the total amount of the requested change in the Contract Price or impact on the Contract Time is not yet known at that time. If City requests that Contractor propose the terms of a Change Order, unless otherwise specified in City's request, Contractor must provide the Engineer with a written proposal for the change in the Contract Price or Contract Time within five working days of receiving City's request, in a form satisfactory to the Engineer.

(B) **Required Contents.** Any Change Order request or proposal submitted by Contractor must include a complete breakdown of actual or estimated costs and credits, and must itemize labor, materials, equipment, taxes, insurance, subcontract amounts, and, if applicable, Extra Work Reports. Any estimated cost must be updated in writing as soon as the actual amount is known.

(C) **Required Documentation.** All claimed costs must be fully documented, and any related request for an extension of time or delay-related costs must be included at that time and in compliance with the requirements of Article 5 of the General Conditions. Upon request, Contractor must permit City to inspect its original and unaltered bidding records, subcontract agreements, subcontract change orders, purchase orders, invoices, or receipts associated with the claimed costs.

(D) **Required Form.** Contractor must use City's form(s) for submitting all Change Order requests or proposals, unless otherwise specified by City.

(E) **Certification.** All Change Order requests must be signed by Contractor and must include the following certification:

"The undersigned Contractor certifies under penalty of perjury that its statements and representations in this Change Order request are true and correct. Contractor warrants that this Change Order request is comprehensive and complete as to the Work or changes referenced herein, and agrees that any known or foreseeable costs, expenses, or time extension requests not included herein, are deemed waived."

6.3 Adjustments to Contract Price. The amount of any increase or decrease in the Contract Price will be determined based on one of the following methods listed below, in the order listed with unit pricing taking precedence over the other methods. Markup applies only to City-authorized time and material Work, and does not apply to any other payments to Contractor. For Work items or components that are deleted in their entirety, Contractor will only be entitled to compensation for those direct, actual, and documented costs (including restocking fees), reasonably incurred before Contractor was notified of the City's intent to delete the Work, with no markup for overhead, profit, or other indirect costs.

(A) **Unit Pricing.** Amounts previously provided by Contractor in the form of unit prices, either in a bid schedule or in a post-award schedule of values pursuant to Section 8.1, Schedule of Values, will apply to determine the price for the affected Work, to the extent applicable unit prices have been provided for that type of Work. No additional markup for overhead, profit, or other indirect costs will be added to the calculation.

(B) **Lump Sum.** A mutually agreed upon, all-inclusive lump sum price for the affected Work with no additional markup for overhead, profit, or other indirect costs.

(C) **Time and Materials.** On a time and materials basis, if and only to the extent compensation on a time and materials basis is expressly authorized by City in advance of Contractor's performance of the Work and subject to any not-to-exceed limit. Time and materials compensation for increased costs or Extra Work (but not decreased costs or deleted Work), will include allowed markup for overhead, profit, and other indirect costs, calculated as the total of the following sums, the cumulative total of which may not exceed the maximum markup rate of 15%:

- (1) All direct labor costs provided by the Contractor, excluding superintendence, project management, or administrative costs, plus 15% markup;
- (2) All direct material costs provided by the Contractor, including sales tax, plus 15% markup;
- (3) All direct plant and equipment rental costs provided by the Contractor, plus 15% markup;
- (4) All direct additional subcontract costs plus 10% markup for Work performed by Subcontractors; and
- (5) Increased bond or insurance premium costs computed at 1.5% of total of the previous four sums.

6.4 Unilateral Change Order. If the parties dispute the terms of a proposed Change Order, including disputes over the amount of compensation or extension of time that Contractor has requested, the value of deleted or changed Work, what constitutes Extra Work, or quantities used, City may elect to issue a unilateral Change Order, directing performance of the Work, and authorizing a change in the Contract Price or Contract Time for the adjustment to compensation or time that the City believes is merited. Contractor's sole recourse to dispute the terms of a unilateral Change Order is to submit a timely Claim pursuant to Article 12, below.

6.5 Non-Compliance Deemed Waiver. Contractor waives its entitlement to any increase in the Contract Price or Contract Time if Contractor fails to fully comply with the provisions of this Article. Contractor will not be paid for unauthorized Extra Work.

Article 7 - General Construction Provisions

7.1 Permits, Fees, Business License, and Taxes.

(A) **Permits, Fees, and City Business License.** Contractor must obtain and pay for all permits, fees, or licenses required to perform the Work, including a City business license. Contractor must cooperate with and provide notifications to all government agencies with jurisdiction over the Project, as may be required. Contractor must provide City with copies of all records of permits and permit applications, payment of required fees, and any licenses required for the Work.

(B) **Taxes.** Contractor must pay for all taxes on labor, material and equipment, except Federal Excise Tax to the extent that City is exempt from Federal Excise Tax.

7.2 Temporary Facilities. Contractor must provide, at Contractor's sole expense, any and all temporary facilities for the Project, including an onsite staging area for materials and equipment, a field office, sanitary facilities, utilities, storage, scaffolds, barricades, walkways, and any other temporary structure required to safely perform the Work along with any incidental utility services. The location of all temporary facilities must be

approved by the City prior to installation. Temporary facilities must be safe and adequate for the intended use and installed and maintained in accordance with Laws and the Contract Documents. Contractor must fence and screen the Project site and, if applicable, any separate Worksites, including the staging area, and its operation must minimize inconvenience to neighboring properties. Additional provisions pertaining to temporary facilities may be included in the Specifications or Special Conditions.

(A) **Utilities.** Contractor must install and maintain the power, water, sewer and all other utilities required for the Project site, including the piping, wiring, internet and wifi connections, and any related equipment necessary to maintain the temporary facilities.

(B) **Removal and Repair.** Contractor must promptly remove all such temporary facilities when they are no longer needed or upon completion of the Work, whichever comes first. Contractor must promptly repair any damage to City's property or to other property caused by the installation, use, or removal of the temporary facilities, and must promptly restore the property to its original or intended condition.

7.3 Noninterference and Site Management. Contractor must avoid interfering with City's use of its property at or adjacent to the Project site, including use of roadways, entrances, parking areas, walkways, and structures. Contractor must also minimize disruption of access to private property in the Project vicinity. Contractor must coordinate with affected property owners, tenants, and businesses, and maintain some vehicle and pedestrian access to their residences or properties at all times. Temporary access ramps, fencing or other measures must be provided as needed. Before blocking access to a private driveway or parking lot, Contractor must provide effective notice to the affected parties at least 48 hours in advance of the pending closure and allow them to remove vehicles. Private driveways, residences and parking lots must have access to a roadway during non-Work hours.

(A) **Offsite Acquisition.** Unless otherwise provided by City, Contractor must acquire, use and dispose of, at its sole expense, any Worksites, licenses, easements, and temporary facilities necessary to access and perform the Work.

(B) **Offsite Staging Area and Field Office.** If additional space beyond the Project site is needed, such as for the staging area or the field office, Contractor may need to make arrangements with the nearby property owner(s) to secure the space. Before using or occupying any property owned by a third party, Contractor must provide City with a copy of the necessary license agreement, easement, or other written authorization from the property owner, together with a written release from the property owner holding City harmless from any related liability, in a form acceptable to the City Attorney.

(C) **Traffic Management.** Contractor must provide traffic management and traffic controls as specified in the Contract Documents, as required by Laws, and as otherwise required to ensure public and worker safety, and to avoid interference with public or private operations or the normal flow of vehicular, bicycle, or pedestrian traffic.

7.4 Signs. No signs may be displayed on or about City's property, except signage which is required by Laws or by the Contract Documents, without City's prior written approval as to size, design, and location.

7.5 Project Site and Nearby Property Protections.

(A) **General.** Contractor is responsible at all times, on a 24-hour basis and at its sole cost, for protecting the Work, the Project site, and the materials and equipment to be incorporated into the Work, until the City has accepted the Project, excluding any exceptions to acceptance, if any. Except as specifically authorized by City, Contractor

must confine its operations to the area of the Project site indicated in the Plans and Specifications. Contractor is liable for any damage caused by Contractor or its Subcontractors to the Work, City's property, the property of adjacent or nearby property owners and the work or personal property of other contractors working for City, including damage related to Contractor's failure to adequately secure the Work or any Worksite.

(1) Subject to City's approval, Contractor will provide and install safeguards to protect the Work; any Worksite, including the Project site; City's real or personal property and the real or personal property of adjacent or nearby property owners, including plant and tree protections.

(2) City wastewater systems may not be interrupted. If the Work disrupts existing sewer facilities, Contractor must immediately notify City and establish a plan, subject to City's approval, to convey the sewage in closed conduits back into the sanitary sewer system. Sewage must not be permitted to flow in trenches or be covered by backfill.

(3) Contractor must remove with due care, and store at City's request, any objects or material from the Project site that City will salvage or reuse at another location.

(4) If directed by Engineer, Contractor must promptly repair or replace any property damage, as specified by the Engineer. However, acting in its sole discretion, City may elect to have the property damage remedied otherwise, and may deduct the cost to repair or replace the damaged property from payment otherwise due to Contractor.

(5) Contractor will not permit any structure or infrastructure to be loaded in a manner that will damage or endanger the integrity of the structure or infrastructure.

(B) **Securing Project Site.** After completion of Work each day, Contractor must secure the Project site and, to the extent feasible, make the area reasonably accessible to the public unless City approves otherwise. All excess materials and equipment not protected by approved traffic control devices must be relocated to the staging area or demobilized. Trench spoils must be hauled off the Project site daily and open excavations must be protected with steel plates. Contractor and Subcontractor personnel may not occupy or use the Project site for any purpose during non-Work hours, except as may be provided in the Contract Documents or pursuant to prior written authorization from City.

(C) **Unforeseen Conditions.** If Contractor encounters facilities, utilities, or other unknown conditions not shown on or reasonably inferable from the Plans or apparent from inspection of the Project site, Contractor must immediately notify the City and promptly submit a Request for Information to obtain further directions from the Engineer. Contractor must avoid taking any action which could cause damage to the facilities or utilities pending further direction from the Engineer. The Engineer's written response will be final and binding on Contractor. If the Engineer's subsequent direction to Contractor affects Contractor's cost or time to perform the Work, Contractor may submit a Change Order request as set forth in Article 6 above.

(D) **Support; Adjacent Properties.** Contractor must provide, install, and maintain all shoring, bracing, and underpinning necessary to provide support to City's property and adjacent properties and improvements thereon. Contractor must provide notifications to adjacent property owners as may be required by Laws. See also, Section 7.15, Trenching of Five Feet or More.

(E) **Notification of Property Damage.** Contractor must immediately notify the City of damage to any real or personal property resulting from Work on the Project. Contractor must immediately provide a written report to City of any such property damage in excess of \$500 (based on estimated cost to repair or replace) within 24 hours of the occurrence. The written report must include: (1) the location and nature of the damage, and the owner of the property, if known; (2) the name and address of each employee of Contractor or any Subcontractor involved in the damage; (3) a detailed description of the incident, including precise location, time, and names and contact information for known witnesses; and (4) a police or first responder report, if applicable. If Contractor is required to file an accident report with another government agency, Contractor will provide a copy of the report to City.

7.6 Materials and Equipment.

(A) **General.** Unless otherwise specified, all materials and equipment required for the Work must be new, free from defects, and of the best grade for the intended purpose, and furnished in sufficient quantities to ensure the proper and expeditious performance of the Work. Contractor must employ measures to preserve the specified quality and fitness of the materials and equipment. Unless otherwise specified, all materials and equipment required for the Work are deemed to include all components required for complete installation and intended operation and must be installed in accordance with the manufacturer's recommendations or instructions. Contractor is responsible for all shipping, handling, and storage costs associated with the materials and equipment required for the Work. Contractor is responsible for providing security and protecting the Work and all of the required materials, supplies, tools and equipment at Contractor's sole cost until City has formally accepted the Project as set forth in Section 11.1, Final Completion. Contractor will not assign, sell, mortgage, or hypothecate any materials or equipment for the Project, or remove any materials or equipment that have been installed or delivered.

(B) **City-Provided.** If the Work includes installation of materials or equipment to be provided by City, Contractor is solely responsible for the proper examination, handling, storage, and installation in accordance with the Contract Documents. Contractor must notify City of any defects discovered in City-provided materials or equipment, sufficiently in advance of scheduled use or installation to afford adequate time to procure replacement materials or equipment as needed. Contractor is solely responsible for any loss of or damage to such items which occurs while the items are in Contractor's custody and control, the cost of which may be offset from the Contract Price and deducted from any payment(s) due to Contractor.

(C) **Intellectual Property Rights.** Contractor must, at its sole expense, obtain any authorization or license required for use of patented or copyright-protected materials, equipment, devices or processes that are incorporated into the Work. Contractor's indemnity obligations in Article 4 apply to any claimed violation of intellectual property rights in violation of this provision.

7.7 Substitutions.

(A) **"Or Equal."** Any Specification designating a material, product, or thing (collectively, "item") or service by specific brand or trade name, followed by the words "or equal," is intended only to indicate the quality and type of item or service desired, and Contractor may request use of any equal item or service. Unless otherwise stated in the Specifications, any reference to a specific brand or trade name for an item or service that is used solely for the purpose of describing the type of item or service desired, will be deemed to be followed by the words "or equal." A substitution will only be approved if it is a true "equal" item or service in every aspect of design, function, and quality, as

determined by City, including dimensions, weight, maintenance requirements, durability, fit with other elements, and schedule impacts.

(B) **Request for Substitution.** A post-award request for substitution of an item or service must be submitted in writing to the Engineer for approval in advance, within the applicable time period provided in the Contract Documents. If no time period is specified, the substitution request may be submitted any time within 35 days after the date of award of the Contract, or sufficiently in advance of the time needed to avoid delay of the Work, whichever is earlier.

(C) **Substantiation.** Any available data substantiating the proposed substitute as an equal item or service must be submitted with the written request for substitution. Contractor's failure to timely provide all necessary substantiation, including any required test results as soon as they are available, is grounds for rejection of the proposed substitution, without further review.

(D) **Burden of Proving Equality.** Contractor has the burden of proving the equality of the proposed substitution at Contractor's sole cost. City has sole discretion to determine whether a proposed substitution is equal, and City's determination is final.

(E) **Approval or Rejection.** If the proposed substitution is approved, Contractor is solely responsible for any additional costs or time associated with the substituted item or service. If the proposed substitution is rejected, Contractor must, without delay, install the item or use the service as specified by City.

(F) **Contractor's Obligations.** City's approval of a proposed substitution will not relieve Contractor from any of its obligations under the Contract Documents. In the event Contractor makes an unauthorized substitution, Contractor will be solely responsible for all resulting cost impacts, including the cost of removal and replacement and the impact to other design elements.

7.8 Testing and Inspection.

(A) **General.** All materials, equipment, and workmanship used in the Work are subject to inspection and testing by City at all times and at all locations during construction and/or fabrication, including at any Worksite, shops, and yards. All manufacturers' application or installation instructions must be provided to the Inspector at least ten days prior to the first such application or installation. Contractor must, at all times, make the Work available for testing or inspection. Neither City's inspection or testing of Work, nor its failure to do so, operate to waive or limit Contractor's duty to complete the Work in accordance with the Contract Documents.

(B) **Scheduling and Notification.** Contractor must cooperate with City in coordinating the inspections and testing. Contractor must submit samples of materials, at Contractor's expense, and schedule all tests required by the Contract Documents in time to avoid any delay to the progress of the Work. Contractor must notify the Engineer no later than noon of the Working Day before any inspection or testing and must provide timely notice to the other necessary parties as specified in the Contract Documents. If Contractor schedules an inspection or test beyond regular Work hours, or on a Saturday, Sunday, or recognized City holiday, Contractor must notify the Engineer at least two Working Days in advance for approval. If approved, Contractor must reimburse City for the cost of the overtime inspection or testing. Such costs, including the City's hourly costs for required personnel, may be deducted from payments otherwise due to Contractor.

(C) **Responsibility for Costs.** City will bear the initial cost of inspection and testing to be performed by independent testing consultants retained by City, subject to the following exceptions:

- (1) Contractor will be responsible for the costs of any subsequent tests which are required to substantiate compliance with the Contract Documents, and any associated remediation costs.
- (2) Contractor will be responsible for inspection costs, at City's hourly rates, for inspection time lost because the Work is not ready or Contractor fails to appear for a scheduled inspection.
- (3) If any portion of the Work that is subject to inspection or testing is covered or concealed by Contractor prior to the inspection or testing, Contractor will bear the cost of making that portion of the Work available for the inspection or testing required by the Contract Documents, and any associated repair or remediation costs.
- (4) Contractor is responsible for properly shoring all compaction test sites deeper than five feet below grade, as required under Section 7.15 below.
- (5) Any Work or material that is defective or fails to comply with the requirements of the Contract Documents must be promptly repaired, removed, replaced, or corrected by Contractor, at Contractor's sole expense, even if that Work or material was previously inspected or included in a progress payment.

(D) **Contractor's Obligations.** Contractor is solely responsible for any delay occasioned by remediation of defective or noncompliant Work or material. Inspection of the Work does not in any way relieve Contractor of its obligations to perform the Work as specified. Any Work done without the required inspection(s) will also be subject to rejection by City.

(E) **Distant Locations.** If required off-site testing or inspection must be conducted at a location more than 100 miles from the Project site, Contractor is solely responsible for the additional travel costs required for testing and/or inspection at such locations.

(F) **Final Inspection.** The provisions of this Section 7.8 also apply to final inspection under Article 11, Completion and Warranty Provisions.

7.9 Project Site Conditions and Maintenance. Contractor must at all times, on a 24-hour basis and at its sole cost, maintain the Project site and staging and storage areas in clean, neat, and sanitary condition and in compliance with all Laws pertaining to safety, air quality, and dust control. Adequate toilets must be provided, and properly maintained and serviced for all workers on the Project site, located in a suitably secluded area, subject to City's prior approval. Contractor must also, on a daily basis and at its sole cost, remove and properly dispose of the debris and waste materials from the Project site.

(A) **Air Emissions Control.** Contractor must not discharge smoke or other air contaminants into the atmosphere in violation of any Laws.

(B) **Dust and Debris.** Contractor must minimize and confine dust and debris resulting from the Work. Contractor must abate dust nuisance by cleaning, sweeping, and immediately sprinkling with water excavated areas of dirt or other materials prone to cause dust, and within one hour after the Engineer notifies Contractor that an airborne nuisance exists. The Engineer may direct that Contractor provide an approved water-spraying truck for this purpose. If water is used for dust control, Contractor will only use

the minimum necessary. Contractor must take all necessary steps to keep waste water out of streets, gutters, or storm drains. See Section 7.19, Environmental Control. If City determines that the dust control is not adequate, City may have the work done by others and deduct the cost from the Contract Price. Contractor will immediately remove any excess excavated material from the Project site and any dirt deposited on public streets.

(C) **Clean up.** Before discontinuing Work in an area, Contractor must clean the area and remove all debris and waste along with the construction equipment, tools, machinery, and surplus materials.

(1) Except as otherwise specified, all excess Project materials, and the materials removed from existing improvements on the Project site with no salvage value or intended reuse by City, will be Contractor's property.

(2) Hauling trucks and other vehicles leaving the Project site must be cleaned of exterior mud or dirt before traveling on City streets. Materials and loose debris must be delivered and loaded to prevent dropping materials or debris. Contractor must immediately remove spillage from hauling on any publicly traveled way. Streets affected by Work on the Project must be kept clean by street sweeping.

(D) **Disposal.** Contractor must dispose of all Project debris and waste materials in a safe and legal manner. Contractor may not burn or bury waste materials on the Project site. Contractor will not allow any dirt, refuse, excavated material, surplus concrete or mortar, or any associated washings, to be disposed of onto streets, into manholes or into the storm drain system.

(E) **Completion.** At the completion of the Work, Contractor must remove from the Project site all of its equipment, tools, surplus materials, waste materials and debris, presenting a clean and neat appearance. Before demobilizing from the Project site, Contractor must ensure that all surfaces are cleaned, sealed, waxed, or finished as applicable, and that all marks, stains, paint splatters, and the like have been properly removed from the completed Work and the surrounding areas. Contractor must ensure that all parts of the construction are properly joined with the previously existing and adjacent improvements and conditions. Contractor must provide all cutting, fitting and patching needed to accomplish that requirement. Contractor must also repair or replace all existing improvements that are damaged or removed during the Work, both on and off the Project site, including curbs, sidewalks, driveways, fences, signs, utilities, street surfaces and structures. Repairs and replacements must be at least equal to the previously existing improvements, and the condition, finish and dimensions must match the previously existing improvements. Contractor must restore to original condition all property or items that are not designated for alteration under the Contract Documents and leave each Worksite clean and ready for occupancy or use by City.

(F) **Non-Compliance.** If Contractor fails to comply with its maintenance and cleanup obligations or any City clean up order, City may, acting in its sole discretion, elect to suspend the Work until the condition(s) is corrected with no increase in the Contract Time or Contract Price, or undertake appropriate cleanup measures without further notice and deduct the cost from any amounts due or to become due to Contractor.

7.10 Instructions and Manuals. Contractor must provide to City three copies each of all instructions and manuals required by the Contract Documents, unless otherwise specified. These must be complete as to drawings, details, parts lists, performance data, and other information that may be required for City to easily maintain and service the materials and equipment installed for this Project.

(A) **Submittal Requirements.** All manufacturers' application or installation instructions must be provided to City at least ten days prior to the first such application. The instructions and manuals, along with any required guarantees, must be delivered to City for review.

(B) **Training.** Contractor or its Subcontractors must train City's personnel in the operation and maintenance of any complex equipment or systems as a condition precedent to Final Completion, if required in the Contract Documents.

7.11 As-built Drawings. Contractor and its Subcontractors must prepare and maintain at the Project site a detailed, complete and accurate as-built set of the Plans which will be used solely for the purpose of recording changes made in any portion of the original Plans in order to create accurate record drawings at the end of the Project.

(A) **Duty to Update.** The as-built drawings must be updated as changes occur, on a daily basis if necessary. City may withhold the estimated cost for City to have the as-built drawings prepared from payments otherwise due to Contractor, until the as-built drawings are brought up to date to the satisfaction of City. Actual locations to scale must be identified on the as-built drawings for all runs of mechanical and electrical work, including all site utilities installed underground, in walls, floors, or otherwise concealed. Deviations from the original Plans must be shown in detail. The exact location of all main runs, whether piping, conduit, ductwork or drain lines, must be shown by dimension and elevation. The location of all buried pipelines, appurtenances, or other improvements must be represented by coordinates and by the horizontal distance from visible above-ground improvements.

(B) **Final Completion.** Contractor must verify that all changes in the Work are depicted in the as-built drawings and must deliver the complete set of as-built drawings to the Engineer for review and acceptance as a condition precedent to Final Completion and Final Payment.

7.12 Existing Utilities.

(A) **General.** The Work may be performed in developed, urban areas with existing utilities, both above and below ground, including utilities identified in the Contract Documents or in other informational documents or records. Contractor must take due care to locate identified or reasonably identifiable utilities before proceeding with trenching, excavation, or any other activity that could damage or disrupt existing utilities. This may include excavation with small equipment, potholing, or hand excavation, and, if practical, using white paint or other suitable markings to delineate the area to be excavated. Except as otherwise provided herein, Contractor will be responsible for costs resulting from damage to identified or reasonably identifiable utilities due to Contractor's negligence or failure to comply with the Contract Documents, including the requirements in this Article 7.

(B) **Unidentified Utilities.** Pursuant to Government Code § 4215, if, during the performance of the Work, Contractor discovers utility facilities not identified by City in the Contract Documents, Contractor must immediately provide written notice to City and the utility. City assumes responsibility for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the Project site if those utilities are not identified in the Contract Documents. Contractor will be compensated in accordance with the provisions of the Contract Documents for the costs of locating, repairing damage not due to Contractor's failure to exercise reasonable care, and removing or relocating utility facilities not indicated in the Plans or Specifications with reasonable accuracy, and for equipment on the Project necessarily idled during such work. Contractor will not be

assessed liquidated damages for delay in completion of the Work, to the extent the delay was caused by City's failure to provide for removal or relocation of the utility facilities.

7.13 Notice of Excavation. Contractor must comply with all applicable requirements in Government Code §§ 4216 through 4216.5, which are incorporated by reference herein. Government Code § 4216.2 requires that, except in an emergency, Contractor must contact the appropriate regional notification center, or Underground Services Alert, at least two working days, but not more than 14 calendar days, before starting any excavation if the excavation will be conducted in an area that is known, or reasonably should be known, to contain subsurface installations. Contractor may not begin excavation until it has obtained and submitted to Engineer an inquiry identification number from Underground Services Alert.

7.14 Trenching and Excavations of Four Feet or More. As required by Public Contract Code § 7104, if the Work includes digging trenches or other excavations that extend deeper than four feet below the surface, the provisions in this Section apply to the Work and the Project.

(A) **Duty to Notify.** Contractor must promptly, and before the following conditions are disturbed, provide written notice to City if Contractor finds any of the following conditions:

(1) Material that Contractor believes may be a hazardous waste, as defined in § 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing Laws;

(2) Subsurface or latent physical conditions at the Project site differing from those indicated by information about the Project site made available to bidders prior to the deadline for submitting bids; or

(3) Unknown physical conditions at the Project site of any unusual nature, materially different from those ordinarily encountered and generally recognized as inherent in work of the character required by the Contract Documents.

(B) **City Investigation.** City will promptly investigate the conditions and if City finds that the conditions materially differ from those indicated, apparent, or reasonably inferred from information about the Project site made available to bidders, or involve hazardous waste, and cause a decrease or increase in Contractor's cost of, or the time required for, performance of any part of the Work, City will issue a Change Order.

(C) **Disputes.** In the event that a dispute arises between City and Contractor regarding any of the conditions specified in subsection (B) above, or the terms of a Change Order issued by City, Contractor will not be excused from completing the Work within the Contract Time, but must proceed with all Work to be performed under the Contract. Contractor will retain any and all rights provided either by the Contract or by Laws which pertain to the resolution of disputes between Contractor and City.

7.15 Trenching of Five Feet or More. As required by Labor Code § 6705, if the Contract Price exceeds \$25,000 and the Work includes the excavation of any trench or trenches of five feet or more in depth, a detailed plan must be submitted to City for acceptance in advance of the excavation. The detailed plan must show the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation. If the plan varies from the shoring system standards, it must be prepared by a California registered civil or structural engineer. Use of a shoring,

sloping, or protective system less effective than that required by the Construction Safety Orders is prohibited.

7.16 New Utility Connections. Except as otherwise specified, City will pay connection charges and meter costs for new permanent utilities required by the Contract Documents, if any. Contractor must notify City sufficiently in advance of the time needed to request service from each utility provider so that connections and services are initiated in accordance with the Project schedule.

7.17 Lines and Grades. Contractor is required to use any benchmark provided by the Engineer. Unless otherwise specified in the Contract Documents, Contractor must provide all lines and grades required to execute the Work. Contractor must also provide, preserve, and replace if necessary, all construction stakes required for the Project. All stakes or marks must be set by a California licensed surveyor or a California registered civil engineer. Contractor must notify the Engineer of any discrepancies found between Contractor's staking and grading and information provided by the Contract Documents. Upon completion, all Work must conform to the lines, elevations, and grades shown in the Plans, including any changes directed by a Change Order.

7.18 Historic or Archeological Items.

(A) **Contractor's Obligations.** Contractor must ensure that all persons performing Work at the Project site are required to immediately notify the Project Manager, upon discovery of any potential historic or archeological items, including historic or prehistoric ruins, a burial ground, archaeological or vertebrate paleontological site, including fossilized footprints or other archeological, paleontological or historical feature on the Project site (collectively, "Historic or Archeological Items").

(B) **Discovery; Cessation of Work.** Upon discovery of any potential Historic or Archeological Items, Work must be stopped within an 85-foot radius of the find and may not resume until authorized in writing by City. If required by City, Contractor must assist in protecting or recovering the Historic or Archeological Items, with any such assistance to be compensated as Extra Work on a time and materials basis under Article 6, Contract Modification. At City's discretion, a suspension of Work required due to discovery of Historic or Archeological Items may be treated as Excusable Delay pursuant to Article 5, or as a suspension for convenience under Article 13.

7.19 Environmental Control. Contractor must not pollute any drainage course or its tributary inlets with fuels, oils, bitumens, acids, insecticides, herbicides or other harmful materials. Contractor must prevent the release of any hazardous material or hazardous waste into the soil or groundwater, and prevent the unlawful discharge of pollutants into City's storm drain system and watercourses as required below. Contractor and its Subcontractors must at all times in the performance of the Work comply with all Laws concerning pollution of waterways.

(A) **Stormwater Permit.** Contractor must comply with all applicable conditions of the State Water Resources Control Board National Pollutant Discharge Elimination System General Permit for Waste Discharge Requirements for Discharges of Stormwater Runoff Associated with Construction Activity ("Stormwater Permit").

(B) **Contractor's Obligations.** If required for the Work, a copy of the Stormwater Permit is on file in City's principal administrative offices, and Contractor must comply with it without adjustment of the Contract Price or the Contract Time. Contractor must timely and completely submit required reports and monitoring information required by the conditions of the Stormwater Permit. Contractor also must comply with all other Laws

governing discharge of stormwater, including applicable municipal stormwater management programs.

- 7.20 Noise Control.** Contractor must comply with all applicable noise control Laws. Noise control requirements apply to all equipment used for the Work or related to the Work, including trucks, transit mixers or transient equipment that may or may not be owned by Contractor.
- 7.21 Mined Materials.** Pursuant to the Surface Mining and Reclamation Act of 1975, Public Resources Code § 2710 et seq., any purchase of mined materials, such as construction aggregate, sand, gravel, crushed stone, road base, fill materials, and any other mineral materials must originate from a surface mining operation included on the AB 3098 List, which may be accessed online at: <https://www.conservation.ca.gov/smgb/Pages/AB-3098-List.aspx>.

Article 8 - Payment

- 8.1 Schedule of Values.** Prior to submitting its first application for payment, Contractor must prepare and submit to the Project Manager a schedule of values apportioned to the various divisions and phases of the Work, including mobilization and demobilization. If a Bid Schedule was submitted with Contractor's bid, the amounts in the schedule of values must be consistent with the Bid Schedule. Each line item contained in the schedule of values must be assigned a value such that the total of all items equals the Contract Price. The items must be sufficiently detailed to enable accurate evaluation of the percentage of completion claimed in each application for payment, and the assigned value consistent with any itemized or unit pricing submitted with Contractor's bid.

(A) **Measurements for Unit Price Work.** Materials and items of Work to be paid for on the basis of unit pricing will be measured according to the methods specified in the Contract Documents.

(B) **Deleted or Reduced Work.** Contractor will not be compensated for Work that City has deleted or reduced in scope, except for any labor, material or equipment costs for such Work that Contractor reasonably incurred before Contractor learned that the Work could be deleted or reduced. Contractor will only be compensated for those actual, direct and documented costs incurred, and will not be entitled to any mark up for overhead or lost profits.

- 8.2 Progress Payments.** Following the last day of each month, or as otherwise required by the Special Conditions or Specifications, Contractor will submit to the Project Manager a monthly application for payment for Work performed during the preceding month based on the estimated value of the Work performed during that preceding month.

(A) **Application for Payment.** Each application for payment must be itemized to include labor, materials, and equipment incorporated into the Work, and materials and equipment delivered to the Project site, as well as authorized and approved Change Orders. Each payment application must be supported by the unit prices submitted with Contractor's Bid Schedule and/or schedule of values and any other substantiating data required by the Contract Documents.

(B) **Payment of Undisputed Amounts.** City will pay the undisputed amount due within 30 days after Contractor has submitted a complete and accurate payment application, subject to Public Contract Code § 20104.50. City will deduct a percentage from each progress payment as retention, as set forth in Section 8.5, below, and may withhold additional amounts as set forth in Section 8.3, below.

8.3 Adjustment of Payment Application. City may adjust or reject the amount requested in a payment application, including application for Final Payment, in whole or in part, if the amount requested is disputed or unsubstantiated. Contractor will be notified in writing of the basis for the modification to the amount requested. City may also deduct or withhold from payment otherwise due based upon any of the circumstances and amounts listed below. Sums withheld from payment otherwise due will be released when the basis for that withholding has been remedied and no longer exists.

(A) For Contractor's unexcused failure to perform the Work as required by the Contract Documents, including correction or completion of punch list items, City may withhold or deduct an amount based on the City's estimated cost to correct or complete the Work.

(B) For loss or damage caused by Contractor or its Subcontractors arising out of or relating to performance of the Work or any failure to protect the Project site, City may deduct an amount based on the estimated cost to repair or replace.

(C) For Contractor's failure to pay its Subcontractors and suppliers when payment is due, City may withhold an amount equal to the total of past due payments and may opt to pay that amount separately via joint check pursuant to Section 8.6(B), Joint Checks.

(D) For Contractor's failure to timely correct rejected, nonconforming, or defective Work, City may withhold or deduct an amount based on the City's estimated cost to correct or complete the Work.

(E) For any unreleased stop notice, City may withhold 125% of the amount claimed.

(F) For Contractor's failure to submit any required schedule or schedule update in the manner and within the time specified in the Contract Documents, City may withhold an amount equal to five percent of the total amount requested until Contractor complies with its schedule submittal obligations.

(G) For Contractor's failure to maintain or submit as-built documents in the manner and within the time specified in the Contract Documents, City may withhold or deduct an amount based on the City's cost to prepare the as-builts.

(H) For Work performed without Shop Drawings that have been accepted by City, when accepted Shop Drawings are required before proceeding with the Work, City may deduct an amount based on the estimated cost to correct unsatisfactory Work or diminution in value.

(I) For fines, payments, or penalties assessed under the Labor Code, City may deduct from payments due to Contractor as required by Laws and as directed by the Division of Labor Standards Enforcement.

(J) For any other costs or charges that may be withheld or deducted from payments to Contractor, as provided in the Contract Documents, including liquidated damages, City may withhold or deduct such amounts from payment otherwise due to Contractor.

8.4 Early Occupancy. Neither City's payment of progress payments nor its partial or full use or occupancy of the Project constitutes acceptance of any part of the Work.

8.5 Retention. City will retain five percent of the full amount due on each progress payment (i.e., the amount due before any withholding or deductions pursuant to Section 8.3, Adjustment of Payment Application), or the percentage stated in the Notice Inviting Bids, whichever is greater, as retention to ensure full and satisfactory performance of the Work.

Contractor is not entitled to any reduction in the rate of withholding at any time, nor to release of any retention before 35 days following City's acceptance of the Project.

(A) **Substitution of Securities.** As provided by Public Contract Code § 22300, Contractor may request in writing that it be allowed, at its sole expense, to substitute securities for the retention withheld by City. Any escrow agreement entered into pursuant to this provision must fully comply with Public Contract Code § 22300 and will be subject to approval as to form by City's legal counsel. If City exercises its right to draw upon such securities in the event of default pursuant to section (7) of the statutory Escrow Agreement for Security Deposits in Lieu of Retention, pursuant to subdivision (g) of Public Contract Code § 22300 ("Escrow Agreement"), and if Contractor disputes that it is in default, its sole remedy is to comply with the dispute resolution procedures in Article 12 and the provisions therein. It is agreed that for purposes of this paragraph, an event of default includes City's rights pursuant to these Contract Documents to withhold or deduct sums from retention, including withholding or deduction for liquidated damages, incomplete or defective Work, stop payment notices, or backcharges. It is further agreed that if any individual authorized to give or receive written notice on behalf of a party pursuant to section (10) of the Escrow Agreement are unavailable to give or receive notice on behalf of that party due to separation from employment, retirement, death, or other circumstances, the successor or delegee of the named individual is deemed to be the individual authorized to give or receive notice pursuant to section (10) of the Escrow Agreement.

(B) **Release of Undisputed Retention.** All undisputed retention, less any amounts that may be assessed as liquidated damages, retained for stop notices, or otherwise withheld pursuant to Section 8.3, Adjustment of Payment Application, will be released as Final Payment to Contractor no sooner than 35 days following recordation of the notice of completion, and no later than 60 days following acceptance of the Project by City's governing body or authorized designee pursuant to Section 11.1(C), Acceptance, or, if the Project has not been accepted, no later than 60 days after the Project is otherwise considered complete pursuant to Public Contract Code § 7107(c).

8.6 Payment to Subcontractors and Suppliers. Each month, Contractor must promptly pay each Subcontractor and supplier the value of the portion of labor, materials, and equipment incorporated into the Work or delivered to the Project site by the Subcontractor or supplier during the preceding month. Such payments must be made in accordance with the requirements of Laws pertaining to such payments, and those of the Contract Documents and applicable subcontract or supplier contract.

(A) **Withholding for Stop Notice.** Pursuant to Civil Code § 9358, City will withhold 125% of the amount claimed by an unreleased stop notice, a portion of which may be retained by City for the costs incurred in handling the stop notice claim, including attorneys' fees and costs, as authorized by law.

(B) **Joint Checks.** City reserves the right, acting in its sole discretion, to issue joint checks made payable to Contractor and a Subcontractor or supplier, if City determines this is necessary to ensure fair and timely payment for a Subcontractor or supplier who has provided services or goods for the Project. As a condition to release of payment by a joint check, the joint check payees may be required to execute a joint check agreement in a form provided or approved by the City Attorney's Office. The joint check payees will be jointly and severally responsible for the allocation and disbursement of funds paid by joint check. Payment by joint check will not be construed to create a contractual relationship between City and a Subcontractor or supplier of any tier beyond the scope of the joint check agreement.

- 8.7 Final Payment.** Contractor's application for Final Payment must comply with the requirements for submitting an application for a progress payment as stated in Section 8.2, above. Corrections to previous progress payments, including adjustments to estimated quantities for unit priced items, may be included in the Final Payment. If Contractor fails to submit a timely application for Final Payment, City reserves the right to unilaterally process and issue Final Payment without an application from Contractor in order to close out the Project. For the purposes of determining the deadline for Claim submission pursuant to Article 12, the date of Final Payment is deemed to be the date that City acts to release undisputed retention as final payment to Contractor, or otherwise provides written notice to Contractor of Final Payment or that no undisputed funds remain available for Final Payment due to offsetting withholdings or deductions pursuant to Section 8.3, Adjustment of Payment Application. If the amount due from Contractor to City exceeds the amount of Final Payment, City retains the right to recover the balance from Contractor or its sureties.
- 8.8 Release of Claims.** City may, at any time, require that payment of the undisputed portion of any progress payment or Final Payment be contingent upon Contractor furnishing City with a written waiver and release of all claims against City arising from or related to the portion of Work covered by those undisputed amounts subject to the limitations of Public Contract Code § 7100. Any disputed amounts may be specifically excluded from the release.
- 8.9 Warranty of Title.** Contractor warrants that title to all work, materials, or equipment incorporated into the Work and included in a request for payment will pass over to City free of any claims, liens, or encumbrances upon payment to Contractor.

Article 9 - Labor Provisions

- 9.1 Discrimination Prohibited.** Discrimination against any prospective or present employee engaged in the Work on grounds of race, color, ancestry, national origin, ethnicity, religion, sex, sexual orientation, age, disability, or marital status is strictly prohibited. Contractor and its Subcontractors are required to comply with all applicable Laws prohibiting discrimination, including the California Fair Employment and Housing Act (Govt. Code § 12900 et seq.), Government Code § 11135, and Labor Code §§ 1735, 1777.5, 1777.6, and 3077.5.
- 9.2 Labor Code Requirements.**
- (A) **Eight Hour Day.** Pursuant to Labor Code § 1810, eight hours of labor constitute a legal day's work under this Contract.
- (B) **Penalty.** Pursuant to Labor Code § 1813, Contractor will forfeit to City as a penalty, the sum of \$25.00 for each day during which a worker employed by Contractor or any Subcontractor is required or permitted to work more than eight hours in any one calendar day or more than 40 hours per calendar week, except if such workers are paid overtime under Labor Code § 1815.
- (C) **Apprentices.** Contractor is responsible for compliance with the requirements governing employment and payment of apprentices, as set forth in Labor Code § 1777.5, which is fully incorporated by reference.
- (D) **Notices.** Pursuant to Labor Code § 1771.4, Contractor is required to post all job site notices prescribed by Laws.

9.3 Prevailing Wages. Each worker performing Work under this Contract that is covered under Labor Code §§ 1720, 1720.3, or 1720.9, including cleanup at the Project site, must be paid at a rate not less than the prevailing wage as defined in §§ 1771 and 1774 of the Labor Code. The prevailing wage rates are on file with the City and available online at <http://www.dir.ca.gov/dlsr>. Contractor must post a copy of the applicable prevailing rates at the Project site.

(A) **Penalties.** Pursuant to Labor Code § 1775, Contractor and any Subcontractor will forfeit to City as a penalty up to \$200.00 for each calendar day, or portion thereof, for each worker paid less than the applicable prevailing wage rate. Contractor must also pay each worker the difference between the applicable prevailing wage rate and the amount actually paid to that worker.

(B) **Federal Requirements.** If this Project is subject to federal prevailing wage requirements in addition to California prevailing wage requirements, Contractor and its Subcontractors are required to pay the higher of the currently applicable state or federal prevailing wage rates.

9.4 Payroll Records. Contractor must comply with the provisions of Labor Code §§ 1771.4, 1776, and 1812 and all implementing regulations, which are fully incorporated by this reference, including requirements for monthly electronic submission of payroll records to the DIR.

(A) **Contractor and Subcontractor Obligations.** Contractor and each Subcontractor must keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed in connection with the Work. Each payroll record must contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

(1) The information contained in the payroll record is true and correct; and

(2) Contractor or the Subcontractor has complied with the requirements of Labor Code §§ 1771, 1811, and 1815 for any Work performed by its employees on the Project.

(B) **Certified Record.** A certified copy of an employee's payroll record must be made available for inspection or furnished to the employee or his or her authorized representative on request, to City, to the Division of Labor Standards Enforcement, to the Division of Apprenticeship Standards of the DIR, and as further required by the Labor Code.

(C) **Enforcement.** Upon notice of noncompliance with Labor Code § 1776, Contractor or Subcontractor has ten days in which to comply with the requirements of this section. If Contractor or Subcontractor fails to do so within the ten-day period, Contractor or Subcontractor will forfeit a penalty of \$100.00 per day, or portion thereof, for each worker for whom compliance is required, until strict compliance is achieved. Upon request by the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement, these penalties will be withheld from payments then due to Contractor.

9.5 Labor Compliance. Pursuant to Labor Code § 1771.4, the Contract for this Project is subject to compliance monitoring and enforcement by the DIR.

Article 10 - Safety Provisions

10.1 Safety Precautions and Programs. Contractor and its Subcontractors are fully responsible for safety precautions and programs, and for the safety of persons and property in the performance of the Work. Contractor and its Subcontractors must at all times comply with all applicable health and safety Laws and seek to avoid injury, loss, or damage to persons or property by taking reasonable steps to protect its employees and other persons at any Worksite, materials and equipment stored on or off site, and property at or adjacent to any Worksite.

(A) **Reporting Requirements.** Contractor must immediately notify the City of any death, serious injury or illness resulting from Work on the Project. Contractor must immediately provide a written report to City of each recordable accident or injury occurring at any Worksite within 24 hours of the occurrence. The written report must include: (1) the name and address of the injured or deceased person; (2) the name and address of each employee of Contractor or of any Subcontractor involved in the incident; (3) a detailed description of the incident, including precise location, time, and names and contact information for known witnesses; and (4) a police or first responder report, if applicable. If Contractor is required to file an accident report with a government agency, Contractor will provide a copy of the report to City.

(B) **Legal Compliance.** Contractor's safety program must comply with the applicable legal and regulatory requirements. Contractor must provide City with copies of all notices required by Laws.

(C) **Contractor's Obligations.** Any damage or loss caused by Contractor arising from the Work which is not insured under property insurance must be promptly remedied by Contractor.

(D) **Remedies.** If City determines, in its sole discretion, that any part of the Work or Project site is unsafe, City may, without assuming responsibility for Contractor's safety program, require Contractor or its Subcontractor to cease performance of the Work or to take corrective measures to City's satisfaction. If Contractor fails to promptly take the required corrective measures, City may perform them and deduct the cost from the Contract Price. Contractor agrees it is not entitled to submit a Claim for damages, for an increase in Contract Price, or for a change in Contract Time based on Contractor's compliance with City's request for corrective measures pursuant to this provision.

10.2 Hazardous Materials. Unless otherwise specified in the Contract Documents, this Contract does not include the removal, handling, or disturbance of any asbestos or other Hazardous Materials. If Contractor encounters materials on the Project site that Contractor reasonably believes to be asbestos or other Hazardous Materials, and the asbestos or other Hazardous Materials have not been rendered harmless, Contractor may continue Work in unaffected areas reasonably believed to be safe, but must immediately cease work on the area affected and report the condition to City. No asbestos, asbestos-containing products or other Hazardous Materials may be used in performance of the Work.

10.3 Material Safety. Contractor is solely responsible for complying with § 5194 of Title 8 of the California Code of Regulations, including by providing information to Contractor's employees about any hazardous chemicals to which they may be exposed in the course of the Work. A hazard communication program and other forms of warning and training about such exposure must be used. Contractor must also maintain Safety Data Sheets ("SDS") at the Project site, as required by Laws, for materials or substances used or consumed in the performance of the Work. The SDS will be accessible and available to Contractor's employees, Subcontractors, and City.

(A) **Contractor Obligations.** Contractor is solely responsible for the proper delivery, handling, use, storage, removal, and disposal of all materials brought to the Project site and/or used in the performance of the Work. Contractor must notify the Engineer if a specified product or material cannot be used safely.

(B) **Labeling.** Contractor must ensure proper labeling on any material brought onto the Project site so that any persons working with or in the vicinity of the material may be informed as to the identity of the material, any potential hazards, and requirements for proper handling, protections, and disposal.

10.4 Hazardous Condition. Contractor is solely responsible for determining whether a hazardous condition exists or is created during the course of the Work, involving a risk of bodily harm to any person or risk of damage to any property. If a hazardous condition exists or is created, Contractor must take all precautions necessary to address the condition and ensure that the Work progresses safely under the circumstances. Hazardous conditions may result from, but are not limited to, use of specified materials or equipment, the Work location, the Project site condition, the method of construction, or the way any Work must be performed.

10.5 Emergencies. In an emergency affecting the safety or protection of persons, Work, or property at or adjacent to any Worksite, Contractor must take reasonable and prompt actions to prevent damage, injury, or loss, without prior authorization from the City if, under the circumstances, there is inadequate time to seek prior authorization from the City.

Article 11 - Completion and Warranty Provisions

11.1 Final Completion.

(A) **Final Inspection and Punch List.** When the Work required by this Contract is fully performed, Contractor must provide written notification to City requesting final inspection. The Engineer will schedule the date and time for final inspection, which must include Contractor's primary representative for this Project and its superintendent. Based on that inspection, City will prepare a punch list of any items that are incomplete, missing, defective, incorrectly installed, or otherwise not compliant with the Contract Documents. The punch list to Contractor will specify the time by which all of the punch list items must be completed or corrected. The punch list may include City's estimated cost to complete each punch list item if Contractor fails to do so within the specified time. The omission of any non-compliant item from a punch list will not relieve Contractor from fulfilling all requirements of the Contract Documents. Contractor's failure to complete any punch list item within the time specified in the punch list will not waive or abridge its warranty obligations for any such items that must be completed by the City or by a third party retained by the City due to Contractor's failure to timely complete any such outstanding item.

(B) **Requirements for Final Completion.** Final Completion will be achieved upon completion or correction of all punch list items, as verified by City's further inspection, and upon satisfaction of all other Contract requirements, including any commissioning required under the Contract Documents and submission of all final submittals, including instructions and manuals as required under Section 7.10, and complete, final as-built drawings as required under Section 7.11, all to City's satisfaction.

(C) **Acceptance.** The Project will be considered accepted upon City Council action during a public meeting to accept the Project, unless the Engineer is authorized to accept

the Project, in which case the Project will be considered accepted upon the date of the Engineer's issuance of a written notice of acceptance. In order to avoid delay of Project close out, the City may elect, acting in its sole discretion, to accept the Project as complete subject to exceptions for punch list items that are not completed within the time specified in the punch list.

(D) **Final Payment and Release of Retention.** Final Payment and release of retention, less any sums withheld pursuant to the provisions of the Contract Documents, will not be made sooner than 35 days after recordation of the notice of completion. If Contractor fails to complete all of the punch list items within the specified time, City may withhold up to 150% of City's estimated cost to complete each of the remaining items from Final Payment and may use the withheld retention to pay for the costs to self-perform the outstanding items or to retain a third party to complete any such outstanding punch list item.

11.2 Warranty.

(A) **General.** Contractor warrants that all materials and equipment will be new unless otherwise specified, of good quality, in conformance with the Contract Documents, and free from defective workmanship and materials. Contractor further warrants that the Work will be free from material defects not intrinsic in the design or materials required in the Contract Documents. Contractor warrants that materials or items incorporated into the Work comply with the requirements and standards in the Contract Documents, including compliance with Laws, and that any Hazardous Materials encountered or used were handled as required by Laws. At City's request, Contractor must furnish satisfactory evidence of the quality and type of materials and equipment furnished. Contractor's warranty does not extend to damage caused by normal wear and tear, or improper use or maintenance.

(B) **Warranty Period.** Contractor's warranty must guarantee its Work for a period of one year from the date of Project acceptance (the "Warranty Period"), except when a longer guarantee is provided by a supplier or manufacturer or is required by the Specifications or Special Conditions. Contractor must obtain from its Subcontractors, suppliers and manufacturers any special or extended warranties required by the Contract Documents.

(C) **Warranty Documents.** As a condition precedent to Final Completion, Contractor must supply City with all warranty and guarantee documents relevant to equipment and materials incorporated into the Work and guaranteed by their suppliers or manufacturers.

(D) **Subcontractors.** The warranty obligations in the Contract Documents apply to Work performed by Contractor and its Subcontractors, and Contractor agrees to be co-guarantor of such Work.

(E) **Contractor's Obligations.** Upon written notice from City to Contractor of any defect in the Work discovered during the Warranty Period, Contractor or its responsible Subcontractor must promptly correct the defective Work at its own cost. Contractor's obligation to correct defects discovered during the Warranty Period will continue past the expiration of the Warranty Period as to any defects in Work for which Contractor was notified prior to expiration of the Warranty Period. Work performed during the Warranty Period ("Warranty Work") will be subject to the warranty provisions in this Section 11.2 for a one-year period that begins upon completion of such Warranty Work to City's satisfaction.

(F) **City's Remedies.** If Contractor or its responsible Subcontractor fails to correct defective Work within ten days following notice by City, or sooner if required by the circumstances, City may correct the defects to conform with the Contract Documents at Contractor's sole expense. Contractor must reimburse City for its costs in accordance with subsection (H), below.

(G) **Emergency Repairs.** In cases of emergency where any delay in correcting defective Work could cause harm, loss or damage, City may immediately correct the defects to conform with the Contract Documents at Contractor's sole expense. Contractor or its surety must reimburse City for its costs in accordance with subsection (H), below.

(H) **Reimbursement.** Contractor must reimburse City for its costs to repair under subsections (F) or (G), above, within 30 days following City's submission of a demand for payment pursuant to this provision. If City is required to initiate legal action to compel Contractor's compliance with this provision, and City is the prevailing party in such action, Contractor and its surety are solely responsible for all of City's attorney's fees and legal costs expended to enforce Contractor's warranty obligations herein, in addition to any and all costs City incurs to correct the defective Work.

11.3 Use Prior to Final Completion. City reserves the right to occupy or make use of the Project, or any portions of the Project, prior to Final Completion if City has determined that the Project or portion of it is in a condition suitable for the proposed occupation or use, and that it is in its best interest to occupy or make use of the Project, or any portions of it, prior to Final Completion.

(A) **Non-Waiver.** Occupation or use of the Project, in whole or in part, prior to Final Completion will not operate as acceptance of the Work or any portion of it, nor will it operate as a waiver of any of City's rights or Contractor's duties pursuant to these Contract Documents, and will not affect nor bear on the determination of the time of substantial completion with respect to any statute of repose pertaining to the time for filing an action for construction defect.

(B) **City's Responsibility.** City will be responsible for the cost of maintenance and repairs due to normal wear and tear with respect to those portions of the Project that are being occupied or used before Final Completion. The Contract Price or the Contract Time may be adjusted pursuant to the applicable provisions of these Contract Documents if, and only to the extent that, any occupation or use under this Section actually adds to Contractor's cost or time to complete the Work within the Contract Time.

11.4 Substantial Completion. For purposes of determining "substantial completion" with respect to any statute of repose pertaining to the time for filing an action for construction defect, "substantial completion" is deemed to mean the last date that Contractor or any Subcontractor performs Work on the Project prior to City acceptance of the Project, except for warranty work performed under this Article.

Article 12 - Dispute Resolution

12.1 Claims. This Article applies to and provides the exclusive procedures for any Claim arising from or related to the Contract or performance of the Work.

(A) **Definition.** "Claim" means a separate demand by Contractor, submitted in writing by registered or certified mail with return receipt requested, for a change in the Contract Time, including a time extension or relief from liquidated damages, or a change in the Contract Price, when the demand has previously been submitted to City in accordance with the requirements of the Contract Documents, and which has been

rejected or disputed by City, in whole or in part. A Claim may also include that portion of a unilateral Change Order that is disputed by the Contractor.

(B) **Limitations.** A Claim may only include the portion of a previously rejected demand that remains in dispute between Contractor and City. With the exception of any dispute regarding the amount of money actually paid to Contractor as Final Payment, Contractor is not entitled to submit a Claim demanding a change in the Contract Time or the Contract Price, which has not previously been submitted to City in full compliance with Article 5 and Article 6, and subsequently rejected in whole or in part by City.

(C) **Scope of Article.** This Article is intended to provide the exclusive procedures for submission and resolution of Claims of any amount and applies in addition to the provisions of Public Contract Code § 9204 and § 20104 et seq., which are incorporated by reference herein.

(D) **No Work Delay.** Notwithstanding the submission of a Claim or any other dispute between the parties related to the Project or the Contract Documents, Contractor must perform the Work and may not delay or cease Work pending resolution of a Claim or other dispute, but must continue to diligently prosecute the performance and timely completion of the Work, including the Work pertaining to the Claim or other dispute.

(E) **Informal Resolution.** Contractor will make a good faith effort to informally resolve a dispute before initiating a Claim, preferably by face-to-face meeting between authorized representatives of Contractor and City.

12.2 Claims Submission. The following requirements apply to any Claim subject to this Article:

(A) **Substantiation.** The Claim must be submitted to City in writing, clearly identified as a "Claim" submitted pursuant to this Article 12 and must include all of the documents necessary to substantiate the Claim including the Change Order request that was rejected in whole or in part, and a copy of City's written rejection that is in dispute. The Claim must clearly identify and describe the dispute, including relevant references to applicable portions of the Contract Documents, and a chronology of relevant events. Any Claim for additional payment must include a complete, itemized breakdown of all known or estimated labor, materials, taxes, insurance, and subcontract, or other costs. Substantiating documentation such as payroll records, receipts, invoices, or the like, must be submitted in support of each component of claimed cost. Any Claim for an extension of time or delay costs must be substantiated with a schedule analysis and narrative depicting and explaining claimed time impacts.

(B) **Claim Format and Content.** A Claim must be submitted in the following format:

(1) Provide a cover letter, specifically identifying the submission as a "Claim" submitted under this Article 12 and specifying the requested remedy (e.g., amount of proposed change to Contract Price and/or change to Contract Time).

(2) Provide a summary of each Claim, including underlying facts and the basis for entitlement, and identify each specific demand at issue, including the specific Change Order request (by number and submittal date), and the date of City's rejection of that demand, in whole or in part.

(3) Provide a detailed explanation of each issue in dispute. For multiple issues included within a single Claim or for multiple Claims submitted concurrently, separately number and identify each individual issue or Claim, and include the following for each separate issue or Claim:

- a. A succinct statement of the matter in dispute, including Contractor's position and the basis for that position;
- b. Identify and attach all documents that substantiate the Claim, including relevant provisions of the Contract Documents, RFIs, calculations, and schedule analysis (see subsection (A), Substantiation, above);
- c. A chronology of relevant events; and
- d. Analysis and basis for claimed changes to Contract Price, Contract Time, or any other remedy requested.

(4) Provide a summary of issues and corresponding claimed damages. If, by the time of the Claim submission deadline (below), the precise amount of the requested change in the Contract Price or Contract Time is not yet known, Contractor must provide a good faith estimate, including the basis for that estimate, and must identify the date by which it is anticipated that the Claim will be updated to provide final amounts.

(5) Include the following certification, executed by Contractor's authorized representative:

"The undersigned Contractor certifies under penalty of perjury that its statements and representations in this Claim submittal are true and correct. Contractor warrants that this Claim submittal is comprehensive and complete as to the matters in dispute, and agrees that any costs, expenses, or delay not included herein are deemed waived."

(C) ***Submission Deadlines.***

(1) A Claim disputing rejection of a request for a change in the Contract Time or Contract Price must be submitted within 15 days following the date that City notified Contractor in writing that a request for a change in the Contract Time or Contract Price, duly submitted in compliance with Article 5 and Article 6, has been rejected in whole or in part. A Claim disputing the terms of a unilateral Change Order must be submitted within 15 days following the date of issuance of the unilateral Change Order. These Claim deadlines apply even if Contractor cannot yet quantify the total amount of any requested change in the Contract Time or Contract Price. If the Contractor cannot quantify those amounts, it must submit an estimate of the amounts claimed pending final determination of the requested remedy by Contractor.

(2) With the exception of any dispute regarding the amount of Final Payment, any Claim must be filed on or before the date of Final Payment or will be deemed waived.

(3) A Claim disputing the amount of Final Payment must be submitted within 15 days of the effective date of Final Payment, under Section 8.7, Final Payment.

(4) Strict compliance with these Claim submission deadlines is necessary to ensure that any dispute may be mitigated as soon as possible, and to facilitate cost-efficient administration of the Project. ***Any Claim that is not submitted within the specified deadlines will be deemed waived by Contractor.***

12.3 City's Response. City will respond within 45 days of receipt of the Claim with a written statement identifying which portion(s) of the Claim are disputed, unless the 45-day period is extended by mutual agreement of City and Contractor or as otherwise allowed under Public Contract Code § 9204. However, if City determines that the Claim is not adequately substantiated pursuant to Section 12.2(A), Substantiation, City may first request in writing, within 30 days of receipt of the Claim, any additional documentation supporting the Claim or relating to defenses to the Claim that City may have against the Claim.

(A) **Additional Information.** If additional information is thereafter required, it may be requested and provided upon mutual agreement of City and Contractor. If Contractor's Claim is based on estimated amounts, Contractor has a continuing duty to update its Claim as soon as possible with information on actual amounts in order to facilitate prompt and fair resolution of the Claim.

(B) **Non-Waiver.** Any failure by City to respond within the times specified above will not be construed as acceptance of the Claim, in whole or in part, or as a waiver of any provision of these Contract Documents.

12.4 Meet and Confer. If Contractor disputes City's written response, or City fails to respond within the specified time, within 15 days of receipt of City's response or within 15 days of City's failure to respond within the applicable 45-day time period under Section 12.3, respectively, Contractor may notify City of the dispute in writing sent by registered or certified mail, return receipt requested, and demand an informal conference to meet and confer for settlement of the issues in dispute. If Contractor fails to notify City of the dispute and demand an informal conference to meet and confer in writing within the specified time, Contractor's Claim will be deemed waived.

(A) **Schedule Meet and Confer.** Upon receipt of the demand to meet and confer, City will schedule the meet and confer conference to be held within 30 days, or later if needed to ensure the mutual availability of each of the individuals that each party requires to represent its interests at the meet and confer conference.

(B) **Location for Meet and Confer.** The meet and confer conference will be scheduled at a location at or near City's principal office.

(C) **Written Statement After Meet and Confer.** Within ten working days after the meet and confer has concluded, City will issue a written statement identifying which portion(s) of the Claim remain in dispute, if any.

(D) **Submission to Mediation.** If the Claim or any portion remains in dispute following the meet and confer conference, within ten working days after the City issues the written statement identifying any portion(s) of the Claim remaining in dispute, the Contractor may identify in writing disputed portion(s) of the Claim, which will be submitted for mediation, as set forth below.

12.5 Mediation and Government Code Claims.

(A) **Mediation.** Within ten working days after the City issues the written statement identifying any portion(s) of the Claim remaining in dispute following the meet and confer, City and Contractor will mutually agree to a mediator, as provided under Public Contract Code § 9204. Mediation will be scheduled to ensure the mutual availability of the selected mediator and all of the individuals that each party requires to represent its interests. If there are multiple Claims in dispute, the parties may agree to schedule the mediation to address all outstanding Claims at the same time. The parties will share the costs of the mediator and mediation fees equally, but each party is otherwise solely and separately

responsible for its own costs to prepare for and participate in the mediation, including costs for its legal counsel or any other consultants.

(B) **Government Code Claims.**

(1) Timely presentation of a Government Code Claim is a condition precedent to filing any legal action based on or arising from the Contract. Compliance with the Claim submission requirements in this Article 12 is a condition precedent to filing a Government Code Claim.

(2) The time for filing a Government Code Claim will be tolled from the time Contractor submits its written Claim pursuant to Section 12.2, above, until the time that Claim is denied in whole or in part at the conclusion of the meet and confer process, including any period of time used by the meet and confer process. However, if the Claim is submitted to mediation, the time for filing a Government Code Claim will be tolled until conclusion of the mediation, including any continuations, if the Claim is not fully resolved by mutual agreement of the parties during the mediation or any continuation of the mediation.

- 12.6 Tort Claims.** This Article does not apply to tort claims and nothing in this Article is intended nor will be construed to change the time periods for filing tort-based Government Code Claims.
- 12.7 Arbitration.** It is expressly agreed, under Code of Civil Procedure § 1296, that in any arbitration to resolve a dispute relating to this Contract, the arbitrator's award must be supported by law and substantial evidence.
- 12.8 Burden of Proof and Limitations.** Contractor bears the burden of proving entitlement to and the amount of any claimed damages. Contractor is not entitled to damages calculated on a total cost basis, but must prove actual damages. Contractor is not entitled to speculative, special, or consequential damages, including home office overhead or any form of overhead not directly incurred at the Project site or any other Worksite; lost profits; loss of productivity; lost opportunity to work on other projects; diminished bonding capacity; increased cost of financing for the Project; extended capital costs; non-availability of labor, material or equipment due to delays; or any other indirect loss arising from the Contract. The Eichleay Formula or similar formula will not be used for any recovery under the Contract. The City will not be directly liable to any Subcontractor or supplier.
- 12.9 Legal Proceedings.** In any legal proceeding that involves enforcement of any requirements of the Contract Documents, the finder of fact will receive detailed instructions on the meaning and operation of the Contract Documents, including conditions, limitations of liability, remedies, claim procedures, and other provisions bearing on the defenses and theories of liability. Detailed findings of fact will be requested to verify enforcement of the Contract Documents. All of the City's remedies under the Contract Documents will be construed as cumulative, and not exclusive, and the City reserves all rights to all remedies available under law or equity as to any dispute arising from or relating to the Contract Documents or performance of the Work.
- 12.10 Other Disputes.** The procedures in this Article 12 will apply to any and all disputes or legal actions, in addition to Claims, arising from or related to this Contract, including disputes regarding suspension or early termination of the Contract, unless and only to the extent that compliance with a procedural requirement is expressly and specifically waived by City. Nothing in this Article is intended to delay suspension or termination under Article 13.

Article 13 - Suspension and Termination

13.1 Suspension for Cause. In addition to all other remedies available to City, if Contractor fails to perform or correct Work in accordance with the Contract Documents, including non-compliance with applicable environmental or health and safety Laws, City may immediately order the Work, or any portion of it, suspended until the circumstances giving rise to the suspension have been eliminated to City's satisfaction.

(A) **Notice of Suspension.** Upon receipt of City's written notice to suspend the Work, in whole or in part, except as otherwise specified in the notice of suspension, Contractor and its Subcontractors must promptly stop Work as specified in the notice of suspension; comply with directions for cleaning and securing the Worksite; and protect the completed and in-progress Work and materials. Contractor is solely responsible for any damages or loss resulting from its failure to adequately secure and protect the Project.

(B) **Resumption of Work.** Upon receipt of the City's written notice to resume the suspended Work, in whole or in part, except as otherwise specified in the notice to resume, Contractor and its Subcontractors must promptly re-mobilize and resume the Work as specified; and within ten days from the date of the notice to resume, Contractor must submit a recovery schedule, prepared in accordance with the Contract Documents, showing how Contractor will complete the Work within the Contract Time.

(C) **Failure to Comply.** Contractor will not be entitled to an increase in the Contract Time or Contract Price for a suspension occasioned by Contractor's failure to comply with the Contract Documents.

(D) **No Duty to Suspend.** City's right to suspend the Work will not give rise to a duty to suspend the Work, and City's failure to suspend the Work will not constitute a defense to Contractor's failure to comply with the requirements of the Contract Documents.

13.2 Suspension for Convenience. City reserves the right to suspend, delay, or interrupt the performance of the Work in whole or in part, for a period of time determined to be appropriate for City's convenience. Upon notice by City pursuant to this provision, Contractor must immediately suspend, delay, or interrupt the Work and secure the Project site as directed by City except for taking measures to protect completed or in-progress Work as directed in the suspension notice, and subject to the provisions of Section 13.1(A) and (B), above. If Contractor submits a timely request for a Change Order in compliance with Articles 5 and 6, the Contract Price and the Contract Time will be equitably adjusted by Change Order pursuant to the terms of Articles 5 and 6 to reflect the cost and delay impact occasioned by such suspension for convenience, except to the extent that any such impacts were caused by Contractor's failure to comply with the Contract Documents or the terms of the suspension notice or notice to resume. However, the Contract Time will only be extended if the suspension causes or will cause unavoidable delay in Final Completion. If Contractor disputes the terms of a Change Order issued for such equitable adjustment due to suspension for convenience, its sole recourse is to comply with the Claim procedures in Article 12.

13.3 Termination for Default. City may declare that Contractor is in default of the Contract for a material breach of or inability to fully, promptly, or satisfactorily perform its obligations under the Contract.

(A) **Default.** Events giving rise to a declaration of default include Contractor's refusal or failure to supply sufficient skilled workers, proper materials, or equipment to perform the Work within the Contract Time; Contractor's refusal or failure to make prompt

payment to its employees, Subcontractors, or suppliers or to correct defective Work or damage; Contractor's failure to comply with Laws, or orders of any public agency with jurisdiction over the Project; evidence of Contractor's bankruptcy, insolvency, or lack of financial capacity to complete the Work as required within the Contract Time; suspension, revocation, or expiration and nonrenewal of Contractor's license or DIR registration; dissolution, liquidation, reorganization, or other major change in Contractor's organization, ownership, structure, or existence as a business entity; unauthorized assignment of Contractor's rights or duties under the Contract; or any material breach of the Contract requirements.

(B) **Notice of Default and Opportunity to Cure.** Upon City's declaration that Contractor is in default due to a material breach of the Contract Documents, if City determines that the default is curable, City will afford Contractor the opportunity to cure the default within ten days of City's notice of default, or within a period of time reasonably necessary for such cure, including a shorter period of time if applicable.

(C) **Termination.** If Contractor fails to cure the default or fails to expediently take steps reasonably calculated to cure the default within the time period specified in the notice of default, City may issue written notice to Contractor and its performance bond surety of City's termination of the Contract for default.

(D) **Waiver.** Time being of the essence in the performance of the Work, if Contractor's surety fails to arrange for completion of the Work in accordance with the Performance Bond within seven calendar days from the date of the notice of termination pursuant to paragraph (C), City may immediately make arrangements for the completion of the Work through use of its own forces, by hiring a replacement contractor, or by any other means that City determines advisable under the circumstances. Contractor and its surety will be jointly and severally liable for any additional cost incurred by City to complete the Work following termination, where "additional cost" means all cost in excess of the cost City would have incurred if Contractor had timely completed Work without the default and termination. In addition, City will have the right to immediate possession and use of any materials, supplies, and equipment procured for the Project and located at the Project site or any Worksite on City property for the purposes of completing the remaining Work.

(E) **Compensation.** Within 30 days of receipt of updated as-builts, all warranties, manuals, instructions, or other required documents for Work installed to date, and delivery to City of all equipment and materials for the Project for which Contractor has already been compensated, Contractor will be compensated for the Work satisfactorily performed in compliance with the Contract Documents up to the effective date of the termination pursuant to the terms of Article 8, Payment, subject to City's rights to withhold or deduct sums from payment otherwise due pursuant to Section 8.3, and excluding any costs Contractor incurs as a result of the termination, including any cancellation or restocking charges or fees due to third parties. If Contractor disputes the amount of compensation determined by City, its sole recourse is to comply with the Claim Procedures in Article 12, by submitting a Claim no later than 30 days following notice from City of the total compensation to be paid by City.

(F) **Wrongful Termination.** If Contractor disputes the termination, its sole recourse is to comply with the Claim procedures in Article 12. If a court of competent jurisdiction or an arbitrator later determines that the termination for default was wrongful, the termination will be deemed to be a termination for convenience, and Contractor's damages will be strictly limited to the compensation provided for termination for convenience under Section 13.4, below. Contractor waives any claim for any other damages for wrongful termination including special or consequential damages, lost

opportunity costs, or lost profits, and any award of damages is subject to Section 12.8, Burden of Proof and Limitations.

13.4 Termination for Convenience. City reserves the right, acting in its sole discretion, to terminate all or part of the Contract for convenience upon written notice to Contractor.

(A) **Compensation to Contractor.** In the event of City's termination for convenience, Contractor waives any claim for damages, including for loss of anticipated profits from the Project. The following will constitute full and fair compensation to Contractor, and Contractor will not be entitled to any additional claim or compensation:

(1) **Completed Work.** The value of its Work satisfactorily performed as of the date notice of termination is received, based on Contractor's schedule of values and unpaid costs for items delivered to the Project site that were fabricated for incorporation in the Work;

(2) **Demobilization.** Demobilization costs specified in the schedule of values, or if demobilization costs were not provided in a schedule of values pursuant to Section 8.1, then based on actual, reasonable, and fully documented demobilization costs; and

(3) **Termination Markup.** Five percent of the total value of the Work performed as of the date of notice of termination, including reasonable, actual, and documented costs to comply with the direction in the notice of termination for convenience, and demobilization costs, which is deemed to cover all overhead and profit to date.

(B) **Disputes.** If Contractor disputes the amount of compensation determined by City pursuant to paragraph (A), above, its sole recourse is to comply with the Claim procedures in Article 12, by submitting a Claim no later than 30 days following notice from City of total compensation to be paid by City.

13.5 Actions Upon Termination for Default or Convenience. The following provisions apply to any termination under this Article, whether for default or convenience, and whether in whole or in part.

(A) **General.** Upon termination, City may immediately enter upon and take possession of the Project and the Work and all tools, equipment, appliances, materials, and supplies procured or fabricated for the Project. Contractor will transfer title to and deliver all completed Work and all Work in progress to City.

(B) **Submittals.** Unless otherwise specified in the notice of termination, Contractor must immediately submit to City all designs, drawings, as-built drawings, Project records, contracts with vendors and Subcontractors, manufacturer warranties, manuals, and other such submittals or Work-related documents required under the terms of the Contract Documents, including incomplete documents or drafts.

(C) **Close Out Requirements.** Except as otherwise specified in the notice of termination, Contractor must comply with all of the following:

(1) Immediately stop the Work, except for any Work that must be completed pursuant to the notice of termination and comply with City's instructions for cessation of labor and securing the Project and any other Worksite(s).

(2) Comply with City's instructions to protect the completed Work and materials, using best efforts to minimize further costs.

(3) Contractor must not place further orders or enter into new subcontracts for materials, equipment, services or facilities, except as may be necessary to complete any portion of the Work that is not terminated.

(4) As directed in the notice, Contractor must assign to City or cancel existing subcontracts that relate to performance of the terminated Work, subject to any prior rights, if any, of the surety for Contractor's performance bond, and settle all outstanding liabilities and claims, subject to City's approval.

(5) As directed in the notice, Contractor must use its best efforts to sell any materials, supplies, or equipment intended solely for the terminated Work in a manner and at market rate prices acceptable to City.

(D) **Payment Upon Termination.** Upon completion of all termination obligations, as specified herein and in the notice of termination, Contractor will submit its request for Final Payment, including any amounts due following termination pursuant to this Article 13. Payment will be made in accordance with the provisions of Article 8, based on the portion of the Work satisfactorily completed, including the close out requirements, and consistent with the previously submitted schedule of values and unit pricing, including demobilization costs. Adjustments to Final Payment may include deductions for the cost of materials, supplies, or equipment retained by Contractor; payments received for sale of any such materials, supplies, or equipment, less re-stocking fees charged; and as otherwise specified in Section 8.3, Adjustment of Payment Application.

(E) **Continuing Obligations.** Regardless of any Contract termination, Contractor's obligations for portions of the Work already performed will continue and the provisions of the Contract Documents will remain in effect as to any claim, indemnity obligation, warranties, guarantees, submittals of as-built drawings, instructions, or manuals, record maintenance, or other such rights and obligations arising prior to the termination date.

Article 14 - Miscellaneous Provisions

- 14.1 Assignment of Unfair Business Practice Claims.** Under Public Contract Code § 7103.5, Contractor and its Subcontractors agree to assign to City 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. § 15) or under the Cartwright Act (Chapter 2 (commencing with § 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract or any subcontract. This assignment will be effective at the time City tenders Final Payment to Contractor, without further acknowledgement by the parties.
- 14.2 Provisions Deemed Inserted.** Every provision of law required to be inserted in the Contract Documents is deemed to be inserted, and the Contract Documents will be construed and enforced as though such provision has been included. If it is discovered that through mistake or otherwise that any required provision was not inserted, or not correctly inserted, the Contract Documents will be deemed amended accordingly.
- 14.3 Waiver.** City's waiver of a breach, failure of any condition, or any right or remedy contained in or granted by the provisions of the Contract Documents will not be effective unless it is in writing and signed by City. City's waiver of any breach, failure, right, or remedy will not be deemed a waiver of any other breach, failure, right, or remedy, whether or not similar, nor will any waiver constitute a continuing waiver unless specified in writing by City.

- 14.4 Titles, Headings, and Groupings.** The titles and headings used and the groupings of provisions in the Contract Documents are for convenience only and may not be used in the construction or interpretation of the Contract Documents or relied upon for any other purpose.
- 14.5 Statutory and Regulatory References.** With respect to any amendments to any statutes or regulations referenced in these Contract Documents, the reference is deemed to be the version in effect on the date that bids were due.
- 14.6 Survival.** The provisions that survive termination or expiration of this Contract include Contract Section 11, Notice, and subsections 12.1, 12.2, 12.3, 12.4, 12.5, and 12.6 of Section 12, General Provisions; and the following provisions in these General Conditions: Section 2.2(J), Contractor's Records, Section 2.3(C), Termination, Section 3.7, Ownership, Section 4.2, Indemnity, Article 12, Dispute Resolution, and Section 11.2, Warranty.

END OF GENERAL CONDITIONS

Special Conditions

1. Authorized Work Days and Hours.

1.1 Authorized Work Days. Except as expressly authorized in writing by City, Contractor is limited to performing Work on the Project on the following days of the week, excluding holidays observed by City:

Monday
Tuesday
Wednesday
Thursday
Friday

1.2 Authorized Work Hours. Except as expressly authorized in writing by City, Contractor is limited to performing Work on the Project during the following hours:

7:30 a.m. to 4:30 p.m.

2. Pre-Construction Conference. City will designate a date and time for a pre-construction conference with Contractor following Contract execution. Project administration procedures and coordination between City and Contractor will be discussed, and Contractor must present City with the following information or documents at the meeting for City's review and acceptance before the Work commences:

- 2.1** Name, 24-hour contact information, and qualifications of the proposed on-site superintendent;
- 2.2** List of all key Project personnel and their complete contact information, including email addresses and telephone numbers during regular hours and after hours;
- 2.3** Staging plans that identify the sequence of the Work, including any phases and alternative sequences or phases, with the goal of minimizing the impacts on residents, businesses and other operations in the Project vicinity;
- 2.4** If required, traffic control plans associated with the staging plans that are signed and stamped by a licensed traffic engineer;
- 2.5** Draft baseline schedule for the Work as required under Section 5.2, to be finalized within ten days after City issues the Notice to Proceed;
- 2.6** Breakdown of lump sum bid items, to be used for determining the value of Work completed for future progress payments to Contractor;
- 2.7** Schedule with list of Project submittals that require City review, and list of the proposed material suppliers;
- 2.8** Plan for coordination with affected utility owner(s) and compliance with any related permit requirements;
- 2.9** Videotape and photographs recording the conditions throughout the pre-construction Project site, showing the existing improvements and current condition of the curbs, gutters, sidewalks, signs, landscaping, streetlights, structures near the Project such as building faces, canopies, shades and fences, and any other features within the Project area limits;

- 2.10 If requested by City, Contractor's cash flow projections; and
- 2.11 Any other documents specified in the Special Conditions or Notice of Potential Award.

3. Insurance Requirements. The insurance requirements under Section 4.3 of the General Conditions are modified for this Contract, as set forth below. Except as expressly stated below, all other provisions in Section 4.3 are unchanged and remain in full force and effect.

- 3.1 **Builders Risk Insurance Waived.** The builder's risk insurance policy requirement set forth in subsection 4.3(A)(5) of the General Conditions is hereby waived and does not apply to this Contract.

4. Construction Manager Role and Authority. Alex Ruiz is the Construction Manager for this Project. The Construction Manager will assist City in the management of the construction of the Project. The Construction Manager may perform services in the areas of supervision and coordination of the work of Contractor and/or other contractors, scheduling the Work, monitoring the progress of the Work, providing City with evaluations and recommendations concerning the quality of the Work, recommending the approval of progress payments to Contractor, or other services for the Project in accordance with the Construction Manager's contract with City.

- 4.1 **Communications.** Contractor must submit all notices and communications relating to the Work directly to the Construction Manager in writing, as follows:

Alex Ruiz
AlexRuiz@pittsburgca.gov
Public Works Department | Engineering Division
65 Civic Avenue, Pittsburg, CA 94565
Tel: (925) 252-6900 | Fax: (925) 252-4251

With a copy to the Inspector:

John Rose
JRose@pittsburgca.gov
Public Works Department | Engineering Division
65 Civic Avenue, Pittsburg, CA 94565
Tel: (925) 252-6900 | Fax: (925) 252-6973

- 4.2 **On-Site Management and Communication Procedures.** The Construction Manager will provide and maintain a management team on the Project site to provide contract administration as an agent of City, and will establish and implement coordination and communication procedures among City, the Design Professional, Contractor, and others.
- 4.3 **Contract Administration Procedures.** The Construction Manager will establish and implement procedures for reviewing and processing requests for clarifications and interpretations of the Contract Documents, Shop Drawings, samples, other submittals, schedule adjustments, Change Order proposals, written proposals for substitutions, payment applications, and maintenance of logs.
- 4.4 **Pre-Construction Conference.** Contractor will attend the pre-construction conference, during which the Construction Manager will review the Contract administration procedures and Project requirements.

- 4.5 Contractor's Construction Schedule.** The Construction Manager will review Contractor's construction schedules and will verify that each schedule is prepared in accordance with the requirements of the Contract Documents.

END OF SPECIAL CONDITION

CITY OF PITTSBURG

100% TECHNICAL SPECIFICATIONS

**FOR THE
Corporation Yard Fueling System Replacement Project**

**New 12,000 Gallon Above Ground Fuel Storage
Tank (AST) & Dispensing System**

Pittsburg, CA

December 2023

Prepared by:

**Trident Environmental & Engineering
395 Carrol Ct., Suite G
Brentwood, CA 94513**

City of Pittsburg
65 Civic Center
Pittsburg, CA 94565
(925) 252-4930

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SECTION 01 00 05

SPECIFICATIONS

PART 1 GENERAL

1.1 GENERAL

- A. The Contractor shall keep on the job a copy of the Plans and Specifications and shall at all times give the Owner and Engineer access thereto.
- B. Anything mentioned in the Specifications and not shown on the Plans or shown on the Plans and not mentioned in the Specifications shall be of like effect as if shown or mentioned in both.
- C. The Contractor shall not take advantage of any errors, discrepancies or omissions which may exist in the Plans and Specifications but shall immediately call them to the attention of the Engineer whose interpretation or correction thereof shall be conclusive.
- D. Change Orders, supplemental agreements and approved revisions to Plans and Specifications will take precedence over documents listed above. Detailed Plans shall have precedence over general Plans.
- E. Whenever any conflict appears in any portions of the Contract Documents, it shall be resolved by application of the order of precedence.

1.2 GENERAL REQUIREMENTS AND TECHNICAL SPECIFICATIONS

- A. For definitions of the Specifications categorized as General Requirements (Division 1) and Technical Specifications (Division 2 through Division 43) refer to Section 01 42 13 – Standards and Abbreviations.

1.3 REFERENCE DOCUMENTS

- A. For a definition of Reference Documents and State Standard Specifications refer to Section 01 42 13 – Standards and Abbreviations.
- B. Throughout the following Specification sections, references are made to various widely published, standard and commercial specifications, manuals, or codes of technical societies, organizations, or associations. These specifications are intended to amplify the descriptions of materials, equipment, and construction systems. The Contractor shall caution each of his Subcontractors to become familiar with the contents of the pertinent portions of these Reference Documents. The following Reference Documents are the most widely used, and are cited or referred to in each of the following sections of these Specifications:
 - 1. American Society of Testing Materials (ASTM)

2. American National Standards Institute (ANSI)
 3. American Standards Associations (ASA)
 4. American Concrete Institute (ACI)
 5. Federal Specifications, as applicable.
 6. California Building Code
 7. California Plumbing Code
 8. National Electric Code
 9. Construction Safety Orders of the Division of Industrial Relations latest edition.
- C. Each citation of a Reference Document shall be construed to refer to the latest published revision of such specification as of the date of the invitation for bids and to such portions of it that relate and apply directly to the material or installation called for on this job. The Engineer will give no consideration to any claimed ignorance as to what a cited Reference Document contains, since such Subcontractor on a project of this scope is deemed to be experienced and familiar with his own trade to be experienced and familiar with his own trade's generally accepted, published standards of quality.
- D. Whenever references are made to any of the above-mentioned Reference Documents or testing methods in the governing Building Codes, the requirements of those Reference Documents shall govern, insofar as they are not in contravention with maxima or minima prescribed by documents designated in the Building Code.

1.4 LIST OF DRAWINGS

- A. The Work shall conform to the following Drawings:

TITLE	SHEET NUMBERS
(1) Cover Sheet & General Site Plan	CS-1
(2) Local Site Plan	SP-1
(3) Gate Entry Plan (Civil)	C-1
(4) Fuel Tank & Dispensing System Plan (Civil)	C-2
(5) Equipment Plan	EP-1
(6) Equipment Plan Installation Details	EP-2
(7) Tank & Screening Wall Foundation Location / Structural Plan	S-1

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- (8) Classified Area, Signage & Mechanical Plan CA-1
- (9) Site Power & Conduit Location Plan E-1
- (10) Fueling System / Area Electrical Plan E-2
- (11) General Details GD-1

1.5 STATE STANDARD SPECIFICATIONS

A. For the purpose of this contract, the following terms or pronouns in place of them, used throughout the State Standard Specifications and defined in Section 1, Definition of Terms, of the State Standard Specifications, shall be as follows:

<u>TERMS</u>	<u>INTERPRETATION</u>
State	City of Pittsburgh
Department	City of Pittsburgh
Director	City Manager of the City of Pittsburgh or designee
Engineer	City Engineer of the City of Pittsburgh or designee
Department of Transportation	City of Pittsburgh
Contractor	The person or persons, co-partnership or corporation, private or municipal, who have entered into a contract with the City of Pittsburgh as party or parties of the second part, or its legal representative.

1.6 OCCUPATIONAL SAFETY AND HEALTH ACT

- A. The applicable standards of the American National Standards Institute and the National Fire Protection Association that have been adopted are hereby made a part of these Specifications as a whole and as mentioned in the various sections.
- B. Any errors, ambiguities, or inconsistencies of these standards with either the local codes, the Specifications, or the Drawings shall be brought to the attention of the Engineer.

1.7 COMPLIANCE WITH ALL LAWS AND CODES

- A. Contractor shall conform to and abide by all local city, county, state and federal laws, rules, regulations, including industrial safety laws. Such laws shall be considered as essential parts of these Specifications and, in the absence of definite requirements herein, the provisions of such rules and regulations shall be observed by the Contractor. If the Drawings and/or Specifications are at variance therewith, Contractor shall so notify Engineer promptly. Should the Contractor perform any work contrary to such laws, ordinances, rules and regulations he shall bear all costs arising therefrom.

- B. Where these Specifications, however, call for or describe materials workmanship or construction of a better quality, higher standard, or larger size than is required by said rules and regulations, the provisions of these Specifications shall take precedence over said rules and regulations. Contractor shall furnish, without any extra charge, all additional labor or materials, or both, when required for compliance with these rules and regulations.

END OF SECTION

SECTION 01 11 00

DESCRIPTION OF WORK AND SCHEDULE CONSTRAINTS

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The Work consists of furnishing all labor, materials and equipment necessary to construct a new Fuel Storage and Dispensing Facility, at the City of Pittsburg's Environmental Center, in accordance with the Plans and the Specifications.
- B. The construction site is located in Contra Costa County, at the City of Pittsburg's Environmental Center located at 2581 Harbor Street, Pittsburg, CA 94565
- C. The primary components are generally described as follows:
 1. Demolition and Removal of (E) 1000 gal. Gasoline Tank and associated Gasoline Fuel Dispensing Equipment
 2. Provide (N) or Salvage / re-use (E) OPW PetroVend model: PV200 Fuel Island Controller.
 3. Install (N) 12,000 gal. UL 2085 AST Fuel Tank partitioned for 8,000 gal. Gasoline / 4,000 gal. Diesel. The City of Pittsburg to provide the 12,000 gal. Fuel Tank to be installed by the Contractor.
 4. Construct Structural Concrete Tank Pad, Tank Anchorage, Containment, Protective Bollards, etc.
 5. Furnish & Install (F&I) Fuel Dispensing Equipment consisting of, but not limited to;
 - a. Qty 2 – 2Hp Submersible (Turbine) Fuel Pumps and Controllers
 - b. Qty 2 – Fuel Dispensing and Metering
 - c. Qty 2 – Remote Fuel Dispensers
 - d. Qty1 – Phase 1 Enhanced Vapor Recovery (EVR) System
 - e. Misc. Piping, Fittings, Valves, Instrumentation, Equipment, etc. – as required to construct a working Fleet Gasoline and Diesel Storage and Fueling System
 6. F&I Fuel Management System using (E) and (N) Equipment compatible with the City of Pittsburg's (E) Fuel Management System.
 7. F&I (N) Electrical Infrastructure as required to Power and Control Fuel Dispensing and Tank Monitoring Systems.
 8. Construct (N) 10" Concrete Masonry Unit (CMU) Concealment Wall, 10'Ht x

~86 LF.

9. Construct (N) 19' Automatic Sliding Entry Gate and associated 8' Chain Link fencing at the west entry point to the Environmental Center.
10. F&I (N) Diesel Exhaust Fluid (DEF) Fabricated Enclosure, Dispensing and Metering Equipment. DEF Dispensing system to be tied into the PetroVend Fuel Management System.

1.2 *WORK ITEMS TO BE PROVIDED or PERFORMED BY THE CITY*

- A. The CITY OF Pittsburg will provide and / or perform the following;
 - a. Provide project Building Permit issued through the City of Pittsburg Building Department as the Authority Having Jurisdiction (AHJ) at no cost to the contractors.
 - b. Provide Authority to Construct (ATC) permit issued through the Bay Area Air Quality Control Board (BAAQCB).
 - c. Provide project Installation and Removal permits through Contra Costa County Fire Protection District at no cost to the contractors.
 - d. Reasonable Secured Storage Area within the confines of the Environmental Center compounds for the temporary storage of project materials and equipment.
 - e. City of Pittsburg to remove and trim trees impacting project work in advance of construction activities.
 - f. City of Pittsburg to provide local high capacity water supply for compaction and dust control at no cost the contractor.

1.3 *BEGINNING OF WORK*

- A. The Contractor shall begin work as specified in Section 6-1 Construction Schedule and Completion of Work of the Standard Specifications.

1.4 *TIME OF COMPLETION*

- A. The Contractor shall substantially complete all work as specified in Section 6-1 Construction Schedule and Completion of Work of the Standard Specifications.

1.5 *TIME CONSTRAINTS*

- A. Contractor shall supervise, inspect, and direct the Work competently and apply such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the specific means, methods, techniques, sequence, or procedure of construction required to complete the project as specified by the Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

END OF SECTION



SECTION 01 11 05

ENGINEER'S STATUS DURING CONSTRUCTION

PART 1 GENERAL

1.1 OWNER'S REPRESENTATIVE

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in these Specifications and will not be changed without written consent of Owner and Engineer.

1.2 VISITS TO SITE

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Section 1.5, below. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.
- C. Review of the Work by the Engineer shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.
- D. No oral or telephonic agreement or conversation with any officer, agent or employee of the Owner or the Engineer, or with the Engineer, either before or after execution of the Contract, shall affect or modify any of the terms or obligations contained in any of the Contract Documents.

- E. The Contractor shall pay the Owner for all overtime review in accordance with existing resolutions or fee schedules of the Owner, unless the charges for such inspection have been specifically waived in the Contract Documents. Overtime charges will be made for all reviews on Saturdays, Sundays and State holidays, and hours worked by the reviewer other than those of the normal working day.

1.3 REJECTING DEFECTIVE WORK

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed. Neither this authority nor the Engineer's good faith judgment to reject or not reject any work shall subject the Engineer to any liability or cause of action by the Contractor, subcontractors, or any other suppliers or persons performing work on the Contract.

1.4 LIMITATIONS ON ENGINEER'S AUTHORITY AND RESPONSIBILITIES

- A. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- B. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- C. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

END OF SECTION

SECTION 01 11 10

COORDINATION OF WORK

PART 1 GENERAL

1.1 RESPONSIBILITY OF CONTRACTOR

- A. If any part of the Work depends for proper execution or results upon the work of others, the Contractor shall inspect and promptly report to the Engineer any apparent discrepancies or defects in such work of others that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the work of others as fit and proper except as to defects which may develop in the work of others after execution of the Work by the Contractor.

1.2 WORK INVOLVED WITH EXISTING SYSTEM

- A. Existing materials and equipment removed not designated to be salvaged for Owner in the execution of the Work shall become the property of the Contractor and shall be removed from, and disposed of, off the site by the Contractor in an acceptable and lawful manner.

1.3 COORDINATION OF WORK

- A. The Contractor shall maintain overall coordination for the execution of the Work. Based on the Construction Schedule prepared in accordance with these Specifications, he shall obtain from each of his subcontractors a similar schedule and shall be responsible for all parties maintaining these schedules or for coordinating required modifications.

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section specifies procedures and requirements for measurement and payment for unit price items listed on the Bid Form for each unit of work described herein.
- B. Refer to Division 00 General Conditions and Division 00 Article 8 – Payment for related requirements pertaining to change orders, payments and unit prices.
- C. Prices:
 - 1. In addition to Base Bid, Bidder shall quote unit prices, in appropriate spaces on Bid Form for each unit of work as described herein. Change Orders will be based on unit prices quoted on Bid Form for applicable work.
 - 2. In event any unit price quoted appears to compare unfavorably with currently established prices for type of work, City reserves the right to require quoted price to be substantiated or adjusted prior to execution of contract.
 - 3. Unit prices listed on the Bid Form for the following items shall constitute full and complete compensation for each unit, and shall include cost of temporary and administrative work, permits, bonds, insurance, sales taxes, overhead, profit and every other expense, direct or indirect, incident to accomplishment of work under each item.

1.2 BID ITEMS

Bid Item 1 – Mobilization & Demobilization: Payment for this item shall be paid at the contract **LUM SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, tools, equipment and incidentals making up the cost of mobilization, move-in, set-up, etc. - required during the performance of the work as specified. This item also includes demobilization, including the removal of all equipment, supplies, personnel and incidentals from the project at the end of construction. Payment for mobilization shall be made with the first progress payment and shall not exceed 80 percent of the bid item amount. Payment for demobilization shall be made with the last progress payment and shall not be less than 20 percent of the bid item amount..

Bid Item 2 – Surveying, Grade Control & Construction Staking: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, tools, equipment and incidentals required to address surveying and construction staking for all project phases including but not limited to; AST placement, Fueling Sys.,

Gate Addition, Site Electrical Distribution, etc. This bid item will be paid Lump Sum, prorated, based on the percentage of work completed.

Bid Item 3 - Fuel Tank Removal & Disposal: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, prorated, based on the percentage of work completed, which includes full compensation for all tools, equipment and incidentals required to remove existing the existing 1000 gal. gasoline tank and associated appurtenances as indicated on the drawings and specified.

Bid Item 4 – Demolition: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, tools, equipment and incidentals required to perform the demolition activities identified in the plans. This bid item includes saw cutting of pavement (AC or PCC), removal, excavation, disposal as cited in the plans.

Bid Item 5 – Clearing & Grubbing: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all taxes, labor, materials, tools, equipment and incidentals required to perform the clearing and grubbing activities identified in the plans.

Bid Item 6 – Temporary Fencing: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all taxes, labor, materials, tools, equipment and incidentals required to furnish and install temporary fencing activities identified in the plans.

Bid Item 7 – Tank Pad & CMU Wall Excavation, Backfill and Compaction: Payment for this item shall be paid at the contract **Cubic Yard (CY)** price, prorated, based on the amount of work completed, which includes full compensation for all taxes, labor, materials, tools, equipment, shoring, and incidentals required to perform the excavation and install / place and compact structural backfill.

Bid Item 8– 10” CMU Wall 10’Ht (~86’): Payment for this item shall be paid at the contract **LINEAL FEET (LF) price**, prorated, based on the amount of work completed, which includes full compensation for all taxes, labor, materials, tools, equipment and incidentals required to construct the CMC Concealment wall; including but not limited to footings, reinforcement, block, grout, mortar and fence restoration.

Bid Item 9 – 16’-3”Wx46’-7”Lx14”t Concrete Tank Pad: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all taxes, labor, materials, tools, equipment and incidentals required to construct the concrete tank pad; including but not limited to forms, concrete, reinforcement, finish work, curbs, drain valve,

AC repair, etc. – as shown in the plans.

Bid Item 10 – Dual Compartment 12,000 gal. AST: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, tools, equipment and incidentals required to install the 12,000 gal. tank supplied by the City of Pittsburgh; including but not limited to placement, crane services, anchorage, etc. – as shown in the plans.

Bid Item 11 – AST Filling & Emissions Control Equipment Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, taxes, tools, equipment and incidentals required to furnish and install all Tank Filling and Emissions Control Equipment; including but not limited to remote fill and containment, overfill prevention devices, alarms, emissions controls, level monitoring, normal and emergency vents, leak detection instrumentation, valves, piping, painting, etc. – as shown in the plans.

Bid Item 12 – Gasoline & Diesel Dispensing Equipment: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, taxes. tools, equipment and incidentals required to furnish and install all Dispensing Equipment; including but not limited to piping, seals, dispensers, sumps, fuel management controls, etc. – as shown in the plans.

Bid Item 13 – DEF Equipment & Enclosure: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, taxes. tools, equipment and incidentals required to furnish and install all Diesel Exhaust Fluid (DEF) Dispensing Equipment and Fabricated Enclosure; including but not limited to DEL metering and dispensing equipment, painting, concrete pad, etc. – as shown in the plans..

Bid Item 14 – Fuel System Electrical & Controls Enclosure: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, taxes, tools, equipment and incidentals required to furnish and install Fuel System Electrical & Controls Enclosure; including but not limited to the equipment enclosure, concrete pad, panels, displays, controls and instrumentation associated with tank / dispensing emissions, environmental, and fuel management systems, etc. – as shown in the plans.

Bid Item 15 – Local Fuel System Electrical & Control Wiring: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, taxes, tools, equipment and incidentals required to furnish and install Local Fuel System

Electrical & Control Wiring; including but not limited to excavation, trenching, backfill, compaction, terminations, electrical checks, fittings, boxes, classified area fittings and seals, receptacles, etc. – as shown in the plans for the AST, Dispensers, Fuel Management System, DEF Dispenser and Metering, etc. – as shown in the plans.

Bid Item 16 – Fuel System Site Electrical & Control Wiring: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, taxes, tools, equipment and incidentals required to furnish and install Site Electrical and Control infrastructure; including but not limited to excavation, trenching, backfill, compaction, AC repairs, landscape restoration, terminations, electrical checks, fittings, pull boxes, surface mount boxes, circuit breakers, etc. – as shown in the plans between the Fuel System Electrical / Controls Enclosure and Environmental Center Building 3.

Bid Item 17 – Fuel System Programming, Testing & Start-Up: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, taxes, tools, equipment and incidentals required to provide a fully operational and regulatory compliant fueling system; including but not limited to coordination, programming, testing, start-up support, sub-contracted services, etc.- as shown / described in the plans.

Bid Item 18 – 19’ Automatic Sliding Entry Gate: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, taxes, tools, equipment and incidentals required to furnish and install the specified Automatic Sliding Entry Gate; including but not limited to demolition, concrete, guide rail, gate operator, card reader, card reader pedestal, fire department “knox vault”, traffic loops, controls, striping, AC paving repair, local power and control wiring, electrical checks, etc. – as shown in the plans.

Bid Item 19 – Entry Gate Site Electrical & Control Wiring: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, material, taxes, tools, equipment and incidentals required to electrify the Automatic Sliding Gate specified; including but not limited to power and control wire, conduit, trenching, backfill, compaction, AC repairs, landscaping restoration, pull boxes, surface mounting boxes, fittings, terminations, circuit breaker, electrical checks, etc. – as shown in the plans between the Gate Operator and Environmental Center Building 3.

Bid Item 20 – Site Entry Gate Programming, Testing & Start-Up: Payment for this item shall be paid at the contract **LUMP SUM (LS)** price, prorated, based on the percentage of work completed, which includes full compensation for all labor, materials, taxes, tools, equipment and incidentals required to Program, Test and Start-Up the specified Entry Gate including but not limited to; coordination, programming, testing, start-up support, sub-contracted services, etc. - required to provide a fully operational Gate Entry System compliant with the City of Pittsburgh's operational requirements.

END OF SECTION

SECTION 01 31 19
PROJECT MEETINGS

PART 1 GENERAL

1.1 PRECONSTRUCTION CONFERENCE

- A. Upon receipt of the Notice to Proceed, or at an earlier time if mutually agreeable, the Owner will arrange a preconstruction conference to be attended by the Contractor, Contractor's superintendent, the Owner, the Engineer or its representative, and representatives of utilities, major subcontractors and others involved in the execution of the Work.
- B. The purpose of this conference shall be to establish a working understanding between the parties and to discuss the Construction Schedule, Critical Path items, shop drawing submittals, applications for payment and their processing, and such other subjects as may be pertinent for the execution of the Work.

1.2 PROGRESS MEETINGS

- A. The Engineer shall arrange and conduct progress meetings. These meetings shall be conducted bi-weekly, unless designated otherwise and shall be attended by the Engineer or its representative, Contractor, Contractor's superintendent and representatives of all subcontractors, utilities, and others, that are active in the execution of the Work. The purpose of these meetings shall be to expedite the work of any subcontractor or other organization that is not up to schedule, resolve conflicts, and in general, coordinate and expedite the execution of the Work.
- B. The agenda of progress meetings shall include review of progress and schedule, of payment request, of the latest Construction Schedule update, and of the record documents.

1.3 PROGRESS AND SCHEDULE REVIEW

- A. The progress of the Work and the Construction Schedule shall be reviewed to verify:
 - 1. Actual start and finish dates of completed activities since the last progress meeting.
 - 2. Durations and progress of all activities not completed.
 - 3. Reason, time, and cost data for Change Order work that is to be incorporated into the Construction Schedule or payment request form.

4. Payment due to the Contractor based on percentage complete of items in the submitted payment request.
5. Reasons for, and duration of, required revisions in the Construction Schedule.
6. After each monthly update, the Contractor shall submit to the Engineer three the last accepted Construction Schedule, revised in accordance with the monthly review.

1.4 REVIEW OF PAYMENT REQUEST

- A. The Contractor shall have his copy of the payment request and all other data required by the Contract Documents completed prior to the progress meeting. The Engineer will process Contractor's payment request after satisfactory review of the schedule update.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The work described in this section includes general requirements and procedures related to the preparation and transmission of submittals to include Shop Drawings, Samples, Manuals, and Record Drawings

1.2 RELATED WORK

- A. General Construction Contract Document
- B. Individual technical specifications

1.3 GENERAL

- A. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - 1. Reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - 2. Determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - 3. Determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 4. Determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
- B. Submit each submittal document under separate cover or transmittal. Transmittal shall include the following identification data, as applicable:
 - 1. Contract number

2. Project name and location
 3. Submittal number and revision
 4. Product identification
 5. Applicable contract drawing number, specification section, and paragraph number.
 6. Stamp Space: Blank space of approximately 2-1/2 inches high by 4 inches wide adjacent to the identification data to receive Engineer's status stamp.
 7. Contractor's certification statement as described below.
- C. To each submittal affix the following signed Certification Statement.
1. "Certification Statement: By this submittal, we hereby represent that we have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and pertinent data and we have checked and coordinated each item with other applicable approved drawings and all Contract requirements."
- D. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.
- E. Furnish neat, legible, and sufficiently explicit detail to enable proper review for Contract compliance.
- F. Contractor assumes all risks of error and omission.
- G. Work performed before approval, or not conforming to approved submittals, shall be at Contractor's risk.
- H. Submittal requirements contained in this specification are in addition to specific submittal requirements contained in individual equipment specification sections.

1.4 APPROVAL PROCESS

- A. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the

Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

- B. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
- C. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
- D. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has given Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the Contract Documents and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample.
- E. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, prorated, based on the percentage of work completed, unless such changes are included in a Change Order.
- F. Submittals will be returned, marked with one of the following classifications:
 - 1. NO EXCEPTION TAKEN: Requires no corrections, no marks.
 - 2. APPROVED AS NOTED: Requires minor corrections. Items may be fabricated as marked without further resubmission. Resubmit 2 corrected copies to the Engineer.
 - 3. RESUBMIT: Requires corrections. Resubmit entire submittal following original submission with corrections noted. Allow time for checking and Engineer's appropriate action.
 - 4. REJECTED: Requires major corrections or is otherwise not following Contract Documents. No items shall be fabricated. Resubmit entire submittal following original submission with corrections noted.
 - 5. INFORMATION ONLY: Items specified by Contract Documents.

PART 2 SUBMITTAL DOCUMENTS

2.1 SHOP DRAWINGS

- A. Unless otherwise noted in the individual specification sections, submit three (3) sets of shop drawings.

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- B. All catalog and specification sheets shall be clearly marked to indicate the specific model number and configuration to be used. Items not applicable to the project shall be crossed out.
- C. Show complete and detailed fabrication; assembly and installation details; wiring and control diagrams; catalog data; pamphlets; descriptive literature; and performance and test data.
- D. Include calculations or other information sufficient to show comprehensive description of structure, equipment, or system provided and its intended manner of use.
- E. Include Manufacturer's installation recommendations.

2.2 *SAMPLES*

- A. Unless otherwise noted in the individual specification sections, submit three (3) samples of each item.
- B. Samples shall be representative of the actual material proposed for use in the project and of sufficient size to demonstrate design, color, texture, and finish.
- C. Permanently attach to each sample
 1. The contract number
 2. Project name and location
 3. Product identification
 4. Applicable contract drawing and specification section number
 5. Subcontractor's, vendor's and/or manufacturer's name, address, and telephone number.
- D. Certain samples may be tested for specific requirements by the Owner and/or Engineer prior to approval. Failure of sample to pass tests will be sufficient cause for refusal to consider further samples of the same brand and make.
- E. Rejected samples will be returned upon request, and resubmittals shall consist of new samples.

2.3 *RECORD DRAWINGS*

- A. Maintain 1 record copy of Contract Documents at site in good order and annotated to show revisions made during construction. Keep annotations current for possible

inspection.

1. Make record drawings available to Engineer at all times during life of Contract.
2. Drawings: Made part of record drawings and to include:
 - a. Contract Drawings: Annotate or redraft, as required, to show revisions, substitutions, variations, omissions, and discrepancies made or discovered during construction concerning location and depth of utilities, piping, ductbanks, conduits, manholes, pumps, valves, vaults, and other equipment. Make revisions and show on all drawing views with actual dimensions established to permanent points.
 - b. Working/Layout Drawings: When required as submittals, record actual layouts of conduit runs between various items of electrical equipment for power, control, and instrumentation; wire sizes, numbers, and functions; configuration of conduits; piping layouts; and duct layouts.
3. Before preliminary inspection, furnish reproducible of record drawings. At completion of Contract and before final payment is made, furnish Engineer 1 set of reproducible drawings of the final approved record drawings reflecting revisions herein described.

2.4 OPERATION AND MAINTENANCE MANUALS

- A. Furnish Operation and Maintenance Manuals for various types of equipment and systems, as required by Contract Documents. Operation and Maintenance Manuals shall be provided for all mechanical and electrical equipment. Unless otherwise indicated, furnish separate manual for each piece of equipment and system. If manual contains other items or equipment, indicate where specified items are located in manual. Include in manual complete information necessary to operate, maintain, and repair specific equipment and system furnished under this Contract, and include the following specific requirements;
 1. Contents.
 - a. Table of Contents and Index.
 - b. Brief description of equipment/system and principal components.
 - c. Starting and stopping procedures, both normal and emergency.
 - d. Installation, maintenance, and overhaul instructions including detailed assembly drawings with parts list and numbers, and recommended spare parts list with recommended quantity, manufacturer's price, prorated, based on the percentage of work completed, supplier's address, and telephone number.

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- e. Recommended schedule for servicing, including technical data sheets that indicate weights and types of oil, grease, or other lubricants recommended for use and their application procedures.
- f. One copy of each component wiring diagram and system wiring diagram showing wire size and identification.
- g. One approved copy of each submittal with changes made during construction properly noted, including test certificates, characteristic curves, factory and field test results.
- h. For electrical systems, include dimensioned installation drawings, single line diagrams, control diagrams, wiring and connection diagrams, list of material for contactors, relays and controls, outline drawings showing relays, meters, controls and indication equipment mounted on equipment or inside cubicles, control and protective schematics, and recommended relay settings.

2. Material:

- a. Covers: Oil, moisture, and wear resistant 9 inches by 11-1/2 inches size.
- b. Pages: 8-1/2 inches by 11 inches size with minimum of 2 punched holes 8-1/2 inches apart reinforced with plastic, cloth, or metal.
- c. Fasteners: Metal screw post or Acco metal strap type.
- d. Diagrams and Illustrations: Attach foldouts, as required.

B. Copies:

- 1. Submit three (3) preliminary copies of manuals for review and approval no later than date of shipment of equipment. Installation shall not begin until manuals are accepted by Engineer. Include in preliminary copies all items required under "Contents" above.
- 2. Deliver five (5) copies of finally approved manuals to Engineer before startup.

PART 3 EXECUTION

NOT USED

END OF SECTIO

SECTION 01 33 01

MASTER LIST OF SUBMITTALS

PART 1 GENERAL

- A. The following submittals are required for the Work. Other submittals may be required as requested by the Owner or Owner's Representative.
1. Post-Bid Pre-Award Construction Schedule
 2. Post-Award Construction Schedule
 3. Contractor's Plan of Activities (submitted weekly)
 4. Substitution Requests
 5. Good housekeeping plan
 6. Waste Management Plan
 7. Written Certification of Completion
 8. Record Drawings
 9. Operation and Maintenance Manuals
 10. All other administrative and conditional submittals as explained in this Section 01 33 00 – Submittal Procedures.
 11. Copies of all agency permits, including, but not limited to:
 - a. Encroachment Permits – where applicable
 - b. City Fire Hydrant water use permit – Procured for by Contractor at no cost to the contractor.
 - c. City of Pittsburgh Building Permit / Job Card – Permit procured by Others at no cost to the contractor.
 - d. Bay Area Air Quality Control Board (BAAQCB) Authority to Construct (ATC) documentation procured by Others at no cost to the contractor. Fees for testing and the procurement of the Permit to Operate (PTO)

to be procured by Others.

12. Demolition plan as specified in Section 02 41 00 – Demolition.
13. Concrete mix designs, material certificates, admixtures, form release and curing compounds as specified in Section 03 30 01 - Cast-In-Place Concrete.
14. Product data and samples as specified in Section 09 90 00 – Painting.
15. Shop drawings, installation manuals, product literature, catalog cut sheets for all electrical equipment, conduit and wiring and closeout submittals as specified in Section 26 05 00 – Basic Electrical Materials and Methods.
16. Product data including nameplates, wire numbers and record drawings as specified in Section 26 05 53 – Electrical Identification.
17. Production test of circuit breakers upon request, circuit breaker numbers, type and short circuit rating, provision for future circuit breakers, bussing, including neutral and ground, ratings, and enclosure dimensions and trims as specified in Section 26 18 11 – Overcurrent Protection Devices.
18. Product data, dimensions, weights, voltage, and other data as specified in Section 26 22 00 – Low Voltage Transformer – Dry Type.
19. Product data including circuit breaker numbering, type, short circuit rating, future provisions as specified in Section 26 24 16 – Panelboards.
20. Samples of trenching and backfilling materials as specified in Sections 31 23 17 – Trenching Backfilling and Compacting and 31 23 19 – Structure Excavation and Backfilling.
21. Shop drawings for fences and gates as specified in Section 32 31 00 – Fencing.
22. Project plan, deviation list and schedule, application development system, coordination meeting agendas, I/O list, field instrument, hardware and software, panel layout drawings and wiring diagrams, testing plans, training plans, spares, expendables and test equipment submittal and final submittal documentation as specified in Section 40 50 00 – Instrumentation and Controls – General Provisions.

END OF SECTION

SECTION 01 35 00

MATERIAL SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 GENERAL

- A. The materials furnished and used shall be new, except as may be provided elsewhere in these Specifications, or on the Plans.
- B. All materials required to complete the work under this contract shall be furnished by the Contractor, unless otherwise stated.
- C. It shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instruction before proceeding with the Work. The Engineer may, by appropriate instructions, correct said apparent errors and omissions, which instructions shall be as binding upon the Contractor as though contained in the original Contract Documents.

1.2 DEFINITIONS

- A. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor.
- B. Revisions: Changes to Contract Documents requested by Owner or Engineer.
- C. Options: Specified options of products and construction methods included in Contract Documents.

1.3 TRADE NAMES AND ALTERNATIVES

- A. Wherever an article, or any class of materials, is specified by the trade name or by manufacturer or dealer, or by reference to the catalog of any such manufacturer or dealer, it shall be taken as intending to mean and specify the article or material described or any other equal thereto in quality, finish and durability, and equally as serviceable for the purpose for which it is or they are intended. The intent of the Plans and Specifications is to specify highest grade standard equipment, and it is not the intent of these Plans and Specifications to exclude or omit the products of any responsible manufacturer, if such products are equal in every practical respect to those mentioned herein, as determined by the Engineer.

1.4 *SAMPLES*

- A. At the option of the Engineer, the source of supply of materials for the Work shall be subject to tests and inspection before the delivery is started and before such materials are used in the Work. Samples representative of the character and quality of materials shall be submitted by the Contractor. Samples shall be of sufficient quantities or amounts for testing or examination.
- B. All tests of materials furnished by the Contractor shall be made in accordance with the commonly recognized standards of national technical organizations, and such special methods and tests as are prescribed in the Contract Documents.
- C. The Contractor shall furnish such samples of materials as are requested by the Engineer, without charge. No material shall be used until the Engineer has had the opportunity to test or examine such materials. Samples will be secured and tested whenever necessary to determine the quality of the material. Samples and test specimens prepared at the jobsite, such as concrete test cylinders, shall be taken or prepared by the Engineer, or his designated representative, in the presence and with the assistance of the Contractor.

1.5 *SUBMITTALS*

- A. Material Submittals shall be made in accordance with Section 01 33 00 – Submittals.

1.6 *INSPECTION OF MATERIALS BY THE CONTRACTOR*

- A. Contractor shall make a close inspection of all materials as delivered and shall promptly return all defective materials without waiting for their rejection by the Engineer.

1.7 *CERTIFICATES OF COMPLIANCE*

NOT USED

1.8 *MANUFACTURER TESTING*

NOT USED

1.9 *MANUFACTURERS' RECOMMENDATIONS*

NOT USED

1.10 *SUBSTITUTIONS*

- A. Conditions: Contractor's substitutions shall be considered when one or more conditions are satisfied, as determined by the Engineer. (The Contractor's submittal and Engineer's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not

constitute an acceptable or valid request for substitution, nor does it constitute approval.)

1. Extensive revisions to Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of the Contract Documents.
3. Request is timely, fully documented and properly submitted.
4. Request is directly related to an "or equal" clause or similar language in the Contract Documents.
5. The specified product or method of construction cannot be provided within the Contract Time. The request shall not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
6. Substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear.
 - a. Additional responsibilities for the Owner may include additional compensation to the Engineer for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.
 - b. Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.
7. Specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
8. Specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
9. Specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

1.11 SUBSTITUTION REQUEST FORM

- A. Use Substitution Request Form in on page 01 35 00-5.

- B. Submit one form (3 copies) for each request.

END OF SECTION

SUBSTITUTION REQUEST FORM

Page 1 of 2

TO: _____

PROJECT: _____

We hereby submit for your consideration the following product instead of the specified item for the above project:

SECTION:	PARAGRAPH:	SPECIFIED ITEM:
_____	_____	_____
_____	_____	_____

Proposed Substitution: _____

- Attach: 1) Complete technical data, including laboratory tests, if applicable.
1) Complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

A. Does the substitution affect dimensions on Drawings?

B. Will the undersigned pay for changes to the project design, including engineering and detailing costs caused by the requested substitution?

C. What affect does substitution have on other trades?

D. Differences between proposed substitution and specified item?

E. Manufacturer's guarantees of the proposed and specified items are:
____ Same _____ Different (explain on attached sheet)

SUBSTITUTION REQUEST FORM

Page 2 of 2

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

Submitted By:

Signature__ Firm
_____ Address _____
Date _____
Telephone _____

For Use by Design Consultant
Accepted
Accepted as Noted
Not Accepted
Received Late
By _____

Date _____
Remarks _____

**SECTION 01 42 13
STANDARDS AND ABBREVIATIONS**

PART 1 GENERAL

1.1 REFERENCED STANDARDS

- A. The standards referred to, except as modified, shall have full force and effect as though printed in this Specification, and shall be the latest edition or revision thereof in effect on the bid opening date, unless a particular edition or issue is indicated. Copies of these standards are not available from the Owner. The Engineer will furnish, upon request, information as to how copies may be obtained.

1.2 LIST OF ABBREVIATIONS

- A. Abbreviations and terms, or pronouns in place of them, shall be interpreted as follows:

AASHTO	American Association of State Highway and Transportation Officials	ACI	American Concrete Institute
AI	Asphalt Institute		
AISC	American Institute of Steel Construction	AISI	American Iron and Steel Institute
ANSI	American National Standards Institute	API	American Petroleum Institute
APWA	American Public Works Association		
ASA	(now U.S.A.S.I., USA Standards Institute) Association & its Standard Specifications		
ASCE	American Society of Civil Engineers		
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers		
ASME	American Society of Mechanical Engineers		
ASTM	American Society for Testing and Materials	AWG	
AWG	American Wire Gage		
AWS	American Welding Society		
CAL/OSHA	California Occupational Safety and Health Administration	CALTRANS	California Department of Transportation
CBC	California Building Code		
CCR	California Codes of Regulations	CEC	
CEC	California Electrical Code		
CEQA	California Environmental Quality Act	CFR	
CFR	Code of Federal Regulations		
CMC	California Mechanical Code		
CPC	California Plumbing Code		
CRSI	Concrete Reinforcing Steel Institute		
CS	Commercial Standard (U.S. Department of Commerce)		
EPA	Environmental Protection Agency		
FM	Factory Mutual		
ICBO	International Conference of Building Officials		

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IEEE	Institute of Electrical and Electronics Engineers
MIL	Military Specification
NACE	National Association of Corrosion Engineers.
NCSPA	National Corrugated Steel Pipe Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NPC	National Plumbing Code
NPT	National Pipe Thread
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
SAE	Society of Automotive Engineers
SI	International Systems of Units (Metric)
SPFA	Steel Plate Fabricators Association
SPI	Society of the Plastics Industry
SSI	Scaffolding and Shoring Institute
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction (Greenbook)
UL	Underwriters' Laboratories
UPC	Uniform Plumbing Code
USGS	United States Geological Survey

END OF SECTION

SECTION 01 43 00
QUALITY CONTROL AND TESTING

PART 1 GENERAL

1.1 NOTICE OF DEFECTS

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- B. All defective Work may be rejected, corrected, or accepted, at the discretion of the Owner and Engineer.

1.2 ACCESS TO WORK

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests shall have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith.

1.3 MATERIALS AND EQUIPMENT

- A. Materials and equipment shall be subject to the requirements of Section 01 35 00 – Materials and Substitutions.

1.4 PROJECT SITE TESTING

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. The City of Pittsburg to provide materials tester as a special inspector for all compaction testing for all project phases including but not limited to: AST tank pad, CMU wall, Fuel Sys. Trenching, Site Trenching, etc.

1.5 TEST STANDARDS

- A. All sampling, specimen preparation, and testing of materials shall be in accordance with the standards of nationally recognized technical organizations.
- B. The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the ASTM, where applicable.

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1.6 UNCOVERING WORK

- A. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without concurrence of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and recovered at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be re-observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall promptly correct said defects, including all work involved in uncovering and recovering the work, at no cost to the Owner.
 - 2. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

1.7 CORRECTION OR REMOVAL OF DEFECTIVE OR REJECTED WORK

- A. Upon receipt of notice, Contractor shall correct all defective or rejected Work and replace it with Work that is not defective, at no cost to the Owner.

1.8 ACCEPTANCE OF DEFECTIVE WORK

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so.
 - 1. If any such acceptance occurs, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, prorated, based on the percentage of work completed, reflecting the diminished value of Work so accepted.
 - 2. Engineer shall determine the reasonableness of the diminished value of Work so accepted and Contractor shall pay all costs involved in making such determination.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1 GENERAL

1.1 GENERAL

- A. The Contractor shall provide all temporary facilities and utilities required for completion of the Work as well as safety precautions and programs. No attempt is made to set out in detail the Contractor's means or methods necessary to accomplish the tasks involved.

1.2 TEMPORARY UTILITIES

A. Water

1. The Contractor may make arrangements with the Owner to use municipal water where appropriate during construction.
2. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water.
3. The Owner will provide water for construction purposes at no cost to the Contractor.
4. City will require the contractor to obtain a hydrant meter from Pittsburg Water on the first floor of City Hall, 65 Civic Avenue, and pay all applicable fees.

B. Sanitary Facilities

1. The Contractor shall provide suitable and adequate sanitary conveniences for the use his staff at the site of the Work. Such conveniences shall include chemical toilets or water closets and shall be located at appropriate locations at the site of the Work. All sanitary conveniences shall conform to the regulations of the public authority having jurisdiction (AHJ) over such matters. At the completion of the Work, all such sanitary conveniences shall be removed, and the site left in a sanitary condition.
2. With respect to sanitation facilities, the Contractor shall cooperate with and follow directions of the Public Health Service, State and / or County Public Health Service representatives as applicable.

1.3 *TEMPORARY CONSTRUCTION FACILITIES*

- A. Construction hoists, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.
- B. Temporary supports shall be designed with an adequate safety factor to assure adequate load bearing capability.
- C. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations from one hour before sunset each day to one hour after sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded in such a manner as to prevent person from falling, walking, or otherwise entering any excavation in any street, roadway, parking lot, or any other area, public or private.
- D. The Contractor shall adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices shall, as a minimum, conform to the requirements of Cal/OSHA.
- E. At such time or times any temporary construction facilities and utilities are no longer required for the work, the Contractor shall notify the Engineer of his intent and schedule for removal of the temporary facilities and utilities. The Contractor shall remove the temporary facilities and utilities from the site and leave the site in such condition as specified, or as directed by the Engineer, and/or as indicated on the Plans.

1.4 *ACCESS ROADS AND STAGING AREA*

- A. Adequate access shall be maintained to all storage areas and other areas to which frequent access is required. The Contractor shall limit the location of his storage of equipment and materials within the confines of the Environmental Center as designated by the Owner. The Contractor shall provide any temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.
- B. Storage and protection:
 - 1. Materials and equipment shall be stored in accordance with supplier's written instructions, with seals and labels intact and legible. Exposed metal surfaces of valves, fittings and similar materials shall be coated with accordance with manufacturer's recommendations to prevent corrosion.

2. Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to assure materials and equipment are undamaged and are maintained under required conditions.

END OF SECTION



SECTION 01 51 36
WATERING

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The work of this section consists of furnishing, hauling, and applying water required for compaction of backfills, subgrade, base courses, landscaping, dust control and other construction operation.

1.2 RELATED WORK

- A. Section 01 50 00 – Temporary Facilities
- B. Section 01 57 27 – Dust Control

1.3 REFERENCES

- A. State Standard Specifications Section 10-6, Watering

PART 2 PRODUCTS

2.1 WATER

- A. Free of debris, organic matter, and other objectionable substances.

PART 3 EXECUTION

3.1 WATER TRUCK

- A. AS REQUIRED FOR SERVICE

3.2 APPLICATION

- A. Ensure a uniform application of water for optimum moisture content. Avoid excessive runoff and minimize water waste.

3.3 SPECIAL CONTROLS

The Contractor shall take all reasonable means to minimize inconvenience and injury to the public by dust, noise, diversion of storm water, or other agencies under his control.

- A. Dust Control
 - 1. As specified in Section 01 57 27, Dust Control

B. Water

1. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water.
2. Full compensation for furnishing all labor, materials, tools and equipment and for doing all work involved in furnishing and applying water as required by the Contract Documents and Specifications, State Standard Specifications, shall be considered as included in the contract unit prices paid for other items of work and no additional allowance will be made therefore.

END OF SECTION

SECTION 01 56 29
CULTURAL AND ARCHEOLOGICAL COMPLIANCE

PART 1 GENERAL

1.1 CULTURAL RESOURCES

- A. The California Public Resources Code Chapter 1.7, Section 5097.5 makes it a misdemeanor for anyone to knowingly disturb an archaeological historical feature. California Public Resources Code Sections 5097.98 and 5097.99 require protection of Native American remains which may be found and outlines procedures for handling any burials found.
- B. The California Administrative Code, Title 14, Section 4308, requires that no person disfigure any object of historical interest or value. The California Penal Code, Title 14, Part 1, Section 622-1/2 makes it a misdemeanor to destroy anything of historical value within any public place.
- C. Should human skeletal material or archaeological remains be found during construction activities, all work must be halted within thirty (30) meters of the find. The Contractor shall notify the Engineer immediately. Construction activities within thirty (30) meters of the find shall remain halted until the Contractor has been notified that construction in the vicinity of the find may resume. If, in the opinion of the Engineer, the Contractor's operations are delayed or interfered with due to investigations made of the archaeological find, the City will compensate the Contractor for such delays to the extent provided in Section 8-1.07, " Delays," of the State Standard Specifications.

END OF SECTION

SECTION 01 57 27

DUST CONTROL

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The work of this section consists of implementing measures to prevent air pollution during construction activities, in accordance with Federal, State, and local regulations, and in accordance with the Dust Control Plan (DCP). The DCP can be amended, by the Owner and/or Contractor, as needed should revisions be determined necessary during construction activities.

1.2 RELATED WORK

- A. Section 02 01 20 Protection of Underground Facilities and Survey Monuments
- B. Section 02 41 00 Demolition
- C. Section 31 23 19 Structure Excavation & Backfilling

1.3 SUBMITTALS

- A. Submit DCP in accordance with the General and Special Provisions.
- B. Submit, prior to beginning work and within 15 days of issuance of the Notice to Proceed a DCP.
 - 1. The DCP shall show proposed arrangements and methods for dust control. Show that the plans satisfy all State, and Federal Requirements.

1.4 QUALITY ASSURANCE

- A. Control the rate and effect of watering in such a manner as to avoid all objectionable settlement and subsidence as approved by the Engineer and to assure the integrity of the finished work.
- B. Before commencing grading, excavation or filling in any part of the site, Contractor shall construct the required measures specified in the DCP.
- C. Arrange demolition activities to minimize dust to the maximum practical extent. Clearing, excavation, and grading shall be limited to those areas of the Project site

necessary for construction. Minimize the area exposed and unprotected.

- D. Clearly mark and delineate the work limits activities. Equipment shall not be allowed to operate outside the limits of work or to disturb existing vegetation.

1.5 REGULATORY REQUIREMENTS

- A. Contractor shall comply with all Federal and State regulations.
- B. The requirements of the Dust Control Plan shall apply continuously through the duration of the Contract.

PART 2 PRODUCTS

2.1 EQUIPMENT

- A. Before the work begins, sufficient equipment and resources shall be available on the site to assure that the operation and adequacy of the dust control measures can be continuously maintained.

2.2 DUST CONTROL MEASURES

- A. Water shall be available to the contractor for dust control as specified in section 01 50 00 – Temporary Facilities.
- B. Dust Suppressants shall be polymer emulsions or hygroscopic suppressants. Petroleum emulsions and bituminous materials will not be allowed.
 - 1. If dust suppressants other than water are utilized, Contractor shall submit MSDS, Manufacturer's Usage Instructions, and certification by the manufacturer that the product is safe for ground application.
 - 2. If dust suppressants other than water are utilized, contractor shall notify owner 15 days prior to use.
- C. Gravel used for Gravel Pads shall be washed gravel, a minimum of 3/4 inch in diameter, and shall be placed a minimum of six inches deep.

PART 3 EXECUTION

3.1 GENERAL DESCRIPTION

- A. Dust control measures shall include, but may not be limited to: Water application, dust suppressant application, physical barriers limiting site access, reduction of vehicle speed on site, utilization of gravel pads, utilization of grizzlies, and wheel washers. If physical barriers are utilized, the Engineer shall approve the location, size, and type. Physical barriers shall be removed upon project completion.

- B. Furnish, install, maintain, and operate necessary control measures and other equipment necessary to prevent dust.

Temporary measures shall be to Contractor's own design and Contractor shall be solely responsible for risks related to the management of dust control during construction.

3.2 *METHODS*

- A. As described in the DCP and approved by the Engineer.

3.3 *MAINTENANCE OF TEMPORARY FACILITIES*

- A. Inspect dust control facilities daily and as specified in the DCP.
- B. Sediment shall be removed from grizzlies, gravel pads, and/or paved surfaces as required by the DCP, or as directed by the Engineer.
- C. If areas are seeded, contractor shall examine those areas during or after major storms to check that grass is becoming established.

3.4 *DISPOSAL OF SOIL FROM PAVED SURFACES AND DUST CONTROL DEVICES*

- A. Soil excavated from temporary dust control structures shall be disposed on the site with general fill or with topsoil. Soil shall be allowed to dry out as required before reuse. Any trash shall be removed before reuse.
- B. Contractor shall place the sediment removed from traps and other structures where it will not enter immediately reenter the device or paved area.

3.5 *REMOVAL OF TEMPORARY DUST CONTROL MEASURES*

- A. Temporary control measures shall be removed once grading is completed and soils have stabilized.

3.6 *RECORD KEEPING*

- A. Contractor shall keep accurate records of dust control methods utilized during the course of construction.
- B. Contractor shall keep a copy of the approved DCP, any approved revisions, and all dust control records at the site.
- C. Contractor shall maintain dust control records for one year after project completion.

3.7 *DUST CONTROL*

- A. The Contractor shall take whatever steps, procedures, or means as are required to limit dust generated by his operations during the Work, including Saturdays, Sundays, and Holidays. Dust shall be controlled to the standards of the local governing agency or, in the absence of local standards, to the satisfaction of the Engineer.

Dust control shall extend to any unpaved road which the Contractor or any of his subcontractors are using, to excavation or fill areas, to demolition operations, and to other activities. Control shall be by sprinkling, use of dust palliatives, modification of operations, or any other means acceptable to the local governing agency or, in the absence of same, the Engineer.

If the dust control is not adequate in the opinion of the Engineer, this work may be done by others, and the cost shall be deducted from the total payment due the Contractor.

END OF SECTION

SECTION 01 70 00
CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 GENERAL

- A. It is the intent of these Contract Documents that the Contractor shall deliver a complete and operable facility capable of performing its intended functions and ready for use.

1.2 MEASUREMENT AND PAYMENT

- A. Payment for this item shall include full compensation for all labor, materials, tools, equipment and incidentals to provide for a final punch list and contract closeout documentation as required and specified. Payment for contract closeout shall be included in the bid items listed and no additional compensation shall be made therefor.

1.3 CLEANING

- A. Throughout the period of construction, the Contractor shall keep the Work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the Work, all unused and rejected materials, surplus earth, concrete and debris, excepting select material which may be required for refilling or grading.

1.4 FINAL SITE CLEAN-UP

- A. Upon completion of the Work, and prior to final acceptance, the Contractor shall remove from the vicinity of the Work all paint, surplus material, and equipment belonging to him or used under his direction during construction.
- B. The Contractor shall restore to original condition all property not designated for alteration by these Contract Documents.

1.5 FINAL BUILDING CLEAN-UP

- A. On all building projects and wherever else applicable, besides general broom cleaning, the following special cleaning shall be performed at completion of the Work:
 - 1. Hardware shall be cleaned of all traces of stains, dust, dirt, paints, and blemishes.
 - 2. Equipment shall be cleaned, and stains, paint, dirt, and dust shall be removed.

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3. Dust, cobwebs, and traces of insects and dirt shall be removed.

1.6 *WASTE DISPOSAL*

- A. The Contractor shall dispose of surplus materials, waste products, demolition materials, and debris. The Contractor shall transport and dispose of waste materials in accordance with applicable laws and regulations.

1.7 *PROJECT RECORD DOCUMENTS*

- A. The Contractor shall maintain at the site, available to the Owner and Engineer, one copy of the Contract Documents, Drawings, Shop Drawings, Change Orders, and other modifications in good order and annotated to show all changes made during construction. These Documents shall be delivered to the Engineer for the Owner upon completion of the Work.
- B. Record documents shall be reviewed during progress meetings to ascertain that all changes have been recorded.
- C. Store Record Documents separate from documents used for construction.

1.8 *TOUCH-UP AND REPAIR*

- A. The Contractor shall touch-up or repair finished surfaces on structures, equipment, fixtures, or installations that have been damaged prior to final acceptance. Surfaces on which such touch-up or repair cannot be successfully accomplished shall be completely refinished or in the case of hardware and similar small items, the item shall be replaced. Such items shall include, but not be limited to, the following:
 1. Road surfaces
 2. Exposed structure surfaces
 3. Exposed equipment surfaces
 4. Exposed piping surfaces

1.9 *EQUIPMENT START-UP*

- A. After all acceptance tests have been completed by the Contractor and Owner but prior to final acceptance, the Contractor shall recheck all equipment for proper alignment and adjustment, check oil levels, re-lubricate all bearings and wearing points, and in general assure that all equipment is in proper condition for continuous operation.

1.10 *OPERATION AND MAINTENANCE (O&M) MANUALS*

- A. The contractor shall provide operations and maintenance manuals for all equipment to the City prior to final project acceptance.

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1.11 FINAL EQUIPMENT CHECK

- A. Provide submittals to the Owner required by other governing authorities.

END OF SECTION

SECTION 02 01 20

**PROTECTION OF UNDERGROUND
FACILITIES AND SURVEY MONUMENTS**

PART 1 GENERAL

1.1 UNDERGROUND FACILITIES

- A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing underground facilities at or contiguous to the project work is based on information and data furnished to Owner or Engineer by the owners of such underground facilities.
1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data.
 2. The cost of all of the following will be included in the Contract Price, prorated, based on the percentage of work completed, and Contractor shall have full responsibility for:
 - a. Reviewing and checking all such information and data,
 - b. Locating all Underground Facilities shown or indicated in the Contract Documents,
 - c. Coordination of the Work with the owners of such underground facilities (ie. PG&E, etc.)
 - d. The safety and protection of all such underground facilities and repairing any damage thereto resulting from the work.
- B. Not Shown or Indicated: If an underground facility is uncovered or revealed at or contiguous to the site which was not shown or indicated with reasonable accuracy in the Contract Documents, the following shall apply.
1. Contractor shall develop and execute a work-plan, subject to Engineer's approval to protect underground facilities.
 2. Full compensation for all costs involved in locating, verifying, protecting, exposing, and otherwise providing for utilities shall be included in the amounts bid for the various items of work, and no separate payment shall be made therefore.

1.2 PROTECTION

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- A. The Contractor shall not interrupt the service function or disturb the supporting base of any Utility by disrupting any facility identified in the Plans and Specifications without authority from the Owner or order from the Engineer. Where protection of such facilities is required to ensure support of utilities, the Contractor shall, unless otherwise provided, furnish and place the necessary protection at the Contractor's expense.
- B. The Contractor shall be prepared at all times with labor, equipment and materials to make repair on damaged mains or Utility facilities. The Contractor shall immediately notify the Engineer and the Utility owner if he disturbs, disconnects or damages any Utility. The Contractor shall bear the costs of repair or replacement of any Utility facility described with reasonable accuracy in the Plans and Specifications that is damaged by the Contractor. No extra compensation will be made for the repair of any services or mains damaged by the Contractor, nor for any damage incurred if the neglect or failure of providing protective barriers, lights and other devices or means required to protect such existing utilities or facilities described with reasonable accuracy in the Plans and Specifications.

1.3 *SURVEY MARKERS AND PERMANENT REFERENCE POINTS*

- A. As of the date of the start of Notice to Proceed, all survey monuments as shown on record maps and on the project plans of the job site shall be the responsibility of the Contractor as specified in the General Conditions.

END OF SECTION

**SECTION 02 41 00
DEMOLITION**

PART 1 GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of demolition and removal of pavements, slabs, miscellaneous debris, control boxes, fences, etc. Remove and legally dispose of one (1) aboveground gasoline storage tanks, associated piping, dispenser, vapor recovery system/tank, monitoring panel, and appurtenant equipment, including:
 - 1. Disposal/recycling of surplus gasoline
 - 2. Cleaning and inerting existing tank.
 - 3. Removal and disposal of one 1,000 gallon double walled aboveground Convault storage tank (AST), including attached piping and miscellaneous related materials.

1.2 WORK INCLUDED

- A. Repair and restoration of areas damaged due to demolition work.
- B. Salvaging of equipment for Owner.
- C. Removal of demolished materials from site.
- D. Remove existing piping and other existing structures as shown on the Plans to be removed.
- E. Properly dispose of all removed materials.
- F. Removal of landscaping as required for construction. Removal of trees to be done by City of Pittsburg.

1.3 RELATED WORK

- A. Section 01 57 27 – Dust Control
- B. Section 03 30 01 – Cast In Place Concrete
- C. Section 31 11 00 – Clearing and Grubbing

1.4 SEQUENCING

NOT USED

1.5 REGULATORY REQUIREMENTS

- A. Perform all demolition and disposal in accordance with all permits issued for the project and applicable regulatory requirements.

- B. Dispose of removed materials in an approved disposal or salvage facility.

1.6 REFERENCES

- A. Section 17- 2 – Clearing and Grubbing, State Standard Specifications
- B. Section 19 – Earthwork, State Standard Specifications

1.7 SUBMITTALS

- A. Submittals shall be in accordance with the Standard General Conditions and the Supplementary Conditions.
- B. Demolition plan including sequence of operations. The plan shall specifically address methods of demolition, schedule, and sequence. Demolition shall not proceed until the plan has been approved.

1.8 QUALITY ASSURANCE

- A. General: Take all necessary precautions with regard to safety in carrying out the demolition and site work. Erect suitable barriers around open excavations and fulfill all appropriate requirements of CAL/OSHA. Comply with safety requirements for demolition, ANSI A10.6-06.

1.9 PROJECT CONDITIONS

- A. Underground utilities exist at this site. Contractor shall take all necessary precautions to protect said utilities. Notify Engineer of any deviation in utility location from that which is shown on the drawings.
- B. Keep dust to a minimum at removal site.
- C. Ensure safety of persons in demolition area. Provide temporary barricades as required.

1.10 CLOSEOUT SUBMITTALS

- A. As specified in Section 01 70 00 – Project Closeout.
- B. Show all capped and abandoned utility terminations and location of remaining facilities on project Record Drawings.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Items to be Salvaged and Relocated shall be salvaged and/or relocated as shown on the drawings, or as directed by the Engineer.
- B. Materials and items demolished and not designated for reuse, salvage or transfer to the Owner, as well as all debris, rubbish and other materials resulting from the demolition operations, shall become the property of the Contractor and shall be removed from the site.
- C. Storage or sale of the removed items will not be permitted at the site.

PART 3 EXECUTION

3.1 INSPECTION

- A. Prior to demolition, inspect the site conditions, verifying all governing dimensions, notes and specification. Notify the Engineer of any errors or omissions in the contract documents.
- B. Make such explorations and probes as are necessary to ascertain any required protection measures before proceeding with the demolition and removal work.

3.2 PREPARATION

- A. Protect existing, appurtenances, structures, which are not to be demolished.
- B. Contractor shall provide appropriate measures to prohibit demolition debris and/or soil from entering any watercourse.
 - 1. Protect all buildings, structures, utilities, and vegetation to remain.

3.3 DEMOLITION REQUIREMENTS

- A. Conduct demolition to protect and minimize damage to structures and existing improvements.
- B. Conduct salvaging to protect and minimize damage to salvaged equipment.
- C. Execute the work in a careful, orderly and safe manner, with the least possible disturbance to the public. Cease operations immediately if adjacent work appears to be endangered. Do not resume operations until corrective measures have been taken.
- D. Removal and Disposal of existing gasoline fuel

1. All piping shall be drained or flushed into the tank or other container. If drained into another container, the container must be labeled and hazardous waste and disposed of accordingly.
 2. Pump out and recycle/dispose any remaining gasoline product from existing AST.
 3. Gasoline product must be recycled/disposed of lawfully at a facility approved by the Owner.
- E. Removal and Disposal of Aboveground Storage Tank
1. Remove remaining sludge from existing AST, triple rinse and degas in accordance with local regulations. Sludge and rinsate shall be treated and disposed as hazardous waste.
 2. Load, transport and dispose of tanks at a facility approved by the City. The City's consultant or a representative of the City will sign manifests.
- F. Pavement and Slabs:
1. Where indicated, remove completely all Portland cement concrete slabs-on-grade including, but not limited to, equipment pads, sidewalks, etc. Pad for existing 1,000-gallon AST to remain in place.
 2. Saw cut existing asphalt concrete pavements cleanly in straight continuous lines. Remove asphalt concrete pavement as shown on the drawings or as required for construction.
- G. Items to be Salvaged: Remove carefully all materials and equipment designated for salvage to a location designated by the Engineer.
- H. Abandoned Utilities: Remove above ground utilities and terminate as approved by the utility company and the Engineer. Remove necessary portions of underground utilities to within 24 inches of excavation or final grade. Plug abandoned pipes and conduits with concrete plugs. Plugs shall be 6 inches or 2 times the pipe diameter in length, whichever is greater.
1. Water lines shall be capped as close as possible to active mains.

3.4 SALVAGE EQUIPMENT

- A. Salvaged equipment shall be delivered to the Owner at a designated site within the project site. Salvaged equipment shall be placed on wood or concrete blocks so the equipment will be 4 inches minimum above ground elevation.

3.5 PRESERVATION

- A. If indicated or required, preserve trees, plants, rock outcroppings, or other features designated to remain. Protect trees and plants from damage; where applicable – fell

trees in a manner which shall not injure standing trees, plants and improvements which are to be preserved.

3.6 *DISPOSAL*

- A. Remove waste materials from project property and dispose in a legal manner.

END OF SECTION

SECTION 03 30 01

CAST-IN-PLACE CONCRETE (SITE WORK)

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Work required under this section consists of furnishing all materials, supplies, equipment, tools, transportation, and facilities, and performing all labor and services incidental to furnishing and installing concrete work as described in this section of the Specifications, shown on the accompanying Plans, or reasonably implied therefrom, except as hereinafter specifically excluded. The work shall include, but is not necessarily limited to:
1. All form work including special forms as required for any special construction and/or to accommodate the work of others and removal of forms.
 2. All concrete reinforcement, placement, bending and forming thereof.
 3. All concrete and cement finishing, all surface treatment and curing including non-slip finishes.
 4. Installation of all bolts, anchors, cans, sleeves, column bolts, etc., whether furnished under this section or by others.
 5. The furnishing of all items required to be or shown on the Plans as embedded in concrete, which are not specifically required under other sections.
 6. Setting headers and screens finishing, curing, and protecting concrete.
- B. Where prior inspection and test of materials are required, documentary evidence, in the form of test reports, shall be furnished prior to the time the material is incorporated into the work. All rejected material shall be promptly removed from the premises.

1.2 RELATED WORK

- A. 31 23 17 Trenching Backfilling and Compacting
- B. 31 23 19 Structure Excavation and Backfilling
- C. Division 31 – Earthwork

1.3 REFERENCES

- A. American Concrete Institute (ACI)
- B. American Society for Testing and Materials (ASTM)
- C. State Standard Specifications

1.4 DEFECTIVE WORK

- A. Work considered to be defective may be ordered, by the Engineer, to be replaced in which case the Contractor shall remove and replace the defective work at its expense. Work considered to be defective shall include, but not be limited to, the following:
1. Concrete incorrectly formed, or not conforming to details and dimensions on the Plans or with the intent of these documents or concrete the surfaces of which are out of plumb or level.
 2. Concrete in which defective or inadequate reinforcing steel has been placed.
 3. Concrete containing wood, cloth, or other foreign matter, rock pockets, voids, honeycombs, cracks or cold joints not scheduled or indicated on the Plans.
 4. Concrete below specified strength.

1.5 SUBMITTALS

- A. Submittals shall be in accordance with Section 01 33 00 of these Specifications.
- B. Where specified; provide material certificates, shop fabrication and placement drawings, and schedule for all reinforcing steel, embedded items, form release and curing compounds.

PART 2 PRODUCTS

2.1 CONCRETE

1. Concrete shall conform to Section 90 of the State Standard Specifications. Unless otherwise shown or specified, all concrete shall contain not less than 611 pounds of Portland cement per cubic yard of concrete (6-1/2 sack) with a minimum 28-day compressive strength of 4000 psi. Portland cement shall be Type II
 2. Concrete shall contain 6% ±1% entrained air.
 3. Water/cement ratio shall not exceed 0.45 (by weight).
 4. Slump at placement shall be 4 inches.
- A. Slurry cement backfill used in lieu of compacted soil shall contain not less than 188- pounds of Type II Portland Cement per cubic yard of concrete (2 sack) and shall comply with Section 19-3.02E of the State Standard Specifications.

2.2 *AGGREGATE*

- A. Aggregate for normal weight concrete shall conform to Section 90-1.02C, "Aggregates" of the State Standard Specifications. Aggregates shall be free of dirt, clay balls, roots, bark and other deleterious substances and shall be thoroughly washed before use.
- B. The combined aggregates for concrete shall conform to the grading limits for the one (1) inch, maximum size specified in Section 90-1.02C(4)(d), "Aggregate Gradation" of the State Standard Specifications, Combined Aggregate Gradings.

2.3 *WATER*

- A. Water shall comply with Section 90-1.02D, "Water" of the State Standard Specifications, and shall be clean and free from injurious amounts of acids, alkalis, salts, oils, organic materials or other deleterious substances.

2.4 *FLYASH*

NOT PERMITTED

2.5 *ADMIXTURES*

Admixtures shall comply with Section 90-1.02E, "Admixtures", of the State Standard Specifications

- A. Air Entraining: ASTM C260
- B. Water Reducing: ASTM C494, Type A, D or F
- C. Accelerating: ASTM C494, Type C or E
 - 1. No admixture containing any chloride ions is acceptable.
- D. Retarding: ASTM C494, Type B, D or G

2.6 *REINFORCING STEEL*

- A. Rebar shall be ASTM designation A615, Grade 60.
- B. Welded wire fabric shall conform to ASTM A 1064.

2.7 *EXPOSED-TO-VIEW CONCRETE*

- A. For exposed-to-view concrete, where legs of metal supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class I).
- B. Metal bar supports in slab covers for sewage-containing structures shall also be provided with plastic coated legs.

2.8 FORM MATERIALS

- A. Exposed Concrete: Plywood complying with U.S. Plywood Standard PS-1 "BB (Concrete Form) Plywood" Class I, or better.
- B. Textured Finish Concrete: Units of face design, size arrangement and configuration to match control sample.
- C. Cylindrical Columns and Supports: Metal, fiberglass or waxed paper tubes of sufficient wall thickness to resist imposed loads without deformation.
- D. Form Release Agent shall leave behind a paintable concrete surface.
 - 1. Release #1, The Burke Co., or Engineer approved equivalent.

2.9 CURING MATERIALS

- A. Polyethylene film
- B. Reinforced waterproof paper
 - 1. Sisal Kraft, Orange Label, or approved equal.
- C. Liquid-membrane curing compound
 - 1. Curing compound shall comply with ASTM C309, Type 2.
 - a. White pigmented material
 - b. Clear pigment may be used for concrete that will be exposed to public view.

PART 3 EXECUTION

3.1 REINFORCING STEEL

- A. Comply with CRSI, "Placing Reinforcing Bars" and as specified herein.
- B. Place reinforcing steel and embedded items in accordance with approved shop drawings.
- C. Splicing of bars shall be by lapping. Lapped splices shall be 45 bar diameters for bar size through #8 and 60 bar diameters for larger bars, unless otherwise shown on the Plans.
- D. Splicing of the wire fabric shall be by lapping. Lapped splices shall be two full mesh, minimum.
- E. All rebar in vertical walls shall be supported by concrete block spacers or metal chairs.
- F. Prior to placement of the concrete, reinforcing steel shall be cleaned and free of all concrete, dirt, oil, mill scale, rust or other coatings that would reduce or destroy the bond.

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- G. All reinforcing steel and embedded items shall be reviewed and approved by the Engineer prior to concrete placement.

3.2 FORMS

- A. All forms shall be cleaned and an approved agent applied each time they are used and shall be so constructed and set as to resist, without springing or settlement, the pressure of the concrete and the placing operations.
- B. In designing forms and falsework, the concrete shall be treated as a liquid weighing at least 150 lbs. per cubic foot for vertical loads and not less than 85 lbs. per cubic foot for horizontal pressure. The design of the forms and falsework system shall include allowances for temporary construction loads. The rate of placement of concrete shall be so regulated that the pressures caused by the wet concrete will not exceed the designed form pressure. The unsupported length of wooden columns and compression members shall not exceed 30 times the width of the least side.
- C. All forms shall be set and maintained in true alignment, grade and section until the concrete has sufficiently set. The interior surfaces of forms shall be adequately treated with an acceptable material to insure non-adhesion of mortar. All forms shall be mortar-tight. When forms appear to be unsatisfactory in any way, concrete placement shall be stopped until the defects have been corrected.
- D. All exposed outside corners, including the top edges of all walls, machinery bases and curbs shall have a $\frac{3}{4}$ -inch chamfer.
- E. Metal tie rods or anchorages within the forms shall be fitted with suitable cones or comparable devices. Metal tie rods or anchorages shall be removed to a depth of 1" from the surface without injury to the concrete. All fittings for metal ties shall be of such design that upon their removal, the cavities which are left will be of the smallest possible size, but of sufficient diameter to allow the cavity to be "dry packed" with cement mortar. The cavities shall be filled with cement mortar and the surface left sound, smooth and even.
- F. Form release agent shall be applied to the form so that no agent comes in contact with reinforcing steel.

3.3 PLACING

- A. All concrete shall be placed before it has taken its initial set and shall be placed in horizontal layers and in such a manner as to avoid segregation. The concrete adjacent to the forms and joints shall be thoroughly internal consolidated with a vibrator operating at not less than 4,500 vibrations per minute.
 - 1. Pumping equipment shall be of suitable type, without Y-sections, and with adequate pumping capacity.
 - 2. Loss of slump in pumping shall not exceed $1\frac{1}{2}$ ".

3. Concrete shall not be placed through reinforcing that may cause separation of aggregates.
- B. The concrete shall be deposited as nearly as possible in its final position. Drop chutes and elephant trunks shall be used on drops greater than 5 feet. Concrete shall be placed at such a rate that all concrete in the same lift will be deposited on plastic concrete. The concrete comprising each unit of work shall be placed in a continuous lift.
- C. The Contractor shall notify the Engineer 24 hours (1 working day) prior to concrete placement.
 1. The form work and reinforcing steel placement shall be approved by the Engineer prior to ordering concrete.
- D. Form Removal. Minimum times for removal after concrete placement are as follows: 72 hrs.
- E. Construction Joints
 1. Ensure the end forms of walls are removable without releasing the side forms. Provide seals around reinforcement and water stop to prevent mortar leaks.
 2. Overlap the hardened concrete of the first pour with forms for the second pour. Brace the ends of the forms against the hardened concrete to prevent joint offsets and mortar leakage. Align any exterior features required on the finished surface.

3.4 CONCRETE JOINTS

- A. General
 1. Provide joints:
 - a. As shown on the Drawings and as noted below in these Specifications.
 - b. As required for constructability
 - c. After favorable review of layout, sequence and concrete placement program.
 2. Provide minimum curing times before the second placement:
 - a. 2 days after the first concrete placement at the joint.
 - b. 10 days after each adjacent concrete placement, for infill pours or checkerboard placement pattern.
- B. Control Joints:
 1. Space typical control joints in slabs on grade or suspended slabs not exceeding 10 feet, or as shown on the Drawings. Control joints shall not be provided in water containment structures.

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2. If cast-in with the concrete, positively locate the preformed joint filler and hold rigidly in place during concreting.
3. If saw-cut, use a wheeled power saw as soon as the concrete surface is firm enough. Saw-cut control joints must be constructed within 12-hours after concrete placement. Fill the groove with sealant over a backer rod.

C. Construction Joints:

1. Produce quality concrete, with full continuity of reinforcing and water tightness across the joints.
2. Space typical slab joints not exceeding 20 feet in the direction of the transverse or secondary reinforcing, typically the smaller reinforcing nearer to the center of the slab thickness. Space typical vertical wall joints no more than 30 feet apart.
3. Continue all reinforcing through the joint unless otherwise noted.
4. After the first concrete placement at the joint, do not walk on or disturb any reinforcing extending into the second placement area for at least 48 hours.
5. Before depositing new concrete on or against concrete that has hardened, clean and roughen the entire surface of the joint exposing clean coarse aggregate solidly embedded in mortar matrix. Provide typically 1/4-inch roughness or amplitude of the concrete surface measured from the top of the exposed aggregate to the bottom of pockets between stones.
6. Drench the prepared joint with clean water and remove prior to the concrete pour.
7. Cover horizontal wall joints and wall-to-slab joints with a minimum thickness of 2 inches and a maximum of 6 inches of the modified concrete mix, consisting of the designated concrete mix with one-half of the coarse aggregate removed.
8. Use special care in vibrating adjacent to construction joints to ensure thorough consolidation of the concrete against the hardened portion of the joint. Additional hand tamping may be required.
9. For joints that are shown on the drawings as having a continuous reveal or recess, leave the wood form or pour strip used to create the reveal or recess in place or re-insert before roughening. Prevent the next concrete placement from filling the reveal or recess.

D. Expansion Joints

1. Stop all steel reinforcing clear of the joint at each side.
2. Prepare a smooth first concrete surface with all voids filled.

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3. Provide preformed joint filler, securely fastened to the existing concrete as directed by the Manufacturer.
 4. Install bond breaker and sealant after curing is completed and when directed.
- E. Bonding to Pre-existing Concrete: Mechanically roughen the old surface to a 1/4- inch amplitude, as defined in construction joint paragraph above. Apply epoxy bonding material prior to concreting, as recommended by the manufacturer.

3.5 *CONCRETE CURING*

- A. Exposed concrete surfaces shall be protected from premature drying by covering as soon as possible with canvas, plastic sheets with sealed joints, burlap, sand or other satisfactory materials and kept continuously moist; or, if the surfaces are not covered, they shall be kept continuously moist by flushing or sprinkling.
1. Curing shall continue for a period of not less than 7 days after placing the concrete. If curing compound is used, two (2) applications will be made for even coverage. Curing methods must be approved by the Engineer.

3.6 *FINISHING*

- A. Defective and honeycombed surfaces shall be chipped back to such a depth to expose solid concrete. The surface shall be dampened and coated with a bonding agent and packed with mortar.

- B. Concrete Finishes for Vertical Wall Surfaces:

NOT APPLICABLE

- C. Concrete Finishes for Horizontal Slab Surfaces:

1. General: Tamp concrete to force coarse aggregate down from surface. Screed with straightedge, eliminate high and low places, bring surface to required finish elevations; slope uniformly to drains. Dusting of surface with dry cement or sand during finishing processes not permitted.
2. Slab Finish shall be as follows:
 - a. Exterior slabs, platforms, steps and landings, exterior and interior pedestrian ramps and interior stairs and all process equipment areas, not covered by other finish materials: Broom finish.
3. Deviation in finish surface shall not exceed 1/4" in 10 ft.
4. No tolerance will be allowed that will result in the maximum running, or cross, slope exceeding the requirements of the Americans with Disabilities Act.

3.7 TESTING

- A. Testing of concrete shall be as required by the Engineer and in accordance with ACI 301, Chapter 16.
 - 1. All costs of initial testing will be paid by the Contractor unless otherwise noted.
 - 2. All costs involved, including those required by the Engineer, in retesting of concrete required because of a failure to meet these Specifications shall be at the expense of the Contractor.

3.8 WATERTIGHTNESS OF CONCRETE WORK

NOT APPLICABLE

3.9 HYDRAULIC TESTINGS OF STRUCTURES

NOT APPLICABLE

END OF SECTION

SECTION 04 05 13

MASONRY MORTARING

PART 2 - GENERAL

2.1 SUMMARY

- A. Section Includes:
 - 1. Masonry mortar, grout, concrete wall foundations, reinforcement, masonry units, etc. as shown in the plans. sections.

2.2 RELATED REQUIREMENTS

NOT USED

- A. Mortar used in Section:
 - 1. Section 04 05 16, MASONRY GROUTING.
 - 2. Section 04 20 00, UNIT MASONRY.

2.3 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this section.
- B. ASTM International (ASTM):
 - 1. C40/C40M-11 - Organic Impurities in Fine Aggregates for Concrete.
 - 2. C91/C91M-12 - Masonry Cement.
 - 3. C144-11 - Aggregate for Masonry Mortar.
 - 4. C150/C150M-15 - Portland Cement.
 - 5. C270-14a - Mortar of Unit Masonry.
 - 6. C595/C595M-15e1 - Blended Hydraulic Cements.
 - 7. C979/C979M-10 - Pigments for Integrally Colored Concrete.
 - 8. C1329/C1329M-15 - Mortar Cement.

2.4 SUBMITTALS

- A. Submittal Procedures: Section 01 33 00, PRODUCT DATA, SAMPLES, etc.
- B. Manufacturer's Literature and Data:
 - 1. Description of each product.
- C. Test Reports: Certify each product complies with specifications.
 - 1. Mortar.
 - 2. Admixtures.
- D. Certificates: Certify each product complies with specifications.
 - 1. Portland cement.
 - 2. Masonry cement.
 - 3. Mortar cement.
 - 4. Hydrated lime.
 - 5. Fine aggregate.

- E. Qualifications: Substantiate qualifications comply with specifications.
 - 1. Testing laboratory.

2.5 QUALITY ASSURANCE

- A. Preconstruction Testing:
 - 1. Engage independent testing laboratory to tests and submit reports.
 - a. Deliver samples to laboratory in number and quantity required for testing.
 - 2. Test mortar and materials specified.
 - 3. Mortar:
 - a. Test for compressive strength and water retention according to ASTM C270.
 - b. Minimum Mortar compressive strengths 28 days:
 - 1) Type M: 2,500 psi.
 - 2) Type S: 1,800 psi.
 - 3) Type N: 750 psi.
 - 4. Non Staining Cement: Test for water soluble alkali.
 - a. Water Soluble Alkali: Maximum 0.03 percent.
 - 5. Sand: Test for deleterious substances, organic impurities, soundness and grading.

2.6 DELIVERY

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, // color, // production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

2.7 STORAGE AND HANDLING

- A. Store masonry materials under waterproof covers on planking clear of ground.
 - 1. Protect loose, bulk materials from contamination.
- B. Protect products from damage during handling and construction operations.

2.8 WARRANTY

- A. Construction Warranty: One (1) year and labor and material from date of acceptance.

PART 3 - PRODUCTS

3.1 MATERIALS

- A. Hydrated Lime: ASTM C207, Type S.
- B. Aggregate for Masonry Mortar: ASTM C144 and as follows:
 - 1. Light colored sand for mortar for laying face brick.
 - 2. White plastering sand meeting sieve analysis for mortar joints. Except that 100 percent passes No. 8 sieve, and maximum 5 percent retained on No. 16 sieve.
 - 3. Test sand for color value according to ASTM C40/C40M. Sand producing color darker than specified standard is unacceptable.
- C. Blended Hydraulic Cement: ASTM C595/C595M, Type IS, IP.

- D. Masonry Cement: ASTM C91/C91M. Type N, S, or M.
 - 1. Use white masonry cement whenever white mortar is specified.
- E. Mortar Cement: ASTM C1329/C1329M, Type N, S or M.
- F. Portland Cement: ASTM C150/C150M, Type I.
 - 1. Use white Portland cement wherever white mortar is specified.
- G. Pigments: ASTM C979/C979M; inorganic, inert, mineral pigments only, unaffected by atmospheric conditions, nonfading, alkali resistant, and water insoluble.
- H. Water: Potable, free of substances that are detrimental to mortar, masonry, and metal.

3.2 PRODUCTS - GENERAL

- A. Basis of Design: Refer to Drawings
- B. Provide each product from one manufacturer and from one production run.

3.3 MIXES

- A. Pointing Mortar for New Work:
 - 1. For Cast Stone or Precast Concrete: Proportion by volume; one part white Portland cement, two parts white sand, and 1/5 part hydrated lime.
- B. Masonry Mortar: ASTM C270.
 - 1. Admixtures:
 - a. Do not use mortar admixtures, and color admixtures unless approved by the Engineer.
 - b. Do not use antifreeze compounds.
- C. Colored Mortar:
 - 1. Maintain uniform mortar color for exposed work, throughout.
 - 2. Match mortar color to the masonry unit selected by the Owner.
 - 3. Alteration Work Mortar Color: Match existing mortar unless specified elsewhere.

PART 4 - EXECUTION

4.1 PREPARATION

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.

4.2 MIXING

- A. Measure ingredients by volume using known capacity container.
- B. Mix for 3 to 5 minutes in a mechanically operated mortar mixer.
- C. Mix water with dry ingredients in sufficient amount to provide a workable mixture which will adhere to vertical surfaces of masonry units.
- D. Mortar Stiffened Because of Water Loss Through Evaporation:
 - 1. Re-temper by adding water to restore to proper consistency and workability.

2. Discard mortar reaching initial set or unused within two hours of mixing.

E. Pointing Mortar (Where Applicable):

1. Mix dry ingredients with enough water to produce damp mixture of workable consistency retaining shape when formed into ball.
2. Allow mortar to stand in dampened condition for 60 to 90 minutes.
3. Add water to bring mortar to a workable consistency before use.

4.3 MORTARING

- A. Type S Mortar: Use for masonry containing vertical reinforcing bars, masonry below grade, and engineered reinforced unit masonry work.

4.4 FIELD QUALITY CONTROL

- A. Field Tests: Performed by testing laboratory
1. Take and test samples during progress of work according to ASTM C780
- B. Perform Special Inspection as cited in the plans.

END OF SECTION

**SECTION 04 05 16
MASONRY GROUTING**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Grout for filling hollow concrete masonry cores. Masonry mortar, grout, concrete wall foundations, reinforcement, masonry units, etc. as shown in the plans.

1.2 RELATED WORK

- A. Section 04 20 00, UNIT MASONRY: Grout
- B. Section 04 05 13, MASONRY MORTARING

1.3 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this section
American National Standards Institute (ANSI):
- B. ASTM International (ASTM):
 - C40/C40M-20 - Organic Impurities in Fine Aggregates for Concrete.
 - C150/C150M-20 - Portland Cement.
 - C207-18 - Hydrated Lime for Masonry Purposes.
 - C404-18 - Aggregates for Masonry Grout.
 - C476-20 - Grout for Masonry.
 - C595/C595M-20 - Blended Hydraulic Cement.
 - C1019-19 - Sampling and Testing Grout.

1.4 SUBMITTALS

- A. Submittal Procedures: Section 01 33 00; PRODUCT DATA, SAMPLES, etc.
- B. Manufacturer's Literature and Data:
 - 1. Description of each product.
- C. Test Reports: Certify each product complies with specifications.
 - 1. Grout, each type.
 - 2. Cement.
 - 3. Aggregate.
- D. Certificates: Certify each product complies with specifications.
 - 1. Blended hydraulic cement.
 - 2. Portland cement.
 - 3. Grout.
 - 4. Hydrated lime.
 - 5. Aggregate.
 - 6. Color admixture.

1.5 QUALITY ASSURANCE

- A. Preconstruction Testing: Not Applicable

1.6 DELIVERY

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, production run number, and manufacture date.

1.7 STORAGE AND HANDLING

- A. Store masonry materials under waterproof covers on planking clear of ground, and protect damage from handling, dirt, stain, water and wind.
- B. Protect products from damage during handling and construction operations.

1.8 WARRANTY

- A. One (1) year and labor and material from date of acceptance.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Grout Components:
 - 1. Hydrated Lime: ASTM C207, Type S.
 - 2. Aggregate For Masonry Grout: ASTM C404, Size 8.
 - 3. Blended Hydraulic Cement: ASTM C595, Type IS, IP.
 - 4. Portland Cement: ASTM C150, Type I.
 - 5. Water: Potable, free of substances that are detrimental to grout, masonry, and metal.

2.2 PRODUCTS - GENERAL

- A. Provide each product from one manufacturer and from one production run.

2.3 MIXES

- A. Grout: ASTM C476; fine grout and coarse grout.
 - 1. Color Admixture:
 - a. Pigments: ASTM C979, inert, stable to atmospheric conditions, nonfading, alkali resistant, and water insoluble.
 - b. Use mineral pigments only.
- B. Ready-Mixed Grout: ANSI A118.8.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.
- C. Clean mortar from masonry cells protruding more than 13 mm (1/2 inch) to permit grout flow.
- D. Remove debris from grout spaces.
- E. Verify reinforcement is correctly placed before placing grout.

3.2 MIXING

- A. Mix grout in mechanically operated mixer.
 - 1. Mix grout for five minutes, minimum.
- B. Measure ingredients by volume using container of known capacity.
- C. Mix water with grout dry ingredients.
 - 1. Slump Range: 200 to 275 mm (8 to 11 inches).

3.3 GROUTING

- A. Install grout according to Section 04 20 00, UNIT MASONRY.
- B. Use fine grout for filling wall cavities and hollow concrete masonry units where smallest cell dimension is 50 mm (2 inches) or less.
- C. Use either fine grout or coarse grout for filling wall cavities and hollow concrete masonry units where smallest cell dimension is greater than 50 mm (2 inches).
- D. Use grout for filling bond beam or lintel units.

END OF SECTION

SECTION 04 20 00

UNIT MASONRY

PART 5 - GENERAL

5.1 SUMMARY

- A. Section Includes: Concrete masonry unit (CMU) assemblies for:
 - 1. Exterior walls.

5.2 RELATED REQUIREMENTS

- A. Sealants and Sealant Installation: Section 07 92 00, JOINT SEALANTS.
- B. Color and Texture of Masonry Units: Section 09 06 00, SCHEDULE FOR FINISHES.

5.3 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this section.
- B. American Concrete Institute (ACI):
 - 1. 315-99 - Details and Detailing of Concrete Reinforcement.
 - 2. 530.1/ASCE 6/TMS 602-13 - Specification for Masonry Structures.
- C. ASTM International (ASTM):
 - 1. A615/A615M-15ae1 - Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 - 2. A951/A951M-14 - Steel Wire for Masonry Joint Reinforcement.
 - 3. A1064/A1064M-15 - Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 - 4. C90-14 - Load-Bearing Concrete Masonry Units.
- D. American Welding Society (AWS):
 - 1. D1.4/D1.4M-11 - Structural Welding Code - Reinforcing Steel.

5.4 SUBMITTALS

- A. Submittal Procedures: Section 01 33 00, PRODUCT DATA, SAMPLES, etc.
- B. Submittal Drawings:
 - 1. Not Applicable. Comply with ACI 315.
- C. Manufacturer's Literature and Data:
 - 1. Description of each product.
 - 2. Installation instructions.
- D. Samples:
 - 1. Concrete masonry units
- E. Test reports: Certify products comply with specifications.
- F. Certificates: Certify products comply with specifications.

5.5 QUALITY ASSURANCE

No Special Quality Assurance required provide samples and certifications are provided as cited in these specifications (SECTION 04 20 00).

5.6 DELIVERY

- A. Deliver products in manufacturer's original sealed packaging.
- B. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

5.7 STORAGE AND HANDLING

- A. Store products above grade, protected from contamination.
- B. Protect products from damage during handling and construction operations.

5.8 FIELD CONDITIONS

- A. Hot and Cold Weather Requirements: Comply with ACI 530.1/ASCE 6/TMS 602.

5.9 WARRANTY

- A. Construction Warranty: One (1) year on material and workmanship from date of project acceptance and formal close out.

PART 6 - PRODUCTS

6.1 SYSTEM PERFORMANCE

- A. Delegated Design: Where cited in the plans; provide calculations and drawings signed and sealed by registered design professional, licensed in state of California.

6.2 PRODUCTS - GENERAL

- A. Provide each product from one manufacturer and from one production run.

6.3 UNIT MASONRY PRODUCTS

- A. Concrete Masonry Units (CMU):
 - 1. Hollow and Solid Load-Bearing Concrete Masonry Units: ASTM C90.
 - a. See plans for CMU requirements
 - 2. Sizes: Modular 8 inches by 16 inches nominal face dimension; thickness as indicated on drawings.
 - 3. For molded faces used as a finished surface, use concrete masonry units with uniform fine to medium surface texture unless specified otherwise.
 - 4. Use bullnose concrete masonry units at corners exposed in finished work with 25 mm (1 inch) minimum radius rounded vertical exterior corners (bullnose units).

6.4 ANCHORS, TIES, AND REINFORCEMENT

- A. Steel Reinforcing Bars: ASTM A615/A615M; Grade 60, deformed bars.
- B. Joint Reinforcement:
 - 1. Form from wire complying with ASTM A951/A951M.
 - 2. Width of joint reinforcement 1.6 inches less than nominal thickness of masonry wall or partition.
 - 3. Cross wires welded to longitudinal wires.
 - 4. Joint reinforcement minimum 10 feet.

6.5 ACCESSORIES

- A. Masonry Cleaner:
 - 1. Detergent type cleaner selected for each type masonry.
 - 2. Acid cleaners are not acceptable.
 - 3. Use soapless type specially prepared for cleaning brick or concrete masonry as appropriate.
- B. Fasteners:
 - 1. Concrete Nails: ASTM F1667, Type I, Style 11, 19 mm (3/4 inch) minimum length.
 - 2. Masonry Nails: ASTM F1667, Type I, Style 17, 19 mm (3/4 inch) minimum length.
 - 3. Screws: FS-FF-S-107, Type A, AB, SF thread forming or cutting.

PART 7 - EXECUTION

7.1 INSTALLATION - GENERAL

- A. Install products according to manufacturer's instructions and the project drawings.
- B. Keep finish work free from mortar smears or spatters, and leave neat and clean.
- C. Wall Openings:
 - 1. Not Applicable
- D. Tooling Joints:
 - 1. Do not tool until mortar has stiffened enough to retain thumb print when thumb is pressed against mortar.
 - 2. Tool while mortar is soft enough to be compressed into joints and not raked out.
- E. Temporary Formwork: Provide formwork and shores as required for temporary support of reinforced masonry elements.
- F. Construct formwork to conform to shape, line and dimensions required for construction. Make sufficiently tight to prevent mortar, grout, or concrete leakage. Brace, tie and support formwork as required to maintain position and shape during construction and curing of reinforced masonry.

- G. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other reasonable temporary construction loads.
- H. Minimum Curing Times Before Removing Shores and Forms:
 - 1. Girders and Beams: 10 days.
 - 2. Slabs: 7 days.
 - 3. Reinforced Masonry Soffits: 7 days.

7.2 INSTALLATION – MASONRY FACING ANCHORAGE

Not Applicable

7.3 INSTALLATION - REINFORCEMENT

- A. Steel Reinforcing Bars:
 - 1. Install reinforcing bars in cells of hollow masonry units where required for vertical reinforcement and in bond beam units for horizontal reinforcement. Install in wall cavities of reinforced masonry walls where indicated on drawings.

7.4 POINTING

- A. Fill joints with pointing mortar using rubber float trowel to apply mortar solidly into raked joints.
- B. Wipe off excess mortar from joints of glazed masonry units with dry cloth.
- C. Tool exposed joints to smooth concave joint.
- D. At joints with existing work, match existing joint.

7.5 GROUTING

- A. Preparation:
 - 1. Clean grout space of mortar droppings before placing grout.
 - 2. Close cleanouts.
 - 3. Install vertical solid masonry dams across grout space for full height of wall at intervals of maximum 30 feet.
 - 4. Verify reinforcing bars are installed as indicated on drawings.
- B. Placing:
 - 1. Place grout in grout space in lifts as specified.
 - 2. Consolidate each grout lift after free water has disappeared but before plasticity is lost.
 - 3. Do not slush with mortar or use mortar with grout.
 - 4. Interruptions:
 - a. When grouting must be stopped for more than an hour, top off grout 40 mm 1-1/2 inches below top of last masonry course.
 - b. Grout from dam to dam on high lift method.

- c. Longitudinal run of masonry may be stopped off only by raking back one-half masonry unit length in each course and stopping grout 4 inches back of rake on low lift method.
- C. Low Lift Method:
- 1. Construct masonry to 5 feet maximum height before grouting.
 - 2. Grout in one continuous operation and consolidate grout by mechanical vibration and reconsolidate after initial water loss and settlement has occurred.

7.6 PLACING REINFORCEMENT

- A. General: Clean reinforcement of loose rust, mill scale, earth, ice or other materials which will reduce bond to mortar or grout. Do not use reinforcement bars with kinks or bends or bars with reduced cross-section due to excessive rusting or other causes.
- B. Position reinforcement accurately at spacing indicated on drawings. Support and secure vertical bars against displacement. Install horizontal reinforcement as masonry work progresses. Where vertical bars are shown in close proximity, provide clear distance between bars of minimum one bar diameter or 1 inch) whichever is greater.
- C. For columns, piers and pilasters, maintain clear distance between vertical bars as indicated on drawings, minimum 1.5 bar diameters or 1-1/2 inches, whichever is greater. Provide lateral ties as indicated on drawings.
- D. Splice reinforcement bars only where indicated on drawings, unless approved by the Engineer. Provide lapped splices. In splicing vertical bars or attaching to dowels, lap ends, place in contact and wire tie.
- E. Provide minimum lap as indicated on approved submittal drawings, or if not indicated, minimum 48 bar diameters.
- F. Embed metal ties in mortar joints as work progresses, with minimum mortar cover of 5/8 inch on exterior face of walls and 1/2 inch at other locations.
- G. Anchoring: Anchor reinforced masonry work to supporting structure as indicated on drawings, or as required for service.

7.7 INSTALLATION OF REINFORCED CONCRETE UNIT MASONRY

- A. Do not wet concrete masonry units (CMU).
- B. Lay CMU units with full-face shell mortar beds. Fill vertical head joints (end joints between units) solidly with mortar from face of unit to distance behind face equal to thickness of longitudinal face shells. Solidly bed cross-webs of starting courses in mortar. Maintain head and bed 3/8 inch joint widths.
- C. Where solid CMU units are shown, lay with full mortar head and bed joints.
- D. Walls:

1. Pattern Bond: Lay CMU wall units in 1/2-running bond with vertical joints in each course centered on units in courses above and below, unless otherwise indicated. Bond and interlock each course at corners and intersections.
2. Maintain vertical continuity of core or cell cavities, which are to be reinforced and grouted, to provide minimum clear dimension indicated and to provide minimum clearance and grout coverage for vertical reinforcement bars. Keep cavities free of mortar. Solidly bed webs in mortar where adjacent to reinforced cores or cells.
3. Where horizontally reinforced beams (bond beams) are indicated on drawings, use special units or modify regular units to allow for placement of continuous horizontal reinforcement bars. Place small mesh expanded metal lath or wire screening in mortar joints under bond beam courses over cores or cells of non-reinforced vertical cells, or provide units with solid bottoms.

E. Grouting:

1. Use fine grout for filling spaces less than 4 inches in one or both horizontal directions.
2. Use coarse grout for filling 4 inch spaces or larger in both horizontal directions.
3. Grouting Technique: The Contractor's shall use the low-lift grouting technique.

F. Low-Lift Grouting:

1. Provide minimum clear dimension of 2 inches and clear area of 8 sq. inches in vertical cores to be grouted.
2. Place vertical reinforcement before grouting of CMU. Extend above elevation of maximum pour height as required for splicing. Support in position at vertical intervals not exceeding 192 bar diameters or 10 feet.
3. Lay CMU to maximum pour height. Do not exceed 5 feet height, or if bond beam occurs below 5 feet height, stop pour 1-1/2 inches below top of bond beam.
4. Rod or vibrate grout during placing. Place grout continuously; do not interrupt pouring of grout for more than one hour. Terminate grout pours 1-1/2 inches below top course of pour.

7.8 CONSTRUCTION TOLERANCES

- A. Lay masonry units plumb, level and true to line within tolerances according to ACI 530.1/ASCE 6/TMS 602 standards.

7.9 CLEANING AND REPAIR

A. General:

1. Clean exposed masonry surfaces on completion.
2. Protect adjoining construction materials and landscaping during cleaning operations.
3. Cut out defective exposed new joints to depth of approximately 3/4 inch and repoint.
4. Remove mortar droppings and other foreign substances from wall surfaces.

B. Concrete Masonry Units:

1. Immediately following setting, brush exposed surfaces free of mortar or other foreign matter.
2. Allow mud to dry before brushing.

END OF SECTION

**SECTION 05 50 00
FABRICATED METAL**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Provide metals work for pipe supports and fittings and other miscellaneous metal works, complete as indicated, specified and required.
 - 1. Fabricated DEF Steel Enclosure
 - 2. Steel channel and/or angle frames and thresholds with anchors
 - 3. Pipe supports with saddles, hangers, bracing and attachments as detailed and required, except as provided by other trades
 - 4. Miscellaneous iron and steel items indicated, specified, or required for completion of the Work, unless included under other Sections of the Specification
 - 5. Shop primer finishes for work of this Section as specified or required, including field touchups.

1.2 RELATED WORK

- A. None

1.3 REFERENCES

- A. Industry Codes and Standards
 - American Institute of Steel Construction (AISC)
 - American Society for Testing and Materials (ASTM)
 - American Welding Society (AWS)

1.4 QUALITY ASSURANCE

- A. Unless otherwise specified all work specified herein and shown on the Drawings shall conform to the applicable requirements of the following specifications and codes:
 - 1. Inspections. Perform all field high strength bolting and anchorage of structural steel and tank assemblies identified as requiring special inspection. Notify the Engineer at least 48 hours in advance of needed inspections. Provide copies of testing and inspection reports to the Engineer.

- A. Where applicable, furnish submittals, samples and material data in conformance with the Standard General and Special Provisions.
 - 1. Shop Drawings and Erection Drawings. Show materials and specification list, construction and fabrication details, layout and erection diagrams and method of anchorage to adjacent construction.
 - a. Catalog work sheets showing illustrated cuts of item to be furnished, scale details and dimensions may be submitted for standard manufactured items.
 - b. Where items must fit and coordinate with finished surfaces and/or constructed spaces, take measurements at site and not from Drawings. Where concrete, masonry or other materials must be set to exact locations to receive work, furnish assistance and direction necessary to permit other trades to properly locate their work. Where welded connectors, concrete, or masonry inserts are required to receive work, show on shop drawings exact locations required.
 - 2. Shop Painting Data. Submit product list with product data sheets of intended shop coats. These products shall be compatible with the products and manufacturers with those systems Specified in Section 09 90 00 - Painting.

PART 2 PRODUCTS

2.1 MATERIALS – GENERAL

- A. Provide materials that are new, sound and conforming to the following:
 - 1. Anchor bolts:
 - a. Anchorages for all locations unless otherwise indicated on Drawings: Stainless steel, Type 316, Hilti HVA adhesive anchors, or Engineer approved equivalent.
 - b. Chemical bond or adhesive type DBDs, if approved by the manufacturer and the Engineer, are acceptable for anchorage of vibrating machinery or equipment.
 - 2. Expansion Anchors.
 - a. Hilti Kwik-Bolt 3, Standard Type or Engineer approved equivalent.
 - 3. Galvanizing.
NOT USED

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PART 3 EXECUTION

3.1 GENERAL FABRICATION AND INSTALLATION REQUIREMENTS

- A. Standards: Thoroughly clean ferrous metals of all loose scale and rust before being fabricated. Provide finished members free of twists, bends or open joints, and that present a neat workmanlike appearance when completed. Perform steel work conforming to the best practices set forth in the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" of the American Institute of Steel Construction.
- B. Welding: Perform all welding in accordance with the "Structural Welding Code-Steel," AWS D1.1. where applicable.
 - 1. Use only welders qualified by tests in accordance with AWS B 3.0.
- C. General Fabrication and Installation
 - 1. Use new stock of sizes specified or detailed, fabricate in shop producing high grade metal work. Form and fabricate to meet required conditions. Include clips, straps, bolts, screws, and other fastenings necessary to secure the work. Accurately make and tightly fit joining and intersections in true planes with adequate secure fastenings. Erect all metal work plumb, true on line and in its designated location. Grind and finish smooth field welds on exposed surface. Bolt or weld connections as indicated on Drawings. After installation, leave all work in a neat and clean condition, ready for field painting or coating.
 - a. The maximum misalignment tolerance for railing shall be 1/8 inch in 12 feet. Bent, deformed or otherwise damaged railings shall be replaced.
 - 2. Coordinate work of this Section with related trades.
- D. Protection
 - 1. Provide protection and repair of adjacent surfaces and areas which may become damaged as a result of work of this Section. Protect work performed hereunder until completion and final acceptance of project by the Owner. Repair or replace all damaged or defective work to original specified condition, at no additional cost to the Owner.
- E. Painting
 - 1. Apply all products in strict conformance with manufacturer's printed instructions.
 - 2. Provide one or more shop coats of paint on all ferrous metals, except cast-iron, ductile iron, stainless steel and galvanized metals. Before priming, thoroughly clean surfaces. After installation, paint all areas where the shop coats have been rubbed off or in conformance with manufacturer's recommendations.

END OF SECTION

**SECTION 09 90 00
PAINTING AND COATING (SITE)**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Field painting including surface preparation, surface protection, clean up, and/or other appurtenant work.
- B. All labor, materials, tools and equipment, and incidentals necessary and required for their completion.
- C. All pipe, fittings, equipment, and structures are to be field coated as cited in the specifications or identified on the drawings. These specifications are intended to clarify or show details for application of the coating systems.

1.2 RELATED WORK

- A. Section 05 50 00 – Fabricated Metals

1.3 SUBMITTALS

- A. Submittals shall be in accordance with the Standard General Conditions and the Supplementary Conditions.
 - 1. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's application instructions and environmental parameters.
 - c. Material Safety Data Sheets.
 - d. Color samples.

1.4 AIR QUALITY REGULATORY COMPLIANCE

- A. All paint shall conform to the applicable air quality regulations at the point of application. Any paint material which cannot be guaranteed by the manufacturer to comply, whether specified by product designation or not, shall not be used.
- B. It shall be the responsibility of the Contractor to ensure the compatibility of the field painting products which will be in contact with each other or which will be applied over shop painted or previously painted surfaces. Paint used

in successive field coats shall be produced by the same manufacturer.

Paint used in the first field coat over shop or field primed surfaces, or previously painted surfaces shall cause no wrinkling, lifting, or other damage to underlying paint.

- C. All paint used for intermediate and finish coats shall be guaranteed by the paint manufacturer to be fume proof. Paint shall be lead-free and mercury-free.

1.5 *QUALITY OF WORK*

- A. All finishes shall be applied by skilled workmen in accordance with the best practices and standards of the painting trade. Work not conforming to this Specification shall be corrected by touching up or refinishing as directed by the Engineer.
- B. It is the purpose and intent of this Specification to cover the complete paint finishing of all exterior surfaces as scheduled or specified and all surfaces which normally require a paint finish for corrosion resistance, weather protection, finished appearance or utility. Finished surfaces shall be of the type of finish, color sheen film thickness and quality specified.

1.6 *DELIVERY AND STORAGE*

- A. Painting materials shall be delivered to site in manufacturer's original containers with labels intact and seals unbroken. No chemicals, unauthorized thinners, or other materials, not included in the paint formulation, shall be added to the paint for any purpose. All necessary precautions shall be taken to prevent fire. Rags or waste soiled with paint shall be removed from premises at end of each day's work or shall be stored in covered metal containers.

1.7 *EQUIVALENT PRODUCTS*

- A. Whenever a coating is specified using the name of a proprietary product or the name of a particular manufacturer or vendor, the specified coating shall be understood as establishing the type and quality of coating desired.
- B. Other manufacturers' products will be accepted provided sufficient information is submitted to allow the Engineer to determine that the coatings proposed are equivalent to those named. Proposed coatings shall be submitted for review in accordance with the Section 01 33 00 - Submittals.
- C. Requests for review of equivalency will not be accepted from anyone except the Contractor, and such requests will not be considered until after the contract has been awarded.

- D. Specific products for various applications shall be as specified in Part 2. In addition to the products named in Part 2, equivalent products of the following manufacturers will also be acceptable: 1) PPG, 2) Ameron, 3) Sherman Williams, 4) Valspar, 5) Sinclair, etc.
- E. Contractor shall provide verification that equivalent products are acceptable for the desired application.

1.8 REFERENCE STANDARDS

- A. SSPC – Society of Protective Coatings, Pittsburgh, PA
- B. ASTM – American Society for Testing and Materials, West Conshohocken, PA

PART 2 PRODUCTS

2.1 GENERAL

- A. All paint shall be the product of a recognized manufacturer exclusively engaged in the manufacture of painting material.
- B. All exposed surfaces, including sides and edges, shall be painted. Hangers, brackets, fastenings and other miscellaneous items shall be painted with the same system as the adjacent material. Paint systems shall be in addition to shop primers.
- C. Paint shall be stored inside and shall be protected against freezing. No adulterant, unauthorized thinner, or other material not included in the paint formation shall be added to the paint for any purpose.
- D. Paint used in successive field coats shall be produced by the same manufacturer. Paint used in the first field coat over shop painted or previously painted surfaces shall cause no wrinkling, lifting, or other damage to underlying paint. Any paint system shall be the product of a single manufacturer.
- E. All paint used for intermediate and finish coats shall be guaranteed by the paint manufacturer to be lead-free, mercury-free, and fumeproof.
- F. For each paint, the Contractor shall follow the paint manufacturer's specific application instructions. Upon the Engineer's request, the Contractor shall furnish the following application instructions.
 - 1. Surface preparation recommendations.
 - 2. Type of primer to be used.

3. Maximum dry and wet mil thickness per coat.
 4. Minimum and maximum curing times between coats.
 5. Thinner to be used with each paint.
 6. Atmospheric conditions during which the paint shall not be applied.
 7. Allowable methods of application.
 8. Maximum allowable moisture content and minimum age of plaster, concrete and wood surfaces at time of paint application.
- G. The minimum number of coats and minimum total dry mil thickness of the system for each surface shall be as specified in the paint schedule.

2.2 PAINTING SCHEDULE

NOT USED

2.3 PRIMERS AND PRETREATMENT

NOT USED

2.4 INTERMEDIATE AND FINISH PAINTS

NOT USED

2.5 FUSION BONDED EPOXY LINING AND COATING

NOT USED

2.6 ALUMINUM SURFACES

NOT USED

2.7 SHOP COATINGS

- A. Shop coatings shall be applied as indicated in the individual equipment and component specifications.

2.8 SURFACES NOT TO BE PAINTED

- A. Except as otherwise required or directed, the following surfaces are to be left unpainted:
1. Exposed surfaces of aluminum (aluminum in contact with concrete is to be coated).

2. Polished or finished stainless steel.
3. Galvanized surfaces, except piping, conduit, electrical conduit, pipe supports, fasteners, hangers, bracing, brackets, and accessories.
4. Rubber and plastics, including fiberglass reinforced plastics.

2.9 SYSTEM IDENTIFICATION

- A. Above Grade Piping: Provide markers on piping which is either exposed or concealed in accessible spaces. For piping systems, other than drain and vent lines, indicate the fluid conveyed or its abbreviation, either by preprinted marker or stenciled marking, and include arrows to show the direction of flow. Comply with ANSI A13.1 for colors. Locate markers at ends of lines, near major branches and other interruptions including equipment in the line, where lines pass through inaccessible spaces, and at 50' maximum intervals along exposed portion of lines. Marking of short branches and repetitive branches for equipment connections is not required.

2.10 COLORS

- A. All colors and shades of colors shall be as specifically indicated in the specifications or plans, or, where not specifically indicated, selected from the manufacturer's standard color samples by the Owner.
- B. Electrical conduit shall NOT be painted unless otherwise directed by the Engineer.

PART 3 EXECUTION

3.1 PRELIMINARY EXAMINATION

- A. Notify the Engineer in writing of any uncorrected defects in surfaces to be painted. Do not proceed with the finishing of surfaces in question until any discrepancies are corrected. No work on any surface shall be started, unless the surface has been inspected and approved for painting by the Engineer.

3.2 SURFACE PREPARATION

- A. The Contractor shall prepare the surfaces to be prepared and coated as specified in the drawings. schedule.
- B. All grease, oil, dirt, and other contaminants which may affect the bond between the coating and the surface shall be removed by a cleaning agent which will leave the surface clean and dry.

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- C. Cleaning and painting operations shall be performed in a manner which will prevent dust or other contaminants from getting on freshly painted surfaces.
- D. Surfaces shall be free of cracks, pits, projections, or other imperfections which would prevent the formation of smooth, unbroken paint film, except for concrete block construction where a rough surface is an inherent characteristic.
- E. When applying touch-up paint, or repairing previously painted surfaces, the surfaces to be painted shall be cleaned and sanded or wire brushed in such a manner that the edges of adjacent paint are feathered or otherwise smoothed so that they will not be noticeable when painted. All paint made brittle or otherwise damaged by heat or welding shall be completely removed.
- F. Hardware items such as bolts, screws, washers, springs, and grease fittings need not be cleaned prior to painting if there is no evidence of dirt, corrosion, or foreign material.
- G. All surfaces to be finished shall be clean and dry before any materials are applied. Use a moisture meter to determine moisture content as follows. The moisture content shall be less than 18% for wood; 8% for concrete or plaster.
 - 1. Metal Surfaces - Where noted, the surface preparation for steel and other metals refer to the specifications for surface preparation by the latest revision of the Steel Structures Painting Council. All metal work shall be cleaned of grease, oil and dirt by solvent cleaning (SSPC-SP1). Do not use hydrocarbon- based solvents for cleaning prior to use of acrylic materials.
 - a. Method SP-2: Surface shall be wire brushed where required to remove loose rust and dirt, etc. (SSPC-SP2)
 - 2. Wood Surfaces
 - a. Not Applicable
 - 3. Galvanized Surfaces
 - a. Not Applicable
 - 4. PVC Pipe
 - a. Not Applicable

3.3 PAINT APPLICATION

- A. Apply all finishes evenly, free from sags, runs, crawls, brush marks, skips or other defects. Apply products at the proper consistency and do not thin or otherwise alter them except in accordance with the manufacturer's printed directions. All coats shall be applied in such manner as to produce an even film of uniform thickness completely coating all corners and crevices. All painting shall be done by thoroughly experienced workmen.
- B. Each coat of material shall be thoroughly dry before the application of a succeeding coat. In no case shall paint be applied at a rate of coverage per gallon which is greater than the maximum rate recommended by the manufacturer. Paint films showing sags, checks, blisters, teardrops, or fat edges will not be accepted. Paint containing any of these defects shall be entirely removed and the surface repainted.
- C. If the finish coat is to be colored, the prime coat and the intermediate coat shall be tinted to have a slight variation in color from each other and from the finish coat.

3.4 PRIMING

- A. Edges, corners, crevices, welds, and bolts shall be given a brush coat of primer before the specified spot or touch-up painting of metal surfaces. Special attention shall be given to filling all crevices with paint.
- B. Abraded and otherwise damaged portions of shop applied paint shall be repainted.

3.5 LATEX PAINT

- A. Not Applicable

3.6 MIXING AND THINNING

- A. Paint shall be thoroughly mixed each time any is withdrawn from the container. Paint containers shall be kept tightly closed except while paint is being withdrawn.
- B. Unless otherwise authorized, all paint shall be factory mixed to proper consistency and viscosity for hot weather application without thinning. Thinning will be permitted only as necessary to obtain recommended coverage at lower application temperatures. In no case shall the wet film thickness of applied paint be reduced by addition of paint thinner or otherwise, below that represented by the recommended coverage rate.

3.7 FILM THICKNESS FOR FERROUS METALS

- A. Dry film thickness shall be measured by the Contractor, using an approved Thickness Gauge, at locations selected by Engineer. Testing equipment provided shall be provided by Contractor and kept on site.
- B. Measurement of Dry Coating Thickness shall conform with paint application Standard SSPC-PA2
- C. Thickness Checking - Thickness of coatings and paint shall be checked with a non-destructive, magnetic type thickness gauge.

3.8 ATMOSPHERIC CONDITIONS

- A. Apply all material to dry and properly prepared surfaces when weather conditions are favorable for painting. No materials shall be applied when the temperature of the materials is below 50 degrees F, or when the temperature of the air, surface to be painted or substrate, is below (or likely to fall below) 50 degrees F.
- B. No coating or paint shall be applied to wet or damp surfaces, in rain, snow, fog, or mist, when the steel temperature or surrounding air temperature is less than 5 degrees above the dew point, nor in conditions not recommended by the manufacturer

3.9 REPAIRING DAMAGED PAINT ON EQUIPMENT

- A. Painted surfaces on equipment, which have become damaged prior to acceptance by the Owner, shall be repainted with the same or equivalent paint used in the original application.

3.10 PROTECTION OF SURFACES

- A. Throughout the work the Contractor shall use drop cloths, masking tapes, and other suitable measures to protect all surfaces from accidental spraying, splattering, or spilling of paint. Contractor shall be liable for and shall correct and repair any damaged condition resulting from its operations or from the operations of all those who are responsible to the Contractor during the time its work is in progress and until the work is accepted.

3.11 CLEANUP

- A. All cloths and cotton waste which might constitute a fire hazard shall be placed in metal containers or destroyed at the end of each work day. Upon completion of the work all staging, scaffolding and containers shall be removed from the site or destroyed in a manner approved by the Engineer.

3.12 PAINTING SCHEDULE

A. NOT USED

3.13 *When conflicting painting specifications or requirements are encountered in the contract documents, the more restrictive specifications or requirements shall be required.*

END OF SECTION

SECTION 11 14 00

FUELING SYSTEM

PART 4 - GENERAL

4.1 DESCRIPTION

- A. Diesel and Gasoline Above Ground (partitioned) Steel Storage Tank, piping, valves and fittings, dispensers, monitoring systems and associated equipment located outside and aboveground as shown on contract drawings. Refer to contract drawings for type for tank details. Tank to be provided by the Owner.
- B. Tank fluid level monitoring and alarm systems.
- C. Leak detection system for tanks and sumps.
- D. Fuel Dispensers
- E. Fuel Management System
- F. Tank Filling Containment and CARB compliant - Phase 1 Enhanced Vapor Recovery (EVR)System.
- G. DEF (Diesel Exhaust Fluid)Filling Equipment and Systems.

4.2 RELATED WORK

- A. Section 01 00 05 – 01 70 00, GENERAL REQUIREMES.
- B. Section 03 30 01, CAST-IN-PLACE CONCRETE.
- C. Section 08 30 01, FABRICATED METAL.
- D. Section 09 91 00, PAINTING AND COATING.
- E. Section 26 05 00 – 26 26 26, ELECTRICAL
- F. Section 31 11 00 – 31 23 19, EARTHWORK.

4.3 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Where conflicts occur these specifications will govern.
- B. American Society of Mechanical Engineers (ASME):
 - B16.5-//2017// Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard.
 - B16.9-//2018// Factory Made Wrought Buttwelding Fittings

- C. American Society for Testing and Materials (ASTM):
 - A36/A36M-//2017// Standard Specification for Carbon Structural Steel
 - A53/A53M-//2018// Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
 - A105/A105M-//2014// Standard Specification for Carbon Steel Forgings for Piping Applications
 - A126-//04(R2019)// Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
- D. National Electrical Manufacturers Association (NEMA):
 - 250-//2014// Enclosures for Electrical Equipment (1000 Volts Maximum)
- E. National Fire Protection Association (NFPA):
 - 30-//2018// Flammable and Combustible Liquids Code
 - 70-//2017// National Electrical Code (NEC)
- F. Bay Area Air Quality Control Board (BAAQCB):
 - State of California Air Resources Board (CARB), Executive Order VR-401-F, “Enhanced Vapor Recovery (EVR) System for Aboveground Storage Tanks (AST)
- G. California Electric Code (CEC):
 - XX-//2019// Article 514 “Motor Fuel Dispensing Facilities”, 514.3(B)(1)
- H. Steel Tank Institute (STI):
 - F941-//2015// Fireguard: Specification for Fireguard Protected Aboveground Storage Tanks
- I. Underwriters Laboratories Inc. (UL):
 - 142-//2019// Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids
 - 2085-//2019// Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids

4.4 SUBMITTALS

- A. Submittals, including number of required copies, shall be submitted in accordance with Section 01 33 00, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES (as applicable).
- B. Information and material submitted under this section shall be marked “SUBMITTED UNDER SECTION 11 14 00, “FUELING SYSTEMS”, with applicable paragraph identification.

- C. Manufacturer's Literature and Data including: Full item description and optional features and accessories. Include dimensions, weights, materials, applications, standard compliance, model numbers, size, and capacity.
- D. Aboveground Steel Tank (PROVIDE BY Owner):
 - 1. Drawings of tanks, supports, tank manholes, emergency relief vents and all accessories. Include overall dimensions and dimensional locations and sizes of pipe connections, and access openings.
 - 2. Tank support locations.
 - 3. Weight of entire tank assembly, empty and filled.
 - 4. Design and construction of primary tanks, insulation, secondary containment, supports, pipe connections, etc.
 - 5. Application and performance data on coatings from manufacturer of coatings.
 - 6. Data certifying tank complies to the UL 2085 "Fireguard" rating.
 - 7. Certification of compliance with specified standards.
 - 8. Certification that steel tank manufacturer participates in Steel Tank Institute (STI) Quality Assurance Program.
 - 9. Design, construction, performance, dimensions of emergency relief vents.
- E. Fuel Piping:
 - 1. ASTM and UL compliance.
 - 2. Grade, class or type, schedule number.
- F. Pipe Fittings, Unions, Flanges:
 - 1. ASTM and UL compliance.
 - 2. ASTM standards number (where applicable)
 - 3. Catalog cuts.
 - 4. Pressure and temperature rating.
- G. Check Valves, Overfill Prevention Valves, etc.:
 - 1. Catalog cuts showing design and construction.
 - 2. Pressure and temperature ratings.
 - 3. Pressure loss and flow rate data.
 - 4. Materials of construction.
 - 5. Accessories.
- H. Secondary Containment System for Fuel Systems:
 - 1. Sizes, materials, construction of containment system including end seals, sumps, coatings and pipe supports.

2. Layout of system.
 3. Installation instructions.
- I. Leak Detection System:
1. Drawings, description and performance data on sensors, control units.
 2. Description of operation.
 3. Layout of system.
 4. Installation and operating instructions.
 5. Data on interconnecting wiring systems to be furnished.
- J. Tank Fluid Level Monitoring Instrumentation System:
1. Drawings showing instruments and in-tank sensing units, with dimensions.
 2. Design and construction of all elements of system.
 3. Installation instructions.
- K. Tank and Piping Accessories: Design, construction, and dimensions of vent caps, fill boxes/ containment, fill caps, spill containers and other accessories.
- L. Fuel Transfer / Pumping and Dispensing Systems:
1. Drawings and description of all components and arrangement of system.
 2. Design and performance of pumps, filters.
 3. Catalog data and operation of control system.
 4. Installation instructions.
- M. Complete operating and maintenance manuals including wiring diagrams, technical data sheets, information for ordering replacement parts, and troubleshooting guide:
1. Include complete list indicating all components of the systems.
 2. Include complete diagrams of the internal wiring for each item of equipment.
 3. Diagrams shall have their terminals identified to facilitate installation, operation and maintenance.
- N. Completed System Readiness Checklist provided by the Equipment Supplier / Commissioning Agent and/ or the contractor, signed by a qualified technician and dated on the date of completion.
- O. Submit training plans.

4.5 QUALITY ASSURANCE

- A. Approval by the Engineer is required of products or services of proposed manufacturers, suppliers and installers, and will be based on Contractor's certification that:

1. Manufacturers regularly and currently manufactures tanks, tank and piping accessories, tank fluid level monitoring and leak detection systems, fuel dispensing systems, pumps, etc.
 2. Where applicable, Manufacturers of steel tanks participate in the Quality Assurance Program of the Steel Tank Institute (STI).
 3. The design and size of each item of equipment provided for this project is of current production and has been in satisfactory operation on at least three installations for approximately three years.
Current models of fluid level and leak detection systems with less than three years' service experience are acceptable if similar previous models from the same manufacturer have at least three years' service experience.
- B. Apply and install materials, equipment and specialties in accordance with manufacturer's written instructions. Conflicts between the manufacturer's instructions and the contract drawings and specifications shall be referred to the Engineer for resolution.
 - C. All equipment shall be free from defects that would adversely affect the performance, maintainability and appearance of individual components or overall assembly.
 - D. Tank and piping installation contractor shall be certified as acceptable by local and state pollution control authorities.
 - E. Entire installation shall conform to requirements of local and state pollution control authorities.
 - F. Pipe Welding: Conform to requirements of ASME B31.1.
 - G. Where specified codes or standards conflict, consult the Engineer.
 - H. Label of Conformance (definition): Labels of accredited testing laboratories showing conformance to the standards specified.
 - I. Equipment and materials installed shall be compatible in all respects with other items being furnished and with existing items so that the result will be a safe, complete and fully operational system which conforms to contract requirements and in which no item is subject to conditions beyond its design capabilities.

4.6 AS-BUILT DOCUMENTATION

- A. Submit manufacturer's literature and data updated to include submittal review comments and any equipment substitutions.

- B. Submit operation and maintenance data updated to include submittal review comments, approved substitutions and construction revisions shall be in electronic version. All aspects of system operation and maintenance procedures, including applicable piping isometrics, wiring diagrams of all circuits, a written description of system design, control logic, and sequence of operation shall be included in the operation and maintenance manual. The operations and maintenance manual shall include troubleshooting techniques and procedures for emergency situations. Notes on all special systems or devices shall be included. A List of recommended spare parts (manufacturer, model number, and quantity) shall be furnished. Information explaining any special knowledge or tools the owner will be required to employ shall be inserted into the As-Built documentation.
- C. The contractor shall provide the complete set of as -built at the time of final systems certification testing. The contractor may engage a testing company to provide as-built or any portion thereof.
Red-lined, hand-marked drawings are to be provided, with one paper copy and a scanned PDF version of the hand-marked drawings provided on CD or thumb drive.
- D. Certification documentation shall be provided to the Engineer 21 working days prior to submitting the request for final inspection. The documentation shall include all test results, the names of individuals performing work for the testing agency on this project, detailed procedures followed for all tests, and provide documentation/certification that all results of tests were within limits specified. The results shall include all readings, including but not limited to data on device (make, model and performance characteristics), normal pressures, switch ranges, trip points, amp readings, and calibration data to include equipment serial numbers or individual identifications, etc.

4.7 PERMITS

- A. The Owner shall secure all Construction Permits required by the Authority Having Jurisdiction (AHJ), and Regulatory Agency Authority to Construct (ATC) permits in advance of physical construction. The Contractor shall perform all work required to complete and full fill permit requirements and close out permits, and convert the Air Pollution Control Board from the ATC to Permit to Operate (PTO).

PART 5 - PRODUCTS / EQUIPMENT

5.1 ABOVEGROUND STEEL TANKS

- A. City of Pittsburg to provide a new (N) 12,000 gallon "Fireguard" (UL 2085) Above Ground Steel Tank (AST), compartmented for 8,000 and 4,000 gallons of gasoline and diesel respectively. Tank to be manufactured by Modern Welding of California.
- B. In general. The tank will be Factory-fabricated all welded steel, horizontal cylindrical configuration, atmospheric pressure, internal and external corrosion protection. In addition to specified requirements, tanks shall be fabricated in accordance with Steel Tank Institute (STI) design standards.
- C. Construction:
 - 1. ASTM A36/A36M steel, conform to UL 142. Inner and outer tanks of double wall tanks shall both conform.
 - 2. Conform to NFPA 30 or NFPA 31 as applicable.
 - 3. Double-wall, insulation between walls, conforming to STI F941 "Fireguard" construction, and to UL 2085 with label of conformance
 - 4. Lifting lugs for rigging tanks to be provided.
 - 5. Leak detectors to be installed at lowest part of interstitial space between walls of double-wall tanks.
- D. Factory Cleaning: Clean interior and exterior of tank. All mill scale, dirt, rust, oil, welding debris to be removed prior to shipment. Coatings shall be applied in accordance with accepted industry standards.
- E. Factory Coating: Tank to be provided with exterior coat of rust resistant metal primer. Coat interior from bottom of tank to 3 feet above bottom in compliance with API RP 1631.
- F. Field Painting: Clean and coat all surfaces as specified in Section 09 90 00 "PAINTING" or as specified in the drawings.
- G. Pipe Connections to Tanks:
 - 1. Conform to UL 142.
 - 2. Pipe sizes 2 inches and smaller, threaded. Pipe sizes 2-1/2 inches and larger, flanged, 150 psig ASME rating.
 - 3. Welded joints required on steel piping located inside tanks.
 - 4. Provide and coordinate tank connection quantities, sizes and types with requirements of tank level gauge unit; sounding rod; vent, fill, supply and return pipes; and other pipes as shown in the plans.

- H. Tank Manholes: Provide quantity shown. Bolted cover type, gasketed.
- I. Lifting Lugs: Provide for rigging tanks.
- J. Emergency Relief Vents for Fire Exposure: Venting capacity shall conform to NFPA 30 or NFPA 31 as applicable. Standard product of a manufacturer, designed to automatically open at tank pressure of 2.5 psig gauge. Aluminum or cast-iron construction with Teflon seating surface. Provide separate vents for primary and secondary tanks.
- K. Provide fittings for grounding per NFPA 70.

5.2 FUEL MANAGEMENT CONTROLLER

- A. Fuel Management / Local Fuel Island Controller shall be provided, installed and programmed in accordance with the plans. The Owner is committed to the use of the OPW Petro Vend 200 Fuel (PV 200) Island Terminal. The Petro Vend 200 to provide the functionality described in the drawing control narrative and shall interface with the City of Pittsburg IT system.

Note: The City is currently operating a PV 200 system in conjunction with the (E)1,000 gall gasoline above ground fuel tank to be demolished as part of the project. The system requires expansion to accommodate two dispensers (diesel and gasoline), and the DEF Dispenser

5.3 TANK VENTING, FILLING AND OVERFLOW ACCESSORIES

- A. Atmospheric and Pressure / Vacuum Relief (PVR) Vent Caps: PVR and Atmospheric vents shall be provided and installed as cited in the plans. In general Vent caps shall be cast aluminum with brass or bronze screens, arranged to permit full venting and to prevent entry of foreign material into the vent line. Same pipe size as vent pipe.
- B. Remote Fill / Containment Boxes: Remote Fill and Containment boxes shall be provided and installed in accordance with the plans. The Remote Fill / Containment box slated for gasoline service shall be CARB compliant for Phase 1 EVR service. The Remote Fill / Containment box slated for diesel service does not require Phase 1 EVR configuration.

- C. Primary and Secondary Emergency Vents: Primary and Secondary vents shall be provided and installed in accordance with the plans. Vents shall be compliant be Fire Code and CARB compliant as applicable.
- D. Tank Fill & Overflow Protection with Gauging: Tank Fill, Overflow and Gauging shall be provided and installed as cited in the plans. The Tank / Overfill system to be installed in the gasoline shall be CARB compliant for Phase 1 EVR service. Tank level gauging for both the Diesel and Gasoline compartment shall be measured both mechanically and electronically. The electronic level monitoring shall provide a continuous tank level / volume, as well as high and low level alarm points.

5.4 PIPING, VALVES, FITTINGS

- A. Fuel supply, return and tank fill piping, valves, general fittings, flexible fittings, relief valves, shear and impact valves, solenoid valves, filters, etc. – shall be furnished and installed as cited in the plans. Specific requirements for major components are listed as follows;
 - 1. Piping: Steel, seamless or electric resistance welded (ERW), ASTM A53/A53M Grade B or ASTM A106/A106M Grade B, Schedule 40. Aboveground piping shall be painted. Refer to Section 09 90 00, PAINTING.
 - 2. Joints: Socket or butt-welded. Threaded joints are prohibited except at valves, unions and tank connections.
 - 3. Fittings:
 - a. Butt-welded joints: Steel, ASTM A234/A234M, Grade B, ASME B16.9, same schedule as adjoining pipe.
 - 4. Unions: Malleable iron, 300 psig class.
 - 5. Companion flanges: Flanges and bolting, ASME B16.5.
 - 6. Welding flanges: Weld neck, ASME B16.5, forged steel ASTM A105/A105M, 150 psig.
- B. Check Valves - Fuel
 - 1. Pipe Sizes 2 inches and under: Rated for 200 psig water-oil-gas, swing-type, threaded ends, ASTM B62 bronze body. Provide union adjacent to valve.
 - 2. Pipe Sizes 2-1/2 inches and above: Rated for 200 psig water-oil-gas, swing-type, 150 pounds ASME flanged ends, ASTM A126 class B cast iron body.
- C. Pressure Relief / Expansion Valves: See plans

- D. Solenoid Valves: See plans
- E. Gate Valves: See plans

5.5 FUEL AND DEF DISPENSING EQUIPMENT

- A. Fuel Dispensers shall be provided and installed in accordance with the plans.
There are two (2) dispensers; One shall be dedicated to gasoline and the other to diesel service. Major dispensing components include but not limited to flexible connectors, hoses, retractors, containment sumps, break away fittings, nozzles, etc. Specific requirements for major components are listed as follows;
 - 1. Electrical – Dispenser shall be adaptable / accommodate either 120V or 240V power
 - 2. Dispenser shall have control and metering / signal output compatible with the PetroVend 200 Fuel Management System
 - 3. One internal spin-on Fuel Filter shall be provided
 - 4. Fuel shall be supplied to the dispensers via In-Tank Submersible Turbine Fuel pumps
 - 5. Dispenser to be of low profile to be installed a top containment pedestals.
- B. Hose Management & Flexible Connection
 - 1. Chemical Resistance - Connector and hose materials shall be compatible for use slated vehicle fuels to be used at each
 - 2. individual dispenser including fuel additives, including MTBE and ethanol / methanol blends.
 - 3. Hose Construction – Inner Core (Stainless Steel), Outer Protective Covering (Stainless Steel Braid or Equivalent)
 - 4. Connectors – Threaded male swivel at one (1) end and threaded male connector at the other.
- C. Diesel Exhaust Fluid (DEF)
DEF equipment shall be provided and installed in accordance with the plans. The DEF equipment shall afford simple change out when totes are replaced. The dispensed DEF shall be metered using a meter that provides a signal which can be read and discriminated by the PetroVend 200 Fuel Management Controller.

5.6 TURBINE FUEL PUMPS

- A. Dispensers shall be supplied through fuel withdrawals from the AST via electric Submersible Turbine Fuel pumps specifically designed for petroleum fuel duty, both gasoline and diesel. Specific pump details and installation requirements are cited in the plans. Specific requirements for major components are as follows;
1. Qty 2: 2Hp-230/1ph, 4" - Fixed Speed Electric Submersible Turbine Pump, Q=40gpm @ 125' TDH
 2. 2Hp-230V/1ph Pump Starter

5.7 LEAK DETECTION SYSTEMS (TANK AND DISPENSER SUMPS)

- A. Leak Detection System shall be provided and installed in accordance with the plans. There are three (3) areas to be monitored for fuel leaks, two (2) dispenser sumps and the interstitial tank double wall containment space. Major leak detection and monitoring system components requirements are described as follows;
- B. Console / Controller / Monitor:
1. Automatic digital continuous monitoring systems responsive to the presence of hydrocarbons in the interstitial space of the double-wall tank or fuel dispenser secondary containment sump.
 2. Single control station to monitor all sensing probes.
 3. Visual indicator to monitor and identify hydrocarbon leaks.
 4. Indicators showing system status including faults and alarms.
 5. Panel circuit test button.
 6. 95 dB audible alarm with silencing control to sound when leak is detected.
 7. Eight-hour memory backup system with battery.
 8. NEMA 4 Enclosure mounted inside Controls Enclosure.
 9. UL or other accredited testing laboratory listing.
- C. Sensors:
1. Designed for required locations including: Insertion between walls of double-wall tanks and sumps. Sensing points shall be at lowest point of each tank or sump. Sensors shall be of an intrinsically safe design.
 2. Sensing units shall detect presence of water and a minimum 1/8 inch thick layer of hydrocarbon on surface of water and minimum 2 inch thickness of hydrocarbon in area that has no water present.

3. Sensors shall be arranged to allow replacement of individual sensors without disturbing other portions of leak detection system or fuel storage and piping system.
4. Materials of construction shall be non-corroding.
5. Transmit status signal to control unit.

5.8 TANK FLUID LEVEL MONITOR AND ALARM SYSTEMS

- A. The Fuel Level Monitoring System shall be provided and installed in accordance with the plans. Major Level Monitoring system components requirements are described as follows;
- B. Digital Processor / Analog Input systems for central monitoring of fuel levels in all fuel storage tanks in the project. High and low level visual and audible alarms. Complete with all transducing, transmitting, and receiving devices.
- C. Fluid Level Monitor:
 1. Digital continuous readout, showing tank fuel levels gallons ($\pm 1\%$) Provide identification of product measured, measuring units, and the tank number.
 2. Tank and fuel characteristics contained in preprogrammed non-volatile field-replaceable databases. Protected power supply.
- D. High and Low Fluid Level Alarm System:
 1. Automatic continuous monitoring of all tanks and/ or tank compartments.
 2. Visual and audible indicators combined with fluid level monitor. Identify the tank that is in alarm condition.
 3. Manual alarm test and silencing controls.
 4. Low level alarm actuation adjustable 0-25 percent of tank capacity. High level alarm actuation adjustable 75-100 percent of tank capacity.
- E. Locate all indicators, selector switches, control console, alarms, etc. – inside main electrical / control cabinet. Strobe alarms to be extended above main control cabinet for visibility. See item F below.
- F. Remote Alarm Annunciator:
 1. Alarm shall include flashing red light with 360-degree visibility for the system and 95 dB horn. Provide alarm silence control.
- G. System Performance: Accuracy plus or minus 1.0 inch of fluid height.

H. Sensors:

1. Provide sensor types such as magnetostrictive, capacitance, float, hydrostatic and other types as necessary for the application.
2. Apply in accordance with manufacturer's instructions with provisions for easy future replacement.
3. Float-type units shall be designed for installation and removal through a 4 inch diameter vertical pipe mounted in the top of the tank.

5.9 CONCRETE FOUNDATIONS

- A. Concrete pads for aboveground tanks are specified under Section 03 30 01, CAST-IN-PLACE CONCRETE.

PART 6 - EXECUTION

6.1 GENERAL

- A. If an installation is unsatisfactory to the Engineer, the Contractor shall correct the installation at no additional cost to the Owner.

6.2 INSTALLATION AND TESTING, ABOVEGROUND TANKS

- A. Electrical installation shall conform to NFPA 30 as applicable and the plans.
- B. Support tanks on steel saddles welded to the tanks. Anchor to concrete foundations.
- C. The tank shall be factory tested at the factory as required by the UL certification standard for which the tank is constructed. Should the tank be damaged during installation, the tank shall be repaired and tested in accordance with factory requirements.
- D. Provide electrical grounding in accordance with NFPA 70 and the plans.

6.3 INSTALLATION AND TESTING, LEAK DETECTOR SYSTEMS FOR TANKS AND PIPING

- A. Wiring shall conform to NFPA 70.
- B. Locate control monitor panels per plan, 48"-60" above the local floor elevation of the free-standing Electrical / Control cabinet unless otherwise noted.
- C. Test operation of each probe, and monitoring system with fuel or other approved means. If the probes utilized is damaged by exposure to fuel, provide temporary probe for testing monitoring system.

6.4 INSTALLATION, TANK FLUID LEVEL INDICATOR AND ALARM SYSTEM

- A. Wiring shall conform to NFPA 70.
- B. Locate level indicator and alarm panels per plan, 28"-60" above the local floor elevation of the free-standing Electrical / Control cabinet unless otherwise noted.
- C. Locate remote high-level mechanical alarm as cited in the plans.

6.5 STARTUP AND TESTING

- A. Perform tests as recommended by product manufacturer and listed standards and under actual or simulated operating conditions and prove full compliance with design and specified requirements. Perform tests as required by agency permits. Tests of the various items of equipment shall be performed simultaneously with the system of which each item is an integral part.
- B. When any defects are detected, correct defects and repeat test at no additional cost to the Owner.
- C. The Contractor or its sub-contractor shall perform all startup and testing of all systems and equipment. Coordinate and schedule testing with the Engineer. Provide a minimum notice of 10 working days prior to startup and testing.
- D. The Contractor shall schedule and coordinate all required inspections and witnessed testing with the AHJ and Air Quality Control Board.

6.6 COMMISSIONING

- A. Provide commissioning documentation as cited in the plans or as required elsewhere in the specifications and associated contract documents.
- B. Components provided under this section of the specification will be tested as part of a larger system.

6.7 DEMONSTRATION AND TRAINING

- A. Provide services of manufacturer's technical representative for to instruct City of Pittsburg personnel responsible in operation and maintenance of all systems.

END OF SECTION

SECTION 26 05 00

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes
 - 1. Provide all labor, materials and equipment necessary to complete the installation required for the items specified under Division 26.
- B. Related work under this section
 - 1. Labor and materials required to furnish and install the electrical systems in a complete and operational fashion.
 - 2. Carpentry, masonry, steel and concrete materials and labor required for construction of proper stands, bases and supports for electrical materials and equipment.
 - 3. Excavating and backfilling required for installation.
 - 4. Repair of damage to the premises resulting from construction activities under this Section to Owner's satisfaction.
 - 5. Removal of work debris from construction activities to Owner's satisfaction.
 - 6. Testing and cleaning of equipment installed.
- C. Work not under this section
 - 1. Furnishing of motors, pumps, fans, compressors, water heaters, thermostats and motor starters included under other Divisions of these specifications, or as noted otherwise.
 - 2. Finish painting of exposed metal surfaces included under Division 9, or as otherwise noted.
 - 3. Electrical Contractor shall provide connections to mechanical equipment where voltage exceeds 50 V, low voltage electronics / instrumentation communications and control equipment.
- D. Related sections
 - 1. Where items specified in other Division 26 sections conflict with the requirements of this Section, the most stringent requirement shall govern.
 - 2. The requirements of this Section apply to all Division 26 work.

1.2 REFERENCES

- A. Comply with the latest edition of the following applicable specifications and standards except as otherwise shown or specified:
1. CCR –California Code of Regulations
 - a. Title 8 –Industrial Relations; Section 1 –Department of Industrial Relations
 - 1) Chapter 3.2 -California Occupational Safety and Health Regulations (CAL/OSHA)
 - 2) Chapter 4 –Section of Industrial Safety
 - a) Subchapter 4 -Construction Safety Orders (CSO)
 - b) Subchapter 5 -Electrical Safety Orders (ESO)
 - b. Title 24 –California Building Standards
 - 1) Part 1 -Building Standards Administrative Code
 - 2) Part 2 -California Building Code (CBC); International Building Code (IBC) with California amendments
 - 3) Part 3 -California Electrical Code (CEC); NFPA 70 National Electrical Code (NEC) with California amendments
 - 4) Part 4 -California Mechanical Code (MEC); IAPMO Uniform Mechanical Code (UMC) with California amendments
 - 5) Part 5 -California Plumbing Code; IAPMO Uniform Plumbing Code (UPC) with California amendments
 - 6) Part 6 -California Energy Code
 - 7) Part 9 -California Fire Code; International Fire Code (IFC) with California amendments
 - 8) Part 12 -California Reference Standards Code
 2. CPUC –California Public Utilities Commission
 - a. GO-95; Rules for Overhead Electric Line Construction
 - b. GO-128; Rules for Construction of Underground Electric Supply and Communication Systems
 3. IEEE –Institute of Electrical and Electronic Engineers
 4. NECA –National Electrical Contractors Association
 - a. Standard Practices for Good Workmanship in Electrical Contracting
 5. All applicable local municipal codes and ordinances.
 6. Applicable rules and regulations of local utility companies.

1.3 *SUBMITTALS*

A. Product Data

1. Refer to Division 01.

B. Closeout Submittal

1. Furnish three complete sets of maintenance and operating instructions bound in a binder and indexed to Owner.

Start compiling data upon approval of materials and equipment. Final inspection will not be made until Engineer approves binders.
2. Where applicable, provide one of each tool required for proper equipment operation and maintenance provided under this Division. All tools shall be delivered to the Owner at project completion.
3. Where applicable, provide two keys to Owner for each lockable enclosure furnished under Division 26.
4. As-Built Drawings
 - a. Refer to Division 01.

1.4 *SUBSTITUTIONS*

1. Refer to Division 01.

1.5 *CHANGE ORDER PROPOSALS*

- A. Refer to Division 01.
- B. All change order proposals and requests, both additive and deductive, shall be accompanied by a detailed materials and labor breakdown for each specific task and/or item.

1.6 *QUALITY ASSURANCE*

- A. References to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to bid submittal. Such codes or standards shall be considered a part of this Specification.
- B. Work and materials shall be in full accordance with the latest rules and regulations of applicable state or local laws or regulations and standards of following:
 1. National Fire Protection Association (NFPA)
 2. California Electrical Code (CEC)

CITY OF PITTSBURG
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3. California Occupational Safety Health Act (Cal-OSHA)
 4. California State Fire Marshall (CSFM)
 5. California Code of Regulations (CCR)
 6. Electrical Safety Orders, CAC Title 8 (ESO)
 7. California Public Utilities Commissions, General Order 95 (GO-95)
 8. Applicable rules and regulations of local utility companies.
 9. NECA 1-2006, Standard Practices for Good Workmanship in Electrical Contracting
- C. All electrical equipment and material furnished under Division 26 shall conform to all CEC requirements and bear the Underwriters' Laboratories (UL) label where applicable.
- D. Nothing in the Construction Documents shall be construed to permit work not conforming to these Codes. Whenever the indicated material, workmanship, arrangement or construction is of high quality or capacity than that required by the above rules and regulations, the Construction Documents shall take precedence. Should there be any direct conflict between the rules and regulations and Construction Documents, the rules shall govern.
- E. All electrical equipment and material furnished under this Division shall conform to NEMA and ASTM standards, CEC and bear the Underwriters' Laboratories (UL) label where such label is applicable.
- F. All electrical work shall conform to manufacturer's written instruction, and the NECA Standard Practices for Good Workmanship in Electrical Contracting and all published recommended practices at the time of project. The Contractor shall use the requirements within the Specifications whenever they exceed NECA guidelines.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Packing, shipping, handling and unloading
1. Damage to the equipment delivered to the site or in transit to the job shall be the responsibility of the Electrical Contractor.
 2. Equipment and material delivery of shall be scheduled as required for timely, expeditious progress of work.
- B. Storage and protection of job equipment is the responsibility of the Contractor.
- C. Comply with Division 01 requirements with regards to waste management and disposal.

1.8 *PROJECT CONDITIONS*

A. Discrepancies

1. In the event of discrepancies with the Contract Documents, Engineer shall be notified with sufficient time as stated within Division 01 11 10 to allow the issuing of an addendum prior to the bid opening.
2. If, in the event that time does not permit notification of clarification of discrepancies prior to the bid opening, the following shall apply:
 - a. The drawings govern in matters of quantity and specifications govern in matters of quality.
 - b. In the event of conflict within the drawings and specifications involving quantities or quality, the greater quantity or higher quality shall apply. Such discrepancies shall be noted and clarified within the contractor's bid. No additional allowances will be made because of errors, ambiguities or omissions which reasonably should have been discovered during the bid preparation.

B. Verify all power and communication utilities' requirements prior to commencement of any utility work. Make proper adjustments to the construction to satisfy the serving utility.

C. Information shown relative to services is based upon available records and data, but shall be regarded as approximate only. Make minor deviations found necessary to conform to actual locations and conditions without extra cost. Verify locations and elevations of utilities prior to commencement of excavation for new underground installation.

D. Exercise extreme care in excavating near existing utilities to avoid any damage thereto; be responsible for any damage caused by such operations. Contact all utility companies to obtain exact locations prior to commencement of construction.

E. The electrical plans indicate the general layout and arrangement; the field conditions shall determine exact locations. Field verify all conditions and modify as required to satisfy design intent. Maintain all required working clearances.

F. Fees, permits and utility services

1. The Owner to procure all required permits and pay all service charges required for the installation of this work. The Contractor shall arrange for required inspections and secure approvals from authorities having jurisdiction (AHJ). Where applicable, the Contractor shall arrange for all utility connections. The Contractor shall be reimbured at cost for all fees incurred including excess service charges if any.

G. The Contractor shall provide and maintain temporary construction power.

1.9 *SEQUENCING*

- A. Coordinate work within phasing plans as provided by the Owner.

PART 2 - PRODUCTS

2.1 *MATERIALS*

- A. Materials mentioned herein or on Drawings require that the items be provided and of quality noted or an approved equal. All materials shall be new, full weight, standard in all respects and in first-class condition. Insofar as possible, all materials used shall be of the same brand or manufacturer throughout for each class of material or equipment.
- B. Trade names or catalog numbers stated herein indicates grade or quality of material desired. Materials, where applicable, shall be UL labeled and in accordance with NEMA standards.
- C. Dimensions, sizes and capacities shown are nominal. No changes are permitted to make changes without written permission of Engineer.

PART 3 - EXECUTION

3.1 *EXAMINATION*

- A. Examine Construction Documents and Site; be familiar with types of construction where electrical installation is involved. Note carefully other sections of Specifications with their individual cross-references, standard details, etc.
- B. Any electrical work or materials shown either in Construction Documents, but not mentioned herein, or vice versa, shall be executed the same as if mentioned herein, in a workmanlike manner in accordance with all published NECA Standards of Installation.
- C. Coordinate work with other crafts to avoid conflicts, and check all electrical locations with drawings and specifications. Minor adjustments required to accommodate other trades shall be made without additional cost to Owner.
- D. Engineer will make clarifications and rulings concerning any obvious discrepancies or omissions in work prior and after bidding. Perform all work involved in correcting obvious errors or omissions after award of contract as directed by Engineer at Contractor's expense.
- E. Examine site dimensions and locations against Drawings and become informed of all conditions under which work is to be done before submitting proposals. No allowance will be made for extra expense due to error.
- F. Layouts of equipment, accessories and wiring systems are diagrammatic and shall be followed as closely as possible. Construction Documents are for assistance and guidance, and exact locations, distance, levels, etc., will be

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governed by construction; accept same with this understanding.

- G. Horsepower of motors or wattage of equipment indicated in Construction Documents is estimated horsepower or wattage requirement of equipment furnished under other sections of Specifications. Size all feeders (conduit and wiring), motor starters, overload protection and circuit breakers to suit horsepower of motors or wattage of equipment actually furnished under various sections of specifications. However, in no case shall feeders and branch circuits (conduit and wiring) and circuit breakers be of smaller capacities or sizes than those indicated on Drawings or specified, unless approved in writing by Engineer.

3.2 *PREPARATION*

- A. Seal all exterior wall penetrations in an approved watertight manner and / or as required by the classified area as required by code in a manner satisfactory to the Engineer.
- B. Channels, joiners, hangers, caps, nuts and bolts and associated parts shall be plated electrolytically or shall be hot dipped galvanized.

3.3 *INSTALLATION*

- A. Equipment identification
 - 1. Properly identify panelboards, remote control switches, push buttons, terminal boxes, etc. with a descriptive nameplate. Make nameplate with 3/32" laminated plastic with black background and white letters. Machine engraved letters 1/8" high for equipment in device box(es) and 1/4" high for panelboards, terminal cabinets or larger items. Punched strip type nameplates and cardholders in any form are not acceptable. Fasten nameplates with oval head machine screws, tapped into front cover/panel.
- B. Working spaces
 - 1. Provide adequate working space around electrical equipment in compliance with Article 4 of Electrical Safety Orders and CEC 110.26. In general, provide 78" of headroom and 30" wide minimum clear workspace in front of panelboards and controls. In addition to the above, provide the following minimum working clearances:
 - a. 0V – 150V (line-to-ground) provide 36" minimum clear distance.
 - b. 151V – 600V (line-to-ground) provide 42" minimum clear distance.
- C. Equipment supports
 - 1. Anchor all electrical equipment to structure. Support systems shall be adequate to withstand seismic forces per CBC.
- D. Excavating and backfilling

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1. Excavate and backfill as required for installation of Work. Restore all surfaces, roadways, walks, curbs, walls existing underground installations, etc., cut by installations to original condition in an acceptable manner. Maintain all warning signs, barricades, flares and lanterns as required by ESO and local ordinances.
2. Dig trenches straight and true to line and grade, with bottom clear of any rock points. Support conduit for entire length on undisturbed original earth. Minimum conduit depth of pipe crown shall be 24" below finished or natural grade, unless otherwise noted.

E. Forming, cutting and patching

1. The Contractor shall coordinate with all trades and provide any special forming, recesses, chases, wood blocking, backing, grounds, etc. - as necessary for the proper installation of electrical work.
 - a. Provide metal backing plates, anchor plates and such that are required for anchorage of electrical work under Division 26; securely weld or bolt to metal framing. Wood blocking or backing will not be permitted in combination with metal framing.
2. The Contractor responsible for proper placement of pipe sleeves, hangers, inserts and supports for this Work.

F. Concrete work

1. Provide concrete work related solely to electrical work. Concrete work, including forming and reinforcing steel installed for all electrical work, shall comply with all applicable requirements of Division 03, or in accordance with the State of California Standard Specifications issued by the Department of Transportation (CALTRANS).

3.4 *REPAIR/RESTORATION*

- A. Cutting, patching and repairing of existing construction to permit installation of work under Division 26 is the responsibility of Contractor. Repair or replace all damage to existing work in kind to Owner's satisfaction.
- B. Obtain Engineer's approval prior to performing any cutting or patching of concrete, masonry, wood or steel structure within building.

3.5 *FIELD QUALITY CONTROL*

A. Inspection of work

1. Working parts shall be readily accessible for inspection, repair and renewal. The right is reserved to make reasonable changes in equipment location shown on Drawings prior to rough in without additional costs to the Owner.

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2. During construction all work will be subject to observation by the Engineer or its representatives. Assist in ascertaining any information that maybe required.
3. Do not allow or cause any work installed hereunder to be covered up or enclosed before it has been inspected and approved. Should any work be enclosed or covered prior to approval, uncover work, and after it has been inspected and approved, restore work of all others to the condition in which it was found at the time of cutting, all without additional costs to Owner.

- B. Furnish all testing equipment as maybe required.
- C. Test all wiring and connections for continuity and grounds; where such tests indicate faulty insulation or other defects, locate, repair and re-test.
- D. Check rotation of all motors and correct if necessary.

3.6 *CLEANING*

- A. Repair or replace all broken, damaged or otherwise defective parts without additional cost to Owner, and leave entire work in a condition satisfactory to Engineer. At completion, carefully clean and adjust all equipment, fixtures and trim installed as part of this work; leave systems and equipment in satisfactory operating condition.
- B. Clean out and remove from the site all surplus materials and debris resulting from this work; this includes surplus excavated materials.

3.7 *DEMONSTRATION*

- A. At project completion, Contractor shall allot a period of not less than 8 hours for instruction of operating and maintenance personnel in the use of all systems installed under this Division. This time is in addition to any instruction time stated in the Specifications of other sections for other equipment (i.e., fire alarm, security, intercom, etc.). All personnel shall be instructed at one time, the Contractor shall make all necessary arrangements with manufacturer's representatives as may be required. The cost of training shall be included in the itemized bid cost.

3.8 *PROTECTION*

- A. In performance of work, protect work of other trades as well as work under this Division from damage.
- B. Protect electrical equipment, stored and installed, from dust, water or other damage.

END OF SECTION

**SECTION 26 05 19
CONDUCTORS AND CABLES**

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes

1. Provide all labor, materials and equipment necessary for the installation of all conductors and cables under this Section related to lighting, power, mechanical, control and signal systems.

B. Related sections

1. Where items specified in other Division 26 sections conflict with the requirements of this Section, the most stringent requirement shall govern.
2. The requirements of this Section apply to all Division 26 work.
3. Consult all other sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete installation.

1.2 REFERENCES

A. Comply with the latest edition of the following applicable specifications and standards except as otherwise shown or specified:

1. ASTM -American Society for Testing and Materials
 - a. B3; Standard Specification for Soft or Annealed Copper Wire
 - b. B8; Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
 - c. B787/B787M; Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation
2. CCR –California Code of Regulations, Title 24
 - a. Part 3 -California Electrical Code (CEC); NFPA 70 National Electrical Code (NEC) with California amendments
3. UL -Underwriters Laboratories, Inc.
 - a. UL 83; Thermoplastic-Insulated Wire and Cables
 - b. UL 486A 486B; Wire Connectors
 - c. UL 486C; Splicing Wire Connectors
 - d. UL 486D; Standard for Insulated Wire Connector Systems for Underground Use or In Damp or Wet Locations

- e. UL 486E; Standard for Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
- f. UL 493; Thermoplastic-Insulated Underground Feeders and Branch Circuit Cables
- g. UL 510; Standard for Polyvinyl Chloride, Polyethylene and Rubber Insulating Tape
- h. UL 854; Service-Entrance Cables
- 4. NEMA –National Electrical Manufacturer’s Association
 - a. WC 70-1999; Nonshielded Power Cables Rated 2000 Volts or less for the Distribution of Electrical Energy
- 5. IEEE –Institute of Electrical and Electronic Engineers
 - a. 82; Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors

1.3 DELIVERY

- A. Wire shall be in original unbroken package.

PART 2 - PRODUCTS

2.1 BUILDING WIRE

- A. Conductor material
 - 1. Provide annealed copper for all wire, conductor and cable of not less than 98% conductivity.
 - 2. Wire #8 AWG and larger shall be stranded.
 - 3. Wire #10 AWG and smaller shall be solid.
- B. Insulation material
 - 1. All insulated wire, conductor and cable shall be 600 Vac rated.
 - 2. Feeder and branch circuits larger than #6 AWG shall be type THW, XHHW or THHN/THWN.
 - 3. Feeder and branch circuits #6 AWG and smaller shall be type TW, THW, XHHW or THHN/THWN.
 - 4. Control circuits shall be type THW or THHN/THWN.
 - 5. Wires shall bear the UL label, be color-coded and marked with gauge, type and manufacturer’s name on 24” centers.

2.2 FLEXIBLE CORDS AND CABLES

- A. Provide flexible cords and cables of size, type and arrangement as indicated on Drawings.
- B. Flexible cords and cables shall be fitted with wire mesh strain relief grips either as a integral connector component or an independently supported unit.
- C. Suspended flexible cords and cables shall incorporate safety spring(s).

2.3 WIRE CONNECTIONS AND TERMINATIONS

- A. Electrical spring wire connectors
 - 1. Provide multi-part construction incorporating a non-restricted, zinc coated square cross-sectional steel spring enclosed in a steel sheet with an outer jacket of plastic and insulating skirt.
 - 2. Self-stripping pigtail and tap U-contact connectors are not acceptable.
- B. Compression type terminating lugs
 - Not Applicable
- C. Splicing and insulating tape
 - 1. Provide black, UV resistant, self extinguishing, 7 mil thick vinyl general purpose electrical tape per UL 510 and ASTM D1000. 3M Scotch 33 or equal.
- D. Insulating putty
 - 1. Provide pads or rolls of non-corrosive, self-fusing, 125 mil thick rubber putty with PVC backing sheet per UL 510 and ASTM D1000. 3M Scotchfil or equal.
- E. Insulating resin
 - Not Applicable
- F. Terminal strips
 - 1. Provide box type terminal strips in the required quantities plus 25% spare. Install in continuous rows.
 - 2. Use the box type terminal strips with barrier open backs and with ampere ratings as required.
 - 3. Identify all terminals strips and circuits.
- G. Crimp type connectors
 - 1. Provide insulated fork or ring crimp terminals with tinned electrolytic copper-brazed barrel with funnel wire entry and insulation support.
 - 2. Fasten crimp type connectors or terminals using a crimping tool recommended by the manufacturer.

3. Provide insulated overlap splices with tinned seamless electrolytic copper-brazed barrel with funnel wire entry and insulation support.
 4. Provide insulated butt splices with tinned seamless electrolytic copper-brazed barrel with center stop, funnel wire entry and insulation support.
- H. Cable ties
1. Provide harnessing and point-to-point wire bundling with nylon cable ties. Install using tool supplied by manufacturer as required.
- I. Wire lubricating compound
1. UL listed for the wire insulation and conduit type, and shall not harden or become adhesive.
 2. Shall not be used on wire for isolated type electrical power systems.
- J. Bolt termination hardware
1. Bolts shall be plated, medium carbon steel heat-treated, quenched and tempered equal to ASTM A-325 or SAE Grade 5; or silicon bronze alloy ASTM B-9954 Type B.
 2. Nuts shall be heavy semi-finished hexagon, conforming to ANSI B18.2.2, threads to be unified coarse series (UNC), class 2B steel or silicon bronze alloy.
 3. Flat washers shall be steel or silicon bronze, Type A plain standard wide series, conforming to ANSI B27.2. SAE or narrow series shall be used.
 4. Belleville conical spring washers shall be hardened steel, cadmium plated or silicon bronze.
 5. Each bolt connecting lug(s) to a terminal or bus shall not carry current exceeding the following values:
 - a. 1/4" bolt – 125 A
 - b. 5/16" bolt – 175 A
 - c. 3/8" bolt – 225 A
 - d. 1/2" bolt – 300 A
 - e. 5/8" bolt – 375 A
 - f. 3/4" bolt – 450 A

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Thoroughly examine site conditions for acceptance of wire and cable installation to verify conformance with manufacturer and specification tolerances. Do not commence with work until all conditions are made satisfactory.

3.2 *INSTALLATION*

- A. All wire, conductor, and cable with their respective connectors, fittings and supports shall be UL listed for the installed application and ambient conditions.
- B. Feeders and branch circuits in dry and wet locations shall be rated 90°C.
- C. Minimum conductor size
 - 1. #12 AWG copper for all power and lighting branch circuits.
 - 2. #14 AWG copper for all line voltage signal and control wiring, unless otherwise indicated or cited by the manufacture.
- D. Remove and replace conductors under the following conditions at no additional costs to the Owner:
 - 1. Installed within wrong specified conduit or raceway.
 - 2. Damaged during installation.
 - 3. Of insufficient length to facilitate proper splice of conductors

3.3 *WIRING METHODS*

- A. Install wires and cable in accordance with manufacturer's written instructions, as shown on Drawings and as specified herein.
- B. Install all single conductors within raceway system, unless otherwise indicated.
- C. Parallel circuit conductors and terminations shall be equal in length and identical in all aspects.
- D. Provide adequate length of conductors within electrical enclosures and neatly train to termination points with no excess. Terminate such that there is no bare conductor at the terminal.
- E. Splice cables and wires only in junction boxes, outlet boxes, pull boxes, manholes or handholes.
- F. Group and bundle with tie wrap each neutral with its associated phase conductors where more than one neutral conductor is present within a conduit.
- G. Install cable supports for all vertical feeders in accordance with CEC Article 300. Provide split wedge type fittings, which firmly clamp each individual cable and tighten due to cable weight.
- H. Provide UL listed factory fabricated, solder-less metal connectors of size, ampacity rating, material, type and class for applications and for services indicated. Use connectors with temperature ratings equal or greater than the conductor or cable being terminated.

- I. Stranded wire shall be terminated using fittings, lugs or devices listed for the application. Under no circumstances shall stranded wire be terminated solely by wrapping it around a screw or bolt.
- J. Flexible cords and cables supplied as part of a pre-manufactured assembly shall be installed according to manufacturer's published instructions.

3.4 *WIRING INSTALLATION IN RACEWAYS*

- A. Install wire in raceway after interior of building has been physically protected from weather, and all mechanical work likely to injure conductors has been completed.
- B. Pull all conductors into raceway at the same time.
- C. Use UL listed, non-petroleum base and insulating type pulling compound.
- D. Completely mandrel all underground or concrete encased conduits prior to installation.
- E. Completely and thoroughly swab raceway system prior to installation
- F. Do not use block and tackle, power driven winch or other mechanical means for pulling conductors smaller than #1 AWG.
- G. Wire pulling
 - 1. Provide installation equipment that will prevent cutting or abrasion of insulation during installation.
 - 2. Maximum pull tension shall not exceed manufacturer's recommended value during installation for cable being measured with tension dynameter.
 - 3. Use rope made of non-metallic material for pulling.
 - 4. Attach pulling lines by means of either woven basket grips or pulling eyes attached directly to the conductors.
 - 5. Pull multiple conductors simultaneously within same conduit.

3.5 *WIRE SPLICES, JOINTS AND TERMINATIONS*

- A. Join and terminate wire, conductors and cables in accordance with UL 486, CEC and manufacturer's instructions.
- B. Thoroughly clean wires before installing lugs and connectors.
- C. Make splices, taps and terminations to carry full conductor ampacity without perceptible temperature rise, and shall be made mechanically and electrically secure.
- D. Terminate wires in terminal cabinets using terminal strips, unless otherwise indicated.

- E. Insulate spare conductors with electrical tape and leave sufficient length to terminate anywhere within panel or cabinet.
- F. Encapsulate splices in wet locations using specified insulating resin kits.
- G. Make up all splices and taps in accessible junction or outlet boxes with connectors as specified herein. Pigtails and taps shall be the same color as feed conductor with at least 6 inches of tail, all neatly packed within box.
- H. Where conductors are to be connected to metallic surfaces, coated surfaces shall be cleaned to base metal surface before installing connector. Remove lacquer coating of conduits where ground clamps are to be installed.
- I. Branch circuits (#8 AWG and larger)
 - 1. Join or tap conductors using insulated mechanical compression taps with pre-molded, snap-on insulating boots or specified conformable insulating pad and over-wrapped with two half-lapped layers of vinyl insulating tape starting and ending at the middle of joint.
 - 2. Terminate conductors using mechanical compression lugs in accordance with manufacturer's recommendation or as specified elsewhere.
 - 3. Insulate splices and joints with materials approved for the particular use, location, voltage and temperature.
- J. Termination hardware assemblies
 - 1. Al/Cu lugs connected to aluminum plated or copper bus shall be secured with steel bolt, flat washer (two per bolt), Belleville washer and nut.
 - 2. Copper lugs connected to copper buss shall bus shall be secured using silicon bronze alloy bolt, flat washer (two per bolt), Belleville washer and nut.
 - 3. Bolt assemblies shall be torque to manufacturer's recommendations. Where manufacturer recommendation is not obtainable, the following shall be used:
 - a. 1/4" -20 bolt at 80 inch-pound torque
 - b. 5/16" -18 bolt at 180 inch-pound torque
 - c. 3/8" -20 bolt at 20 inch-pound torque
 - d. 1/2" -20 bolt at 40 inch-pound torque
 - e. 5/8" -20 bolt at 55 inch-pound torque
 - f. 3/4" -20 bolt at 158 inch-pound torque

3.6 IDENTIFICATION

- A. Securely tag all branch circuits. Mark conductors with specified vinyl wrap-around markers. Where more than two conductors run through a single outlet, mark each conductor with the corresponding circuit number.

- B. Provide all terminal strips with each individual terminal identified using specified vinyl markers.
- C. Provide all terminal strips with each individual terminal identified using specified vinyl markers.
- D. In manholes, pull boxes and handholes provide tags of embossed brass type with cable type and voltage rating. Attach tags to cable with slip-free plastic cable lacing units.
- E. Color coding
 - 1. For 120/208 Volt (or 120/240 Volt), 1 phase, 3 wire systems:
 - a. Phase A – Black
 - b. Phase B – Red
 - c. Neutral – White
 - d. Ground – Green
 - 2. For 120/208 Volt, 3 phase, 4 wire systems:
 - a. Phase A – Black
 - b. Phase B – Red
 - c. Phase C – Blue
 - d. Neutral – White
 - e. Ground – Green
 - 3. For 277/480 Volt, 3 phase, 4 wire systems:
 - a. Phase A – Brown
 - b. Phase B – Orange
 - c. Phase C – Yellow
 - d. Neutral – Gray
 - e. Ground – Green
 - 4. Switch leg individually installed shall be the same color as the branch circuit to which they originate, unless otherwise indicated.

3.7 *FIELD QUALITY CONTROL*

- A. Supply labor, materials and test equipment required to perform continuity and ground tests.
- B. Electrical testing
 - 1. Perform feeder and branch circuit insulation test after installation and prior to connection to device.
 - 2. Tests shall be performed by 600 Vdc megger for a continuous 10 seconds from phase-to-phase and phase-to-ground.
 - 3. Torque test conductor connections and terminations for conformance to Specifications.

4. If any failure is detected, locate failure, determine cause and replace or repair cable to Engineer's satisfaction at no additional costs.
5. Furnish test results in type written report form for review by Engineer.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes
 - 1. Provide all labor, materials and equipment necessary to complete the installation required for the item specified under this Section, including but not limited to power system grounding
- B. Related sections
 - 1. Where items specified in other Division 26 sections conflict with the requirements of this Section, the most stringent requirement shall govern.
 - 2. The requirements of this Section apply to all Division 26 work.
 - 3. Consult all other sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete installation.

1.2 REFERENCES

- A. Comply with the latest edition of the following applicable specifications and standards except as otherwise shown or specified:
 - 1. CCR –California Code of Regulations, Title 24
 - a. Part 3 -California Electrical Code (CEC); NFPA 70 National Electrical Code (NEC) with California amendments
 - 2. IEEE –Institute of Electrical and Electronic Engineers
 - a. 142; Recommend Practices for Grounding of Industrial and Commercial Power Systems
 - 3. NFPA –National Fire Protection Association
 - a. 780; Lightning Protection Code
 - 4. UL –Underwriters Laboratories, Inc.
 - a. 467; Grounding and Bonding Equipment

1.3 SYSTEM DESCRIPTION

- A. This Section provides for the grounding and bonding of all electrical and communication apparatus, machinery, appliances, components, fittings and accessories where required to provide a permanent, continuous, low impedance, grounded electrical system.

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- B. Ground the electrical service system neutral at service entrance equipment as shown on the Drawings.
- C. Ground each separately derived system, as defined in CEC 250.5 (D) and on the Drawings, unless specifically noted otherwise.
- D. Except as otherwise indicated, the complete electrical installation including the neutral conductor, equipment and metallic raceways, boxes and cabinets shall be completely and effectively grounded in accordance with all CEC requirements, whether or not such connections are specifically shown or specified.

1.4 SUBMITTALS

- A. Submit manufacturer's data for equipment and materials specified within this Section in accordance to Section 26 05 00.

1.5 QUALITY ASSURANCE

- A. All materials, equipment and parts comprising the materials specified herein shall be new and unused, bearing UL labels where applicable.

PART 2 - PRODUCTS

2.1 CONCRETE ENCASED GROUNDING ELECTRODE (UFER GROUND)

- A. #4 AWG minimum bare stranded copper conductor.

2.2 DRIVEN (GROUND) RODS

- A. Copper clad steel, minimum 5/8" diameter by 8'-0" length, sectional type with copper alloy couplings and carbon steel driving stud; Weaver, Cadweld or equal.

2.3 INSULATED GROUNDING BUSHINGS

- A. Plated malleable iron body with 150°C molded plastic insulated throat and lay-in ground lug; OZ/Gedney BLG, Thomas & Betts #TIGB series or equal.

2.4 CONNECTION TO PIPE

- A. Cable to pipe connections; OZ/Gedney G-100B series, Thomas & Betts #290X series or equal.

2.5 CONNECTIONS TO STRUCTURAL STEEL, GROUND RODS OR SPICES

- A. Where required by the Drawings, grounding conductors shall be spliced together, connected to ground rods or connected to structural steel using exothermic welds, Cadweld or equal, or high pressure non-reversible compression type connectors, Cadweld, Thomas & Betts or equal.

2.6 *BONDING JUMPERS*

- A. OZ/Gedney Type BJ, Thomas & Betts #3840 series or equal.

2.7 *GROUND CONDUCTOR*

- A. Ground conductor shall be code size UL labeled, Type THWN insulated copper wire, green in color.

PART 3 - EXECUTION

3.1 *INSTALLATION*

A. Grounding electrodes

1. Concrete encased grounding electrode (Ufer ground)
 - a. Where applicable, provide a #4 AWG minimum bare copper conductor encased along the bottom of concrete foundation, footing or trench which is in direct contact with the earth and where there is no impervious waterproofing membrane between the footing and soil. The electrode shall extend through a horizontal length of 20' minimum and shall be encased in not less than 2" or more than 5" of concrete separating it from surrounding soil. The electrode shall emerge from the concrete slab through a protective non-metallic sleeve and shall be extended to BGB or as shown on Drawings.
2. Supplementary grounding electrode (ground ring, grid and driven rod)
 - a. Where applicable, provide as shown driven ground rod(s). Interconnect ground rod with structural steel and adjacent rods with code size bare copper conductor. Ground rods shall be space no less than 6'-0" on centers from any other electrode or electrodes of another electrical system.
3. Separately derived electrical system grounding electrode
 - a. Ground each separately derived system per CEC 250-26 or as shown on Drawings, whichever is greater.
4. Metal underground water pipe
 - a. Where applicable, install an accessible grounding electrode conductor from the main incoming cold water line to BGB. The electrode conductor shall be sized per CEC Table 250-94 or as shown on Drawings, whichever is greater.

B. Grounding electrode conductor

1. Provide grounding electrode conductors per CEC Table 250-94 or as shown on Drawings, whichever is greater.

C. Power system grounding

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1. Connect the following items using code size copper grounding conductors to BGB or as shown on Drawings:
 - a. Concrete encased electrode (Ufer ground)
 - b. Ground rod(s)
 - c. Structural steel
 - d. Distribution transformer secondary
- D. Equipment Bonding/Grounding
 1. Provide a code sized copper ground conductor, whether indicated or noted on the drawings, in each of the following:
 - a. All power distribution conduits and ducts
 - b. Distribution feeders
 - c. Motor and equipment branch circuits
 - d. Device branch circuits
 2. Metallic conduits terminating in concentric, eccentric or oversized knockouts at panelboards, cabinets, gutters, etc. shall have grounding bushings and bonding jumpers installed interconnecting all such conduits.
 3. Provide bonding jumpers across expansion and deflection coupling in conduit runs, pipe connections to water meters and metallic cold water dielectric couplings.
 4. Provide ground wire in flexible conduit connected at each end via grounding bushing.
 5. Provide bonding jumpers across all cable tray joints.

3.2 *FIELD QUALITY CONTROL*

- A. Where requested by the Engineer, Contractor using test equipment expressly designed for that purpose shall perform all ground resistance tests in conformance with IEEE guidelines. Contractor shall submit typewritten records of measured resistance values.
- B. Obtain and record ground resistance measurements both from electrical equipment ground bus to the ground electrode and from the ground electrode to earth. Furnish and install additional bonding and add grounding electrodes as required to comply with the following resistance limits:
 1. Resistance from ground bus to ground electrode and to earth shall not exceed 5 ohms unless otherwise noted.
 2. Resistance from the farthest panelboard, loadcenter, switchboard or motor control center ground bus to the ground electrode and to earth shall not exceed 20 ohms maximum.

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C. Inspection

1. The Engineer or Inspector prior to encasement, burial or concealment thereto shall review the grounding electrode and connections.

END OF SECTION

SECTION 26 05 33

RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes

1. Provide all labor, materials and equipment necessary to complete the installation required for the items specified under this Section, including but not limited to electrical conduits; outlet, junction and pull boxes; and related supports.

B. Related sections

1. Where items specified in other Division 26 sections conflict with the requirements of this Section, the most stringent requirement shall govern.
 - a. 26 05 26 – Grounding and Bonding for Electrical Systems
2. The requirements of this Section apply to all Division 26 work
3. Consult all other sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete installation.

1.2 REFERENCES

A. Comply with the latest edition of the following applicable specifications and standards except as otherwise shown or specified:

1. ANSI –American National Standards Institute
 - a. C33.91; Specification for Rigid PVC Conduit
 - b. C80.1; Specification Rigid Steel Conduit, Zinc-Coated
 - c. C80.3; Specification for Electrical Metallic Tubing, Zinc-Coated
 - d. C80.6; Intermediate Metal Conduit (IMC), Zinc-Coated
2. CCR –California Code of Regulations, Title 24
 - a. Part 2 -California Building Code (CBC); International Building Code (IBC) with California amendments
 - b. Part 3 -California Electrical Code(CEC); NFPA 70 National Electrical Code (NEC) with California amendments
3. NECA –National Electrical Contractors Association
 - a. 101, Standard for Installing Steel Conduit (Rigid, IMC, EMT)

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- b. 111, Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC) (ANSI)
- 4. NEMA –National Electrical Manufacturer’s Association
 - a. FB 1; Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable
 - b. FB 2.10; Selection and Installation Guidelines for Fittings for Use with Non-flexible Electrical Metal Conduit or Tubing (Rigid Metal Conduit, Intermediate Metal Conduit, and Electrical Metallic Tubing)
 - c. FB 2.20; Selection and Installation Guidelines For Fittings for Use With Flexible Electrical Conduit and Cable
 - d. OS 1; Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports
 - e. OS 3; Selection and Installation Guidelines for Electrical Outlet Boxes
 - f. RN 1; Polyvinyl-Chloride Externally Coated Galvanized Rigid Steel Conduit and Electrical Metallic Tubing
 - g. TC 2; Electrical Plastic Tubing and Conduit
 - h. TC 3; PVC Fittings for Use with Rigid PVC Conduit and Tubing
 - i. TC 14; Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
- 5. OSHPD Anchorage Pre-approvals
 - a. OPA-0003; Superstrut Seismic Restraint System
 - b. OPA-0114; B-Line Seismic Restraints
 - c. OPA-0120; Unistrut Seismic Bracing System
 - d. OPA-0242; Power-Strut Seismic Bracing System
- 6. UL –Underwriter’s Laboratories, Inc.
 - a. Standard for Flexible Metal Conduit
 - b. Rigid Metal Electrical Conduit
 - c. 360; Standard for Liquid-Tight Flexible Steel Conduit
 - d. 514A; Metallic Outlet Boxes, Electrical
 - e. 514B; Fittings for Conduit and Outlet Boxes
 - f. 651; Schedule 40 & 80 PVC Conduit
 - g. 797; Electrical Metallic Tubing
 - h. 1242; Intermediate Metal Conduit
 - i. 1684; Reinforced Thermosetting Resin Conduit (RTRC) and Fittings

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1.3 *SYSTEM DESCRIPTION*

- A. Furnish, assemble, erect, install, connect and test all electrical conduits and related raceway apparatus required and specified to form a complete installation.

1.4 *SUBMITTALS*

- A. Submit manufacturer's data for materials specified within this Section in accordance to Section 26 05 00.

1.5 *QUALITY ASSURANCE*

- A. All materials, equipment and parts comprising the materials specified herein shall be new and unused, bearing UL labels where applicable.
- B. Installation shall conform to the NECA installation guidelines unless otherwise indicated within this Section

PART 2 - PRODUCTS

2.1 *MATERIALS*

A. Conduits and Fittings

1. Rigid steel conduit (RMC)

- a. Conduit: Standard weight, mild steel pipe, and zinc coated on both inside and outside by a hot dipping or shearardizing process manufactured in accordance with UL 6 and ANSI C80.1 specifications.
- b. Fittings (couplings, elbows, bends, etc.)
 - 1) Shall be steel or malleable iron.
 - 2) Coupling and unions shall be threaded type, assembled with anti-corrosion, conductive and anti-seize compound at joints made absolutely tight to exclude water.

c. Bushings

- 1) Insulating bushings: Threaded polypropylene or thermosetting phenolic rated at 150°C minimum.
- 2) Insulating grounding bushing: Threaded cast body with insulating throat and steel "lay-in" ground lug.
- 3) Insulating metallic bushing: Threaded cast body with plastic insulated throat rated at 150°C minimum.

2. Coated rigid steel conduit (CRMC)

- a. Conduit: Equivalent to RMC with a Polyvinyl chloride (PVC) coated

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bonded to the galvanized outer surface of the conduit.

The bonding between the PVC coating and conduit surface shall be ETL PVC-001 compliant. The coating thickness shall be a minimum of 40mil.

- b. Fittings (couplings, elbows, bends, etc.)
 - 1) Equivalent to RMC above with bonded coating same as conduit.
 - 2) The PVC sleeve over fittings shall extend beyond hub or coupling approximately one diameter or 1 1/2" whichever is smaller.
 - c. Bushing equivalent to RMC above.
3. Intermediate metallic conduit (IMC)
 - a. Conduit: Intermediate weight, mild steel pipe, meeting the same requirements for finish and material as rigid steel conduit manufactured in accordance with UL 1242 and ANSI C80.6 specifications.
 - b. Fittings (couplings, elbows, bends, etc.) equivalent to RMC above.
 - c. Bushing equivalent to RMC above.
 4. Electrical metallic tubing (EMT)
 - a. Conduit: Cold rolled steel tubing with zinc coating on outside and protective enamel on inside manufactured in accordance with UL 797 and ANSI C80.3 specifications.
 - b. Couplings: Steel or malleable iron with compression type fastener via a nut.
 - c. Connectors: Steel or malleable iron with compression type fastener via a nut with plastic insulated throat rated at 150°C minimum.
 5. Rigid non-metallic conduit (PVC)
 - a. Conduit: PVC composed Schedule 40, 90°C manufactured in accordance with NEMA TC 2 and UL 651 specifications.
 - b. Fittings: Molded PVC, slip on solvent welded type in accordance to NEMA TC 3.
 6. Flexible metallic conduit (FMC)
 - a. Conduit: Continuous, flexible steel spirally wound with zinc coating on both inside and outside in accordance with UL 1.
 - b. Connectors: Steel or malleable iron with compression type fastener via a nut with plastic insulated throat rated at 150°C minimum.

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7. Liquidtight flexible metallic conduit (LFMC)
 - a. Conduit: PVC coated, continuous, flexible steel spirally wound with zinc coating on both inside and outside in accordance with UL 360.
 - b. Connectors: Steel or malleable iron with compression type fastener via a nut with plastic insulated throat rated at 150°C minimum.
8. Miscellaneous Fittings and Products
 - a. Conduit sealing bushings: Steel or cast malleable iron body and pressure clamps with PVC sleeve, neoprene sealing grommets and PVC coated steel pressure rings. Supplied with neoprene sealing rings between body and PVC sleeve.
 - b. Watertight cable terminators: One piece, compression molded sealing ring with PVC coated steel pressure disks, stainless steel screws and zinc plated cast iron locking collar.
 - c. Expansion fittings: Multi-piece unit of hot dip galvanized malleable iron or steel body and outside pressure bussing design to allow a maximum of 4" movement (2" in either direction). Furnish with external braid tinned copper bonding jumper. UL listed for both wet and dry locations.
 - d. Conduit bodies: Raintight, malleable iron, hot-dip galvanized body with threaded hubs, stamped steel cover, stainless steel screws and neoprene gasket.
 - e. Other couplings, connectors and fittings shall be equal in quality, material and construction to items specified herein.

B. Boxes

1. Outlet boxes
 - a. Standard: Galvanized one-piece of welded pressed steel type in accordance with NEMA OS 1 and UL 514. Boxes shall not be less than 4" square and at least 1 1/2" deep.
 - b. Concrete: Galvanized steel, 4" octagon ring with mounting lug, backplate and adapter ring type in accordance with NEMA OS 1 and UL 514. Depth as required by application.
 - c. Masonry: Galvanized steel, 3.75" high gang box in accordance with NEMA OS 1 and UL 514.
 - d. Surface cast metal: Cast malleable iron body, surface mounted box with threaded hubs and mounting lugs as required in accordance with NEMA OS 1 and UL 514. Furnish with ground flange, steel cover and neoprene gasket.

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2. Pull and junction boxes
 - a. Sheet metal boxes: Standard or concrete outlet box wherever possible; otherwise use 16 gauge galvanized sheet metal, NEMA 1 box sized per CEC with machine screwed cover.
 - b. Cast metal boxes: Install standard cast malleable iron outlet or device box when possible.
 - c. Flush mounted boxes: Install overlapping cover with flush head screws.
 - d. In-ground mounted pull holes/boxes: Install pre-cast concrete box, sized per Drawing with FULL traffic rated lid.
3. Floor boxes
Not Used

C. Pull line/cord

1. Polypropylene braided line or Let-line #232 or equal of 1/8" diameter with a minimum break strength of 200 pounds.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Thoroughly examine site conditions for acceptance of wire and cable installation to verify conformance with manufacturer and specification tolerances. Do not commence with work until all conditions are made satisfactory.

3.2 PREPARATION

A. Conduit

1. Provide all necessary conduit fittings, connectors, bushings, etc. required to complete conduit installation to meet the CEC and intended application whether noted, shown or specified within.
2. Location of conduit runs shall be planned in advance of the installation and coordinated with other trades.
3. Where practical, install conduits in groups in parallel vertical or horizontal runs that avoid unnecessary offsets.
4. All conduits shall be parallel or at right angles to columns, beams and walls whether exposed or concealed.
5. Conduits shall not be placed closer than 12" in parallel with hot water, steam line or other heat sources; or 3" when crossing perpendicular to the above said lines when possible.

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6. Do not obstruct spaces required by Code in front of electrical equipment, access doors, etc.
7. Install additional pull boxes, not shown on Drawings, in sufficient quantities to facilitate pulling of conductors and cables such that total spacing does not exceed 150 feet or 270 degrees, total; and maximum pulling tension will not be exceeded.
8. When installing underground conduits to specified depth; depth shall be taken from finished grade as it will be at project completion. Should finish grade be above existing grade by an amount equal to or greater than specified depth, conduit shall be installed not less than 6" below existing grade.
9. Unless otherwise specified, underground conduits shall be installed with top side not less than 24" below finished grade; this depth applies to all conduits outside of building foundations including those under walks, open corridors or paved areas.

B. Boxes

1. Before locating outlet boxes, check Construction Documents for type of construction and make sure that there is no conflict with other equipment. Locate outlet boxes as shown and locate so as not to interfere with other Work or equipment.
2. In fire rated walls separate boxes by 24" minimum and with stud member.
3. Adjust position of outlet boxes within masonry wall to accommodate course lines.

3.3 *INSTALLATION*

A. Conduit

1. Minimum conduit size shall be 3/4" unless otherwise indicated.
2. Install conduit in complete runs prior to installing conductors or cables.
3. Make long radius conduits bends free from kink, indentations or flattened surfaces. Make bends carefully to avoid injury or flattening. Bends 1 1/4" size and larger shall be factory made ells, or be made with a manufactured mechanical bender. Heating of steel conduit to facilitate bending or that damage galvanized coating will not be permitted.
4. Remove burrs and sharp edges at end of conduit with tapered reamer.
5. Protect and cover conduits during construction with metallic bushings and bushing "pennies" to seal exposed openings.
6. Assemble conduit threads with anti-corrosion, conductive, anti-seize compound and tighten securely.
7. Install conduits shall have no traps/sags to collect condensation.

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8. Fasten conduit securely to boxes with locknuts and bushings to provide good grounding continuity.
9. Install pull cords/line within any spare or unused conduits of sufficient length to facilitate future cable installation.
10. Penetrations
 - a. Locate penetrations within structural members as shown on Drawings or as directed by Engineer. Should it be necessary to notch any framing member, make such notching only at locations and in a manner as approved by Engineer.
 - b. Cutting or holes
 - 1) Install sleeves for cast-in-place concrete floors and walls. After installing conduit through penetration, seal using dry-pack grouting compound (non-iron bearing, chloride free and non-shrinking) or fire rated assembly if rated floor or wall. Use escutcheon plate on floor underside to contain compound as necessary.
 - 2) Cut holes with a hole saw for penetrations through non-concrete or non-masonry members.
 - c. Sealing
 - 1) Fire rated penetration shall be sealed using a UL classified fire stop assembly suitable to maintain the equivalent fire rating prior to the penetration.
 - d. Waterproofing
 - 1) Make penetrations through any damp-Proofed/waterproofed surfaces within damp/wet locations as such as to maintain integrity of surface.
11. Supports
 - a. Sizes of rods and cross channels shall be capable of supporting 4 times and 5 times actual load, respectively. Anchorage shall support the combined weight of conduit, hanger and conductors.
 - b. Support individual horizontal conduit 1 1/2" and smaller by means of 2 hole straps or individual hangers.
 - c. Galvanized iron hanger rods sizes 1/4" diameter and larger with spring steel fasteners, clips or clamps specifically design for that purpose for 1 1/2" conduits and larger.
 - d. Support conduit to wood structures by means of bolts or lag screws in shear, to concrete by means of insert or expansion bolts and to brickwork by means of expansion bolts.

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- e. Maximum conduit support spacing shall be in accordance with NECA Standard of Installation:
 - 1) Horizontal runs:
 - a) 3/4" and smaller at 60" on centers.
 - b) 1" and larger at 72" on centers.
 - 2) Vertical runs:
 - a) 3/4" and smaller @ 84" on centers.
 - b) 1" and 1 1/4" @ 96" on centers.
 - c) 1 1/2" and larger @ 120" on centers.
- f. Anchorage for RMC/IMC supports unless otherwise specified:
 - 1) < 1" IMC/RMC = #10 bolt/screw.
 - 2) 1" IMC/RMC = 1/4" bolt/screw.
 - 3) 1 1/2" and 2" IMC/RMC = 3/8" bolt/screw.
 - 4) 3" IMC/RMC, 4" EMT = 1/2" bolt/screw.
 - 5) > 3"IMC/RMC = 5/8" bolt/screw.
- g. Anchorage for EMT supports unless otherwise specified:
 - 1) < 1 1/2" EMT = #10 bolt/screw.
 - 2) 1 1/2" EMT = 1/4" bolt/screw.
 - 3) 2, 2 1/2" and 3" EMT = 3/8" bolt/screw.
 - 4) 4" EMT = 1/2" bolt/screw.

B. Boxes

- 1. Install boxes as shown on Drawings and as required for splices, taps, wire pulling, equipment connections and Code compliance.
- 2. Install additional pull boxes, not shown on Drawings, in sufficient quantities to facilitate pulling of conductors and cables such that total spacing does not exceed 150 feet or 270 degrees, total; and maximum pulling tension will not be exceeded.
- 3. Provide gasketed cast metal cover plates where boxes are exposed in damp or wet locations
- 4. Install approved factory made knockout seal where knockouts are not present.
- 5. Refer to Architectural interior elevations and details shown for exact mounting heights of all electrical outlets. In general, locate outlets as shown or specific and complies with Americans with Disabilities Act:
 - a. Convenience outlets: +18" AFF or +6" above counter or splash.

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- b. Local switches: +48" AFF or +6" above counter or splash.
 - c. Telecommunication outlets: +18" AFF or +48" AFF for wall telephone or intercom device.
 - d. Verify all mounting heights with Drawings, and where heights are not suited for construction or finish grade.
6. Use conduit bodies to facilitate pulling of conductor, cables or change in conduit direction. Do not splice within conduit bodies.
 7. Install galvanized steel coverplates on all open boxes within dry listed areas.
 8. Install in-ground pull holes/boxes flush to grade finish at finished areas or 1" above finished landscaped grade. Seal all conduits terminating in pull hole/box watertight. Install and grout around bell ends where shown. Cover and lids shall be removable without damage to adjacent finish surfaces.
 9. Support
 - a. Accurately place boxes for finish, independently and securely supported by adequate blocking or manufacturer channel type heavy-duty box hangers for stud walls. Do not use nails to support boxes.
 - b. Support boxes independent of conduit system.
 - c. Use auxiliary plates, bar or clips and grouted in place for masonry, block or pour-in-place concrete construction.

3.4 APPLICATION

A. Conduit

1. RMC/IMC suitable for all damp, dry and wet locations except when in contact with earth. IMC not suitable for hazardous locations as stated within CEC.
2. CRMC suitable for damp or wet locations, concealed within concrete or in contact with earth.
3. CRMC suitable for damp or wet locations, concealed within concrete or in contact with earth.
4. EMT suitable for exposed or concealed dry, interior locations.
5. PVC/RTRC suitable for beneath ground floor slab, except when penetrating, and direct earth burial. Do not run exposed within concrete walls or in floor slab unless indicated on Drawings or per Engineer's permission.
6. FMC suitable for dry locations only for connections to motors, transformers, vibrating equipment/machinery, controllers,

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valves, switches and light fixtures in less than 6 foot lengths.

7. LFMC application same as FMC above but for damp or wet locations.

B. Termination and joints

1. Use raceway fittings compatible with associated raceway and suitable for the location.
2. Raceways shall be joined using specified couplings or transitions where dissimilar raceway systems are joined.
3. Conduits shall be securely fastened to cabinets, boxes and gutters using (2) two locknuts and insulating bushing or specified insulated connector. Where joints cannot be made tight and terminations are subject to vibration, use bonding jumpers, bonding bushings or wedges to provide electrical continuity of the raceway system. Use insulating bushings to protect conductors where subjected to vibration or dampness. Install grounding bushings or bonding jumpers on all conduits terminating at concentric or eccentric knockouts.
4. Terminations exposed at weatherproof enclosures and cast outlet boxes shall be made watertight using specified connectors and hubs.
5. Stub freestanding equipment conduits through concrete floors for connections with top of coupling set flush with finished floor. Install plugs to protect threads and entrance of debris.
6. Install specified cable sealing bushings on all conduits originating outside the building walls and terminating within interior switchboard, panel, cabinet or gutters. Install cable sealing bushings or raceway seal for conduit terminations in all grade level or below grade exterior pull, junction or outlet boxes.
7. Where conduits enter building from below grade inject into filled raceways pre-formulated rigid 2 lbs. density polyurethane foam suitable for sealing against water, moisture, insects and rodents.
8. Install expansion fitting or expansion/deflection couplings per manufacturer's recommendations where:
 - a. Any conduit that crosses a building structure expansion joint; secure conduit on both sides to building structure and install expansion fitting at joint.
 - b. Any conduit that crosses a concrete expansion joint; install expansion/deflection at joint.
 - c. Any conduit that crosses a concrete expansion joint; install expansion/deflection at joint.
 - d. Any conduit greater than 1-1/4" is routed along roof top in runs greater than 100 feet; install expansion fittings every 100 feet.

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- e. Engineer may allow FMC or LFMC in lieu of expansion fitting or expansion/deflection couplings on conduits 2" and smaller within accessible locations upon further review and written consent.

C. Boxes

1. Standard type suitable for all flush installations and all dry concealed locations.
2. Concrete type suitable for all flush concrete installations.
3. Masonry type suitable for all flush concrete and block installations.
4. Surface cast meta type suitable for all exposed damp and wet surface mounted locations, and dry surface mounted locations less than 96" from finished floor.

END OF SECTION

SECTION 26 05 53
ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for:
 - 1. Identifying electrical, instrumentation, and process equipment and components.
 - 2. Material, manufacturing, and installation requirements for identification devices.

- B. Related Sections:
 - 1. Contract Documents are a single integrated document, and as such all Divisions and Sections apply. It is the responsibility of the CONTRACTOR and its subcontractors to review all sections to ensure a complete and coordinated project.

1.2 REFERENCES

- A. Refer to Section 26 05 00.

1.3 DEFINITIONS

- A. Refer to Section 26 05 00.

1.4 SYSTEM DESCRIPTION

- A. Nameplates:
 - 1. Provide a nameplate for each control device or major item of electrical equipment, either located in the field or within panels.
 - 2. Provide all nameplates of identical style, color, and material throughout the facility.

- B. Wire Numbers:
 - 1. Coordinate the wire numbering system with all vendors of equipment so that every field wire has a unique number associated with it for the entire system:
 - a. Where applicable, wire numbers shall correspond to the wire numbers on the control drawings or the panel and circuit numbers for receptacles and lighting.
 - b. Wire numbers shall correspond to the terminal block number to which they are attached in the control panel.
 - c. Internal panel wires on a common terminal shall have the same wire number.

d. All instrumentation cables shall be identified at pull points as described above.

2. Provide the following wiring numbering schemes throughout the project for field wires field starters, field instruments, etc.

(ORIGIN LOC.)-(ORIGIN TERM.)/(DEST. LOC.)-(DEST. TERM.)

or

(ORIGIN LOC.)-(ORIGIN TERM.)
(DEST. LOC.)-(DEST. TERM.)

Where:

- ORIGIN LOC. = Designation for originating panel or device
- ORIGIN TERM. = Terminal designation at originating panel or device
- DEST. LOC. = Designation for destination panel or device
- DEST. TERM. = Terminal designation at destination panel or device or PLC I/O address at destination panel

1.5 SUBMITTALS

A. Furnish submittals in accordance with Section 26 05 00.

1.6 QUALITY ASSURANCE

A. Schedule a pre-installation conference in accordance with Section 26 0500 in order to clearly define the requirements specified for equipment identification:

1. Representatives of the CONTRACTOR, OWNER, and ENGINEER shall convene before any major purchases of cable or conductors and before the installation or termination of any cables or conductors.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Refer to Section 26 05 00.

1.8 WARRANTY

A. Refer to Section 26 05 00.

1.9 SYSTEM START UP

A. Refer to Section 26 05 00.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Nameplates and Signs:
 - 1. One of the following or equal:
 - a. Brady.
 - b. Seton.

- B. Conductor and Cable Markers:
 - 1. Heat-shrinkable tubing:
 - a. One of the following or equal:
 - 1) Raychem.
 - 2) Brady.
 - 3) Thomas & Betts.
 - 4) Kroy.

- C. Conduit and Raceway Markers:
 - 1. One of the following or equal:
 - a. Almetek: Almetek type mini-tag.
 - b. Lapp Group: Maxi System

2.2 MATERIALS

- A. Nameplates:
 - 1. Fabricated from white-center and red or black face laminated plastic engraving stock:
 - a. 3/32-inch thick material.
 - b. Two-ply.
 - c. With chamfered edges.
 - d. Block style engraved characters of adequate size to be read easily from a distance of 6 feet:
 - 1) No characters smaller than 1/8-inch in height.

- B. Signs:
 - 1. Automatic equipment and high voltage signs:
 - a. Suitable for exterior use.
 - b. In accordance with OSHA regulations.

- C. Conductor and Cable Markers:
 - 1. Machine printed black characters on white tubing.
 - 2. Ten point type or larger.

- D. Conduit and Raceway Markers:
 - 1. UV resistant holder and letters.
 - 2. Black letters on yellow background.
 - 3. Minimum 1/2-inch high letters.

2.3 SOURCE QUALITY CONTROL

- A. Nameplates:
1. Provide all nameplates for control panel operator devices (e.g. pushbuttons, selector switches, pilot lights, etc.):
 - a. Same material and same color and appearance as the device nameplates, in order to achieve an aesthetically consistent and coordinated system.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Refer to Section 26 05 00.
- B. Nameplates:
1. Attach nameplates to equipment with rivets, bolts or sheet metal screws, approved waterproof epoxy-based cement or install in metal holders welded to the equipment.
 2. On NEMA 4 or NEMA 4X enclosures, use epoxy-based cement to attach nameplates.
 3. Nameplates shall be aligned and level or plumb to within 1/64 inch over the entire length:
 - a. Misaligned or crooked nameplates shall be remounted, or provide new enclosures at the discretion of the ENGINEER.
- C. Conductor and Cable Markers:
1. Apply all conductor and cable markers before termination.
 2. Heat-shrinkable tubing:
 - a. Tubing shall be shrunk using a heat gun that produces low temperature heated air.
 - b. Tubing shall be tight on the wire after it has been heated.
 - c. Characters shall face the open panel and shall read from left to right or top to bottom.
 - d. Marker shall start within 1/32 inch of the end of the stripped insulation point.
- D. Conduit Markers:
1. Furnish and install conduit markers for every conduit in the electrical system that is identified in the conduit schedule or part of the process system:
 - a. Conduit markings shall match the conduit schedule; refer to Section 26 05 53.
 2. Mark conduits at the following locations:
 - a. Each end of conduits that are greater than 10 feet in length.
 - b. Where the conduit penetrates a wall or structure.
 - c. Where the conduit emerges from the ground, slab, etc.
 - d. The middle of conduits that are 10 feet or less in length.

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3. Mark conduits after the conduits have been fully painted.
 4. Position conduit markers so that they are easily read from the floor.
 5. Secure all conduit markers with nylon cable ties:
 - a. Provide with ultraviolet resistant cable ties for conduit markers exposed to direct sunlight.
 - b. Adhesive labels are not acceptable.
 6. Mark conduits before construction review by ENGINEER for punch list purposes.
- E. Signs and Labeling:
1. Furnish and install permanent warning signs at mechanical equipment that may be started automatically or from remote locations:
 - a. Fasten warning signs with round head stainless steel screws or bolts.
 - b. Locate and mount in a manner to be clearly legible to operations personnel.
 2. Furnish and install permanent and conspicuous warning signs on equipment (front and back), doorways to equipment rooms, pull boxes, manholes, etc. where the voltage exceeds 600 volts.
 3. Furnish and install warning signs on equipment that has more than one source of power.
 - a. Warning signs to identify every panel and circuit number of the disconnecting means of all external power sources.
 4. Place warning signs on equipment that has 120 VAC control voltage source used for interlocking.
 - a. Identify panel and circuit number or conductor tag for control voltage source disconnecting means.

3.2 *FIELD QUALITY CONTROL*

- A. Replace any nameplates, signs, conductor markers, cable markers, or raceway labels that in the sole opinion of the ENGINEER do not meet the aesthetic requirements.

END OF SECTION

SECTION 26 18 11

OVERCURRENT PROTECTION DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes

1. Provide all labor, materials and equipment necessary to complete the installation required for the items specified under this Section, including but not limited to overcurrent protection devices.

B. Related sections

1. Where items specified in other Division 26 sections conflict with the requirements of this Section, the most stringent requirement shall govern.
2. The requirements of this Section apply to all Division 26 work.
3. Consult all other sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete installation.

1.2 REFERENCES

A. Comply with the latest edition of the following applicable specifications and standards except as otherwise shown or specified:

1. CCR –California Code of Regulations, Title 24
 - a. Part 3 -California Electrical Code(CEC); NFPA 70 National Electrical Code (NEC) with California amendments
2. Federal Specification
 - a. W-C-375; Circuit Breakers, Molded Case, Branch Circuit And Service
3. NEMA –National Electrical Manufacturer’s Association
 - a. AB 1; Molded-Case Circuit Breakers, Molded Case Switches, and Circuit-Breaker Enclosures
 - b. PB 2.2; Application Guide for Ground Fault Protective Devices for Equipment
4. UL -Underwriters Laboratories, Inc.
 - a. 248; Low Voltage Fuses
 - b. 468; Wire Connectors
 - c. 508E; IEC Type "2" Coordination Short Circuit Tests

- d. 489; Molded-Case Circuit Breakers and Circuit Breaker Enclosures
- e. 943; Standard for Ground-Fault Circuit-Interruption

1.3 SUBMITTALS

- A. Submit manufacturer's data for materials specified within this Section in accordance to Section 26 05 00.
- B. Production test of circuit breakers upon request of Engineer.
- C. Submittal shall show the following information: circuit breaker numbering, circuit breaker type and short circuit rating, provisions for future circuit breakers, bussing, including neutral and ground, ratings and enclosure dimensions and trims.

1.4 QUALITY ASSURANCE

- A. All materials, equipment and parts comprising the materials specified herein shall be new and unused, bearing UL labels where applicable.
- B. The manufacturing facility shall be registered by Underwriters Laboratories Inc. to the International Organization for Standardization ISO 9002 Series Standards for quality.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Handle carefully to avoid damage to internal components, enclosure and finish.
- B. Store in a clean, dry environment. Maintain factory packaging and, if required, provide an additional cover to protect enclosure in harsh environments.

PART 2 - PRODUCTS

2.1 FUSES

- A. All power distribution fuses shall be time-delay, high interrupting (200kAIC minimum) and current limiting type, unless otherwise indicated. All fuses shall be of same manufacturer and model.
 - 1. Motor branch circuit fuses (0 – 600A): UL Class RK5 dual element, time delay type shall be size for UL 508E "Type 2" coordination for the motor controller. Coordinate fuse selection with motor starter overload relay heaters as required.
 - 2. General purpose feeder fuses (0 – 600A): UL Class RK1 dual element, time delay type shall be size per Drawings.
- B. Control and instrumentation fuses shall of type and rating as recommended by equipment manufacturer, suitable for fuse blocks or holders installation.

2.2 MOLDED CASE CIRCUIT BREAKERS

A. General

1. 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.
2. Circuit breakers shall have an over center, trip free, toggle operating mechanism which will provide quick-make, quick-break contact action. The circuit breaker shall have common tripping of all poles.
3. The circuit breaker handle shall reside in a tripped position between ON and OFF to provide local trip indication.
4. 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 after installation.
5. Circuit breakers shall have an RMS interrupting capacity not less than shown on Drawings, or if not shown shall not be less than:
 - a. 25kA for 480V systems
 - b. 10kA for 240V (or less) systems
6. Each circuit breaker shall be equipped with a push-to-trip button, located on the face of the circuit breaker to mechanically operate the circuit breaker tripping mechanism for maintenance and testing purposes.
7. Circuit breakers shall be equipped with UL Listed electrical accessories as noted on Drawing. Circuit breaker handle accessories shall provide provisions for locking handle in the ON and OFF position.
8. All circuit breakers shall be UL Listed for reverse connection without restrictive line and load markings and be suitable for mounting in any position.
9. All circuit breakers shall be capable of accepting bus connections.

B. Thermal-Magnetic Circuit Breakers

1. Circuit breakers shall have a permanent trip unit containing individual thermal and magnetic trip elements in each pole.
2. Thermal trip elements shall be factory preset and sealed. Circuit breakers shall be true RMS sensing and thermally responsive to protect circuit conductor(s) in a 40°C ambient temperature.
3. Circuit breaker frame sizes above 100 amperes shall have a single magnetic trip adjustment located on the front of the circuit breaker.
4. Provide equipment ground fault protection where shown on Drawing.

C. Electronic Trip Circuit Breakers

NOT USED

PART 3 -EXECUTION

3.1 PREPARATION

NOT USED

3.2 INSTALLATION

- A. Install equipment and their accessories in to manufacturer's instructions, pertinent Codes, and with recognized industry practices to insure device operates properly.
- B. Tighten electrical connectors and terminals in accordance to manufacturer's requirements. Where the manufacturer does not have published torque tightening values, comply with the requirements of UL 468.

3.3 FIELD QUALITY CONTROL

- A. Check tightness of circuit breaker connections using a calibrated torque wrench or torque screwdriver per manufacturer's written specifications.
- B. No Circuit Breaker Testing Required – All Circuit Breakers to be Molded Case with non-adjustable Thermal or Thermal / Magnetic Trip

3.4 ADJUSTING

- A. Adjust all operating mechanisms for free mechanical movement per manufacturer's specifications.

3.5 PROTECTION

- A. When directed by Engineer provide physical means to "permanently fix" settings for rotary and DIP type switches with a thin coat of clear lacquer.

3.6 CLEANING

- A. Remove marks, dirt and debris from installed equipment surfaces for "new like" appearance.

END OF SECTION

SECTION 26 24 16
PANELBOARDS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes

1. Provide all labor, materials and equipment necessary to complete the installation required for the items specified under this Section, including but not limited to panelboards.

B. Related sections

1. Where items specified in other Division 26 sections conflict with the requirements of this Section, the most stringent requirement shall govern.
 - a. 26 05 26 – Grounding and Bonding for Electrical Systems
 - b. 26 18 11 – Overcurrent Protection Devices
2. The requirements of this Section apply to all Division 26 work.
3. Consult all other sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete installation.

1.2 REFERENCES

A. Comply with the latest edition of the following applicable specifications and standards except as otherwise shown or specified:

1. CCR –California Code of Regulations, Title 24
 - a. Part 3 -California Electrical Code (CEC); NFPA 70 National Electrical Code (NEC) with California amendments
2. Federal Specification
 - a. W-C-375; Circuit Breakers, Molded Case, Branch Circuit and Service
3. NECA –National Electrical Contractors Association
 - a. 407, Recommended Practice for Installing and Maintaining Panelboards
4. NEMA –National Electrical Manufacturer's Association
 - a. AB 1; Molded Case Circuit Breakers
 - b. PB 1; Panelboards
 - c. PB 1.1; Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less

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5. UL -Underwriters Laboratories, Inc.
 - a. 50; Cabinets and Boxes
 - b. 67; Panelboards
 - c. 98; Enclosed and Dead Front Switches
 - d. 489; Molded-Case Circuit Breakers and Circuit Breaker Enclosures
 - e. 891; Dead-Front Switchboards
 - f. 943; Ground Fault Circuit Interrupters
 - g. 977; Fused Power Circuit Devices50; Enclosures for Electrical Equipment

1.3 SUBMITTALS

- A. Submit manufacturer's data for materials specified within this Section in accordance to Section 26 05 00.
- B. Submittal shall show the following information: circuit breaker numbering, circuit breaker type and short circuit rating, provisions for future circuit breakers, bussing, including neutral and ground, ratings and enclosure dimensions and trims.

1.4 QUALITY ASSURANCE

- A. All materials, equipment and parts comprising the materials specified herein shall be new and unused, bearing UL labels where applicable.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Handle carefully to avoid damage to internal components, enclosure and finish.
- B. Store in a clean, dry environment. Maintain factory packaging and, if required, provide an additional cover to protect enclosure in harsh environments.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Square D, Cutler-Hammer or approved equal.

2.2 MATERIALS

- A. Panelboards
 1. Interior
 - a. Shall be factory-assembled with voltage, ampacity, and short circuit

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rating as shown in Drawings.

- b. Provide 1 continuous copper or aluminum bus bar per phase. Each bus bar shall have sequentially phase branch circuit connectors suitable for plug-on or bolt-on branch circuit breakers.

The bussing shall be fully rated. Panelboards shall be suitable for use as Service Equipment when application requirements comply with UL 67 and CEC 230.F and 230.G.

- c. All current-carrying parts shall be insulated from ground and phase-to-phase by high dielectric strength material.
- d. Interior trim shall be of dead-front construction to shield user from energized parts. Dead-front trims shall have pre-formed twist-out covering unused mounting spaces.
- e. Nameplates shall contain system information and catalog number or factory order number. Interior wiring diagram, neutral wiring diagram, UL Listed label and short circuit current rating shall be displayed on the interior.
- f. Main and sub-feed circuit breakers shall be vertical mounted. Interior leveling provisions shall be provided for flush mounted applications.

2. Main Circuit Breaker

- a. Circuit breaker shall be of type, rating and poles shown on Drawings per Section 26 18 11 – Overcurrent Protection Devices.

3. Branch Circuit Breakers

- a. Circuit breakers shall be of type, rating and poles shown on Drawings per Section 26 18 11 – Overcurrent Protection Devices.

4. Enclosures

a. Type NEMA 1 Boxes

- 1) Boxes shall be galvanized steel constructed in accordance with UL 50 requirements.
- 2) Boxes shall have removable endwalls with knockouts located on one end. Boxes shall have welded interior mounting studs. Interior mounting brackets are not required.
- 3) Box width shall be 14- 20 in wide.

b. Type NEMA 1 Fronts

- 1) Front shall meet strength and rigidity requirements per UL 50 standards. Front shall have ANSI 49 gray enamel electrodeposited over cleaned phosphatized steel.
- 2) Fronts shall be hinged 1-piece with door. Mounting shall be as indicated in Drawings.

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- 3) Panelboards rated 225 amperes and below shall have flat fronts with concealed door hinges and trim screws. Front shall not be removable with the door locked. Front doors shall have rounded corners and edges shall be free of burrs.
 - 4) Front shall have cylindrical tumbler type lock with catch and spring-loaded stainless steel door pull. All lock assemblies shall be keyed alike. Two (2) keys shall be provided with each lock. A clear plastic directory cardholder shall be mounted on the inside of door.
- c. Type NEMA 3R, 5, and 12
- 1) Enclosures shall be constructed in accordance with UL 50 requirements. Enclosures shall be painted with ANSI 49 gray enamel electrodeposited over cleaned phosphatized steel.
 - 2) All doors shall be gasketed and equipped with a tumbler type vault lock. All lock assemblies shall be keyed alike. 2 keys shall be provided with each lock. A clear plastic directory cardholder shall be mounted on the inside of door.
 - 3) Maximum enclosure dimensions shall not exceed 20 in wide and 6.5 in deep.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's written instructions and NEMA PB 1.1.
- B. Installation shall conform to NECA 407 where not specified under this Section.
- C. Anchor panelboards to structural members and where shown on Drawings. Provide additional support as required. Anchor freestanding distribution panels to concrete pad.
- D. Mount panelboards level and plumb.
- E. Install flush mounted panel backbox front edges flush with finished wall. Where flush panel backbox is deeper than wall depth, install closing trim of wood or metal to provide a finished trim.
- F. Where panelboard is flush in wall, provide one ¾" conduit stub into accessible ceiling above for every 5 spare circuit breaker or available space.
- G. After installation, make all feeder connections to circuit breaker load side lugs and incoming secondary feeders.

3.2 *FIELD QUALITY CONTROL*

- A. Inspect complete installation prior to energizing for physical damage, proper alignment, anchorage and grounding.
- B. Check tightness of bolted connections and circuit breaker connections using a calibrated torque wrench or torque screwdriver per manufacturer's written specifications.

3.3 *ADJUSTING*

- A. Measure steady state load line currents at each panelboard feeder; rearrange panelboard circuits to balance the phase loads with 20% of each other. Maintain proper phasing for multi-wire branch circuits.
- B. Fill out panelboard circuit identification card, typewritten, with list of circuits in use. Identification shall be specific with room designation and other information as necessary. For distribution panels, use engraved laminated phenolic plates showing load served.

END OF SECTION

SECTION 26 27 26

WIRING DEVICES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes

1. Provide all labor, materials and equipment necessary to complete the installation required for the items specified under this Section, including but not limited to wiring devices.

B. Related sections

1. Where items specified in other Division 26 sections conflict with the requirements of this Section, the most stringent requirement shall govern.
 - a. 26 05 26 – Grounding and Bonding for Electrical Systems
2. The requirements of this Section apply to all Division 26 work.
3. Consult all other sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete installation.

1.2 REFERENCES

A. Comply with the latest edition of the following applicable specifications and standards except as otherwise shown or specified:

1. Federal Specification
 - a. W-C-596; Connector, Electrical, Power, General Specification for
 - b. W-S-896; Switches, Toggle (Toggle and Lock), Flush Mounted (General Specification)
2. NEMA –National Electrical Manufacturer's Association
 - a. WD 1; General Color Requirements for Wiring Devices
 - b. WD 6; Wiring Devices-Dimensional Requirements
3. UL -Underwriters Laboratories, Inc.
 - a. 20; General-Use Snap Switches
 - b. 498; Standard for Attachment Plugs and Receptacles
 - c. 943; Standard for Ground-Fault Circuit-Interruption
 - d. 1449; Standard for Transient Voltage Surge Suppressors

1.3 SUBMITTALS

- A. Submit manufacturer's data for materials specified within this Section in accordance to Section 26 05 00.

1.4 QUALITY ASSURANCE

- A. All materials, equipment and parts comprising the materials specified herein shall be new and unused, bearing UL labels where applicable.

PART 2 - PRODUCTS

2.1 SWITCHES

- A. Wall switches
 - 1. Specification grade, quiet, AC rated, mechanical, snap type with silver alloy contacts, and shall comply with NEMA WD-1 and Fed. Spec W-S-896.
 - 2. Rating shall be 20A at 120/277Vac, unless otherwise shown.
 - 3. Handles shall be nylon; color shall be compatible with adjacent wall finish.
 - 4. Manufacturers and types
 - a. Single pole, single throw
 - 1) Cooper Wiring Devices #CSB120, Hubbell #CSB120, or equal.
 - b. Double pole, single throw
 - 1) Cooper Wiring Devices #CSB220, Hubbell #CSB220, or equal.
 - c. Three way
 - 1) Cooper Wiring Devices #CSB320, Hubbell #CSB320, or equal.

2.2 RECEPTACLES

- A. Standards
 - 1. Specification grade, NEMA 5-15R configuration grounding type, rated 15A at 125/250Vac that conform to NEMA WD-6 and Fed. Spec W-C-596.
 - 2. At dedicated receptacle locations and as otherwise noted, use specification grade, NEMA 5-20R configuration grounding type, rated 20A at 125/250 Vac that conform to NEMA WD-6.
 - 3. Specialty receptacles shall conform to NEMA WD-6 and UL standards as applicable.

B. Color

1. General purpose receptacle face shall be nylon; color shall be compatible with adjacent wall finish, unless otherwise indicated.

C. Receptacle types

1. General purpose single

- a. Provide self-grounding back and side wired with binding head staked terminal screw.
- b. Use Cooper Wiring Devices #5261, Hubbell #5261, or equal for NEMA 5-15R.
- c. Use Cooper Wiring Devices #5361, Hubbell #5361, or equal for NEMA 5-20R.

2. General purpose duplex

- a. Provide self-grounding back and side wired with binding head staked terminal screws and break-off strip for two circuit wiring.
- b. Use Cooper Wiring Devices #5262, Hubbell #5262, or equal for NEMA 5-15R.
- c. Use Cooper Wiring Devices #5362, Hubbell #5362, or equal for NEMA 5-20R.

3. Transient voltage surge suppressor (TVSS) duplex

- a. Provide 20A, 125Vac receptacle consisting of NEMA 5-20R duplex device with integral TVSS protection circuit.
- b. Provide LED indicator to verify surge protection and ground, and audible alarm to notify bad ground connection or surge protection expiration.
- c. TVSS characteristics:
 - 1) 400V clamping voltage.
 - 2) 280J energy rating.
 - 3) 150Vac RMS MOV rating
 - 4) 18kA maximum surge current in all modes (L-N, L-G and N-G)
- d. Use Cooper Wiring Devices #5362_S, no known equal.

4. Isolated ground

- a. Provide receptacle specified within this Section with equipment grounding contacts connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap.

5. Ground fault circuit interrupter (GFCI) duplex
 - a. Provide 20A, 125Vac receptacle consisting of NEMA 5-20R duplex device with integral solid state sensing and signaling circuitry capable of detecting and interrupting a maximum 5mA line-to-ground fault current in approximately 1/40th of a second per UL 943.
 - b. Provide visual device with trip indication, manual reset and test mechanisms per UL 943.
 - c. Device shall be capable of point of use and multi-outlet protection.
 - d. Use Cooper Wiring Devices #XGF20, Hubbell #GF53, or equal.
6. Hospital grade and tamper resistant
 - a. Provide receptacle specified within this Section that conforms to UL 498 "Hospital Grade" requirements.
 - b. Tamper resistance receptacle shall have integral protection mechanism to prevent accidental shock from foreign object contacting energized blades.
7. Special purpose
 - a. Provide specification grade devices with NEMA configuration, voltage, ampacity, poles and ground provisions as noted on Drawings.

2.3 WALL PLATES

- A. Interior locations
 1. Finished Areas: 0.032" stainless steel, brushed or satin finish with required number of openings for location.
 2. Exposed Areas: galvanized, raised type.
- B. Exterior: die-cast copper-free aluminum, gasketed, raintight cover UL listed for exterior and wet locations while in use. Use Hubbell #WP8M (duplex), #WP26M (GFCI) or equal.
- C. Screws shall match plate.
- D. Tamper resistance receptacles shall have exposed screws of tamper resistant type.
- E. Individual, gangable wall plates are not acceptable where two or more devices are installed at one location.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate device heights with drawings and details.

- B. Locate switches on latch side of door, unless otherwise indicated.

3.2 *INSTALLATION*

- A. Mount and align device and wall plates level and plumb. Insure wall plates fit flat against wall and tight against device without strain on plate.
- B. Comply with manufacturer's instructions regarding termination of conductors to wiring device.
- C. Provide wall plates for all outlet boxes with devices.
- D. Install blank wall plates on all outlet boxes in which no device is present or installed.

END OF SECTION

**SECTION 31 11 00
CLEARING AND GRUBBING**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The work of this section consists of clearing, grubbing, transporting, removing and disposing of trees, stumps, roots, vegetation debris, and existing improvements, including curb, gutters, landscaping, fencing, utilities, and other protruding obstructions within the clearing limits.
- B. Protect trees, landscaping and shrubs that are not designated to be removed or near construction site that may be harmed by construction activities.

1.2 RELATED WORK

- A. Section 02 41 00 – Demolition
- B. Section 31 23 19 - Structure Excavation & Backfilling
- C. Section 01 57 27 - Dust Control

1.3 REGULATORY REQUIREMENTS

- A. Obtain all required permits.
- B. Dispose of removed materials in a legal manner at an approved disposal facility.
- C. One hundred percent of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled.

1.4 REFERENCES

- A. Section 15 – Existing Facilities, State Standard Specifications
- B. Section 19 – Earthwork, State Standard Specifications

PART 2 EXECUTION

2.1 CLEARING AND GRUBBING

- A. Clear the specified areas by removing, above the natural ground surface, all existing improvements including curbs, gutters, landscaping fencing and utilities; vegetable growth such as trees, shrubs, brush, and similar material.

2.2 PRESERVATION

- A. If indicated or required, preserve trees, plants, rock outcroppings, or other features designated to remain. Protect trees and plants from damage; fell trees in a manner which shall not injure standing trees, plants and improvements which are to be preserved.

2.3 SALVAGE EQUIPMENT

- A. Salvaged equipment shall be delivered to the Owner at a designated site.
- B. Equipment to be salvaged is designated in Section 02 41 00, Demolition:

END OF SECTION

SECTION 31 23 17

TRENCHING, BACKFILLING AND COMPACTING

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This section includes material, testing, and installation for trench excavation, backfilling and compacting.

1.2 RELATED WORK

- A. Section 26 05 19 – Raceways and Boxes
- B. Section 31 11 00 – Clearing and Grubbing
- C. Section 33 01 00 – Pipe and Fittings

1.3 REFERENCES

- A. ANSI/ASTM D1557 – Moisture-Density Relations of Soils and Sol-Aggregate Mixture Using 10 lb (4.54 kg) Hammer and 18-inch (457 mm) Drop.
- B. ANSI/ASTM D1556 – Density of Soil and base rock in Place by Sand-Cone Method.
- C. ASTM D 6938 – Density of soil and base rock in place by Nuclear method.
- D. ASTM D 2937 – Density of soil and in place by Tube method.
- E. Section 26 – Aggregate Bases, State Standard Specifications.

1.4 SUBMITTALS

- A. Submittals shall be in accordance with the Standard General Conditions and the Supplementary Conditions.

1.5 SAMPLES

- A. Submit samples under provisions of Standard General Conditions.

1.6 PROTECTION

- A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.

1. Trenches shall have sloping, sheeting, shoring, and bracing conforming with 29CFR1926, Subpart P—Excavations, CAL/OSHA requirements, and the Contract Documents.
- B. Notify Engineer of unexpected subsurface conditions.
- C. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.
- D. When the pipe laying is not in progress, including the noon hours, close the open ends of pipe. Do not allow trench water, animals or foreign material to enter the pipe.

1.7 *QUALITY ASSURANCE*

- A. Compaction Testing

All compaction testing shall be in accordance with Section 01 43 00, Quality Control and Testing.

1.8 *CONTROL AND DIVERSION OF WATER*

Not Applicable

1.9 *PROJECT CONDITIONS*

- A. Underground utilities may exist at this site. Contractor shall take all necessary precautions to protect said utilities. Notify Engineer of any deviation in utility location from that which is shown on the drawings.
- B. Obtain all required permits and licenses before installing utilities and follow the rules and requirements of the authority having jurisdiction.
- C. Arrange construction sequences to provide the shortest practical time that the trenches will be open to avoid hazard to the public, and to minimize the possibility of trench collapse

PART 2 MATERIALS

2.1 *SELECT AND IMPORT MATERIAL IN PIPE AND BEDDING ZONE*

- A. Gravel: Pit run, natural stone; free of shale, clay, friable materials and debris; graded in accordance with 1½" x ¾" aggregate grading in Section 90-3, State Standard Specifications.
- B. Pea Gravel: Natural stone; washed, free of clay, shale, organic matter; 1/4-inch

minimum to 5/8-inch maximum size.

- C. Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter, graded in accordance with Section 90-3, State Standard Specifications, within the following limits:

Sieve Size	Percent Passing By Weight
No. 4	75 – 100
No. 200	0 - 10

- D. Imported sand shall have a sand equivalent of 30 per ASTM D 2419.

2.2 NATIVE EARTH BACKFILL

- A. Native earth backfill used above the pipe zone shall be fine-grained materials free from roots, debris, and rocks larger than 3 inches.

2.3 WATER FOR COMPACTION

- A. Water shall be free of organic materials injurious to the pipe coatings, have a pH of 7.0 to 9.3, maximum chloride concentration of 500 mg/l, and a maximum sulfate concentration of 500 mg/l.

PART 3 EXECUTION

3.1 GENERAL

- A. Excavation, grading and compaction shall conform to the requirements of Section 19 of the State Standard Specifications.

3.2 INSPECTIONS

- A. Where applicable, verify stockpiled material has been approved for reuse.
- B. Where applicable, verify areas to be backfilled are free of debris, snow, ice, or water, and surfaces are not frozen.

3.3 PREPARATION

- A. Identify required lines, levels, contours, and datum.

3.4 AC PAVEMENT AND CONCRETE REMOVAL

- A. Cut bituminous and concrete pavements, regardless of the thickness, curbs, gutters and sidewalks prior to excavation of trenches.
 - 1. Width of material removed shall be at least equal to the required width of the

trench at ground surface.

2. Width of material removed shall be as shown on the Plans
3. AC pavement and concrete rubble shall not be used for trench backfill.

3.5 EXCAVATION

- A. Excavate the trench to the lines and grades shown on the Drawings with allowance for pipe thickness, sheeting and shoring if used, and for special bedding.
- B. Paved Areas: Cut existing pavement to full depth to a true line before excavation and maintain the edge suitable for repaving. Pavement removed shall not be used as backfill.
- C. Trenching Guidelines: Excavate the trench to the approximate level of the grade of the utility line to be installed, using adequate trench width and side slopes to safely accommodate worker access.
- D. Remove areas of sub-grade not readily capable of it-situ compaction.
 1. Backfill with Bedding or Select Backfill material and compact to density equal to requirements for subsequent backfill.
- E. Correct unauthorized excavation at no cost to Owner.
 1. If the trench is excavated below the required grade, refill any part of the trench excavated below the grade.
 2. Place the refilling material over the full width of trench in compacted layers not exceeding eight inches deep to the established grade with allowance for special bedding.
- F. Trench widths in the pipe zone shall be as shown on the drawings. If no details are shown, maximum width shall be 24 inches greater than the pipe outside diameter.
 1. Trench width at the top of the trench will not be limited except where width of excavation would undercut adjacent structures and footings. In such case, width of trench shall be such that there is at least two feet between the top edge of the trench and the structure or footing.
- G. Hand trim for bell and spigot pipe joints.
- H. Remove lumped soil, boulders and rock.
- I. Excavation shall not interfere with normal 45 degree bearing splay of foundations.
- J. During trench excavation, place the excavated material only within the working area. Do not obstruct roadways or streets. Conform to federal, state, and local codes governing the safe loading of trenches with excavated material.

3.6 *LENGTH OF OPEN TRENCH*

- A. Limit the length of open trench to amount of pipe installed in one working day.

3.7 *TRENCH EXCAVATION IN EMBANKMENT AREAS*

Not Applicable

3.8 *UNSUITABLE MATERIAL*

- A. Unsuitable material shall be excavated and disposed of in a lawful manner off the project site, all disposal shall be approved by the Engineer prior to initiating the work.

3.9 *BACKFILLING*

- A. Support pipe and / or conduit during placement and compaction of bedding fill.
- B. Backfilling and cleanup work shall be accomplished as sections of pipe or conduit are tested and approved. Vehicular travel through the work site shall be impeded or obstructed as little as possible.
- C. Compaction: Use vibratory compactors for sands and gravels (non-cohesive soils). Use mechanical tampers for sand and gravel containing a significant portion of fine-grained materials, such as silt and clay (cohesive soils). Hand tamp around pipe or conduit to protect the lines until adequate cushion is attained. Puddling or water flooding for consolidation of backfill or compaction by wheel rolling will not be permitted.
- D. Employ a placement method that will not disturb or damage pipe or utilities.
- E. Maintain optimum moisture content of backfill materials to attain required compaction density.
- F. Compact trench backfill to the specified relative compaction. Compact by using mechanical compaction or hand tamping. Do not use high impact hammer type equipment.
- G. Compact material placed within 12 inches of the outer surface of the pipe by hand tamping only.
 - 1. Carefully place the material around the pipe so that the pipe barrel is completely supported and that no voids or uncompacted areas are left beneath the pipe.
 - 2. Use particular care in placing material on the underside of the pipe to prevent lateral movement during subsequent backfilling.
- H. After pipe has been bedded, place pipe zone material simultaneously on both sides of the pipe, in maximum 8-inch lifts, keeping the level of backfill the same on each

side.

- I. Do not use any axle-driven or tractor-drawn compaction equipment within 5 feet of building walls, foundations, and other structures.
- J. Do not permit free fall of the material until at least two feet of cover is provided over the top of the pipe. Do not drop sharp, heavy pieces of material directly onto the pipe or the tamped material around the pipe. Do not operate heavy equipment over the pipe until at least 3 feet of backfill has been placed and compacted over the pipe.
- K. Remove surplus backfill materials from site.
- L. Leave stockpile areas completely free of excess fill materials.

3.10 TOLERANCES

- A. Top Surface of Backfilling: ± 0.1 foot.

3.11 COMPACTION REQUIREMENTS

- A. Relative compaction requirements shall be as shown on the Plans:

END OF SECTION

SECTION 31 23 19

STRUCTURE EXCAVATION & BACKFILLING

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The work of this section consists of excavation and backfill for concrete structures, and preparation of subgrade for concrete flatwork.
- B. Haul, place, rough grade, compact, and finish grade excavated material as engineered fill on those portions of the project site where it is necessary in order to construct the facilities indicated on the Plans.
- C. Dispose of unsuitable material off-site or in designated areas, as directed by the Engineer.

1.2 RELATED WORK

- A. Section 03 30 01 – Cast-In-Place Concrete
- B. Section 31 23 17 – Trenching, Backfilling and Compacting

1.3 REFERENCES

- A. ANSI/ASTM C136 – Sieve Analysis of Fine and Coarse Aggregates.
- B. ANSI/ASTM D1557 – Moisture-Density Relations of Soils and Sol-Aggregate Mixture Using 10 lb (4.54 kg) Hammer and 18-inch (457 mm) Drop. (Curve)
- C. ASTM D 2937 – Density of soil and in place by Tube method.
- D. Section 25 – Aggregate Subbases, State Standard Specifications
- E. Section 26 – Aggregate Bases, State Standard Specifications.
- F. Owners Standard Specifications for Earthwork

1.4 SUBMITTALS

- A. Submittals shall be in accordance with the Standard General Conditions and the Supplementary Conditions.

1.5 *SAMPLES*

- A. Submit samples under provisions of Standard General Conditions.

1.6 *QUALITY ASSURANCE*

- A. Compaction tests will be performed for each lift or layer.
- B. Tests for compaction shall conform to references listed in Part 1.3 of this section.
- C. Sample backfill materials per ASTM D 75.
- D. Compaction testing will be performed in accordance with Section 19, State Standard Specifications.
 - 1. Test every 500 square feet of engineered fill or aggregate base material placed.
- E. Where compaction tests indicate failure to meet the specified compaction, the Contractor will rework the entire failed area until the specified compaction has been achieved.

1.7 *DEFINITION*

- A. Unsuitable Material: Unsuitable material is material determined to be
 - 1. Incapable of being compacted to specified density using ordinary methods at optimum moisture content.
 - 2. Too wet to be properly compacted if circumstances prevent satisfactory in-place drying prior to incorporation into the work.
 - 3. Otherwise unsuitable for the planned use.

1.8 *PROTECTION*

- A. Protect excavations by shoring, bracing, or other methods required to prevent cave-in or loose soil from falling into excavation.
- B. Notify Engineer of unexpected subsurface conditions
- C. Grade excavation top perimeter to prevent surface water run-off into excavation.

1.9 CONTROL AND DIVERSION OF WATER

- A. General – The Contractor shall furnish or procure all materials and labor required for constructing and maintaining all necessary temporary diversion and protective works and shall furnish, install, maintain, and operate all necessary pumping and other equipment for removal of water from the various parts of the work and for maintaining the foundations and other parts of the work free from water.

1.10 CLASSIFICATION

- A. Regardless of the nature of material excavated, all excavation will be considered unclassified.

1.11 SITE CONDITIONS

- A. Underground utilities may exist at this site. Contractor shall take all necessary precautions to protect said utilities. Notify Engineer of any deviation in utility location from that which is shown on the drawings.

PART 2 PRODUCTS

2.1 SELECT BED AND FILL MATERIALS

- A. Conform to Section 31 23 17, Trenching, Backfilling, and Compacting.

2.2 SELECT MATERIAL

- A. Gravel: Pit run, natural stone; free of shale, clay, friable materials and debris; graded in accordance with 1½" x ¾" aggregate grading in Section 90-1.02C, State Standard Specifications.
- B. Pea Gravel: natural stone; washed, free of clay, shale, organic matter; ¼ inch minimum to ⅝ inch maximum size.
- C. Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter, graded in accordance with ANSI/ASTM C136 within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	75-100
No. 200	0-10

- D. Class 2 Aggregate Base: material as specified for ¾" maximum grading in the State Standard Specifications, Section 26.

2.3 *ENGINEERED FILL MATERIAL*

- A. Native granular soil materials may be used as engineered fill. Pulverized asphalt concrete or Portland cement concrete may be incorporated into engineered fill provided no rock pockets or voids are produced. Particles larger than three inches shall be removed from trench backfill, particles larger than six inches shall be removed from engineered fill.
- B. All imported fill material placed in structural areas shall consist of predominantly granular soil that is non-expansive, and shall be approved by the Engineer prior to use.
 - 1. The R-value of the imported fill material shall be at least 50.

2.4 *GRANULAR BACKFILL/AGGREGATE BASE COURSE*

- A. Granular backfill and aggregate base course shall meet the requirements of State Standard Specifications, Section 26, Class 2 aggregate base, $\frac{3}{4}$ inch maximum.
- B. Material from concrete crushing operations may be used as granular backfill provided it meets the above requirements.

2.5 *WATER*

- A. Water development, hauling, and application shall be in accordance with the State Standard Specifications, Section 10-6, Watering.

PART 3 EXECUTION

3.1 *GENERAL*

- A. Provide required shoring, sheeting, and slope layback necessary to protect the excavation, as needed, for the safety of the employees and as required by applicable State and Federal laws. Provide suitable barricades for public safety, regardless of trench depth.
- B. Upon completion of excavation and before placing forms or structures, notify the Engineer who will inspect the excavation and may take tests to determine soil-bearing values.
- C. Identify required lines, levels, contours, and datum.
 - 1. Stake and identify the extent of all earthwork operations prior to starting work.
- D. Use suitable material removed from excavation before importing backfill.
- E. Verify that stockpiled fill to be reused is approved by the Engineer.

- F. Verify areas to be backfilled are free of debris, snow, ice, or water, and surfaces are not frozen.

3.2 EXCAVATION

- A. Carefully excavate to the established lines and grades shown on the drawings, or as revised and approved by the engineer, to provide a firm, uniform, and unyielding foundation for the proposed structures.
- B. Excavations for all footings, shall be sufficiently large so that forms for concrete may be properly placed, removed, and inspected.
 - 1. Excavation for footings may be made to the net footing size plus two inches if the earth banks are sufficiently stable to remain in position until the concrete is in place and if approved by the Engineer.
- C. The bottoms of footings, piers, slabs, walls, and grade beams to receive concrete shall be level before placing concrete. All foundations shall rest on firm bearing in undisturbed soil, or on controlled compacted fill.
 - 1. The exposed subgrade surface shall be scarified to a depth of 8 inches, conditioned to optimum moisture content and compacted to at least 95 percent of the maximum dry density.
- D. If any existing foundations, roots, stumps, debris, waste materials, pipes, or similar items have been removed, the Contractor shall excavate below these portions to solid undisturbed earth and foundations in these areas shall be built to necessary levels.
- E. If soil conditions in excavations seem to indicate that footings need not be carried down as deep as shown, or must be carried deeper, the changes shall be made by the Contractor after approval by the Engineer.
 - 1. Over excavation shall be required a minimum of two feet below top of proposed slab grades under all structures, including but not limited to the wet well, valve vault, all concrete slabs, etc., unless shown otherwise on the Plans.
 - 2. Engineered fill in over excavated areas shall be import fill material, free from organic materials or deleterious substances.
- F. Common Fill Material (native material) is not acceptable for use as Engineered fill under any structure, tank, tank ring wall, or concrete slab.

3.3 SURPLUS MATERIAL

- A. Stockpile surplus material as shown on the plans and/or as directed by the Engineer.
- B. Leave stockpile areas completely free of excess fill materials.

3.4 UNSUITABLE MATERIAL

- A. Unsuitable material shall be excavated and disposed of in a uniform manner off the project site as approved by the Engineer prior to initiating the work.

3.5 BACKFILLING

- A. Unless otherwise shown in the Plans, all backfill shall conform to Section 19-3 of the State Standard Specifications.
- B. Do not place backfill against concrete until concrete has cured sufficiently to accept the load as determined by Section 19-3.03E of the State Standard Specifications.
- C. Place and compact common fill material in continuous layers not exceeding eight inches loose depth.
- D. Employ a placement method so not to disturb or damage pipes or utilities.
- E. Maintain optimum moisture content of backfill materials to attain required compaction density.
- F. Remove surplus materials from site.

3.6 TOLERANCES

- A. Top Surface of Backfilling: ± 0.1 foot from design grade.

END OF SECTION

SECTION 32 11 23
AGGREGATE BASE

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Furnish, spread, and compact aggregate base in roadways, driveways and other paved areas as shown on the Plans.
- B. The work of this section consists of furnishing and placing aggregate base material and/or lean concrete base materials, and filler if required, on the prepared subgrade

1.2 RELATED WORK

- A. Section 31 23 17 – Trenching, Backfilling and Compacting
- B. Section 32 12 16 – Asphalt Concrete Paving

1.3 REFERENCES

- A. Section 10-6 – Watering, State Standard Specifications.
- B. Section 26 – Aggregate Bases, State Standard Specifications.
- C. Section 28-2 - Lean Concrete Base, State Standard Specifications.
- D. ANSI/ASTM C136 – Sieve Analysis of Fine and Coarse Aggregates.
- E. ANSI/ASTM D1557 – Moisture-Density Relations of Soils and Soil-Aggregate Mixture Using 10 lb (4.54 kg) Hammer and 18-inch (457 mm) Drop.
- F. ANSI/ASTM D1556 – Density of Soil and Base Rock in Place by Sand-Cone Method.
- G. ASTM D6938 – Density of Soil and Base Rock inPlace by Nuclear Method.

1.4 SUBMITTALS

- A. Submittals shall be in accordance with the Standard General Conditions and the Supplementary Conditions.
- B. If materials are obtained from a commercial source, submit certification from the supplier certifying that aggregate base course meets the requirements of this section.

- C. Copies of certified weight tickets for each load of aggregate delivered to the project site.

1.5 *QUALITY ASSURANCE*

A. Relative Compaction:

1. All compaction testing, curves and gradation analysis will be scheduled and paid for by the Contractor at no additional cost to the Owner. Testing shall be performed by an independent Certified Geotechnical Engineering Lab, licensed in the State of California, selected by the Contractor and approved by the Owner.
2. The cost of any retests, including time for the Engineer, shall be borne by the Contractor at no additional cost to the project. Testing will be required as directed by the Engineer. Test locations shall be determined by the Engineer upon notification from the Contractor that the grade is ready for tests. Contractor shall be present when samples of bedding, select backfill, and backfill materials are gathered for analysis or testing.

B. Compaction tests will be performed for each lift or layer.

C. Tests for compaction shall conform to references listed in Part 1.3 of this section

D. Sample backfill materials per ASTM D75.

E. Compaction testing will be performed in accordance with Section 19-5 of the State Standard Specifications.

1. Test every 10,000 square feet of engineered fill or aggregate base material placed. The Contractor shall not proceed with work over the area being tested until results have been verified by the Engineer.

F. The percentage composition by weight shall conform to Class 2 aggregate base determined by Test Method No. Calif. 202, modified by Test Method No. Calif. 905 if there is a difference in specific gravity of 0.2 or more between the coarse and fine portion of the aggregate or between blends of different aggregates.

G. Aggregate base shall also conform to the following quality requirements:

<u>Tests</u>	<u>Test Method Calif. No</u>
R-Value	301
Sand Equivalent	217
Durability Index	229

H. Quality Control shall be under the provisions of Section 01 43 00 – Quality Control.

PART 2 PRODUCTS

2.1 MATERIALS

A. AGGREGATE BASE

1. Class 2 Aggregate Base, $\frac{3}{4}$ -inch maximum; as per Section 26-1.02B, State Standard Specifications.
2. Aggregate for Class 2 aggregate base shall be free from organic material and other deleterious substances

B. LEAN CONCRETE BASE

1. Lean Concrete Base shall conform to the State Standard Specifications, Section 28-4, Lean Concrete Base Rapid Setting.
2. State Standard Specifications Section 28-4.04 shall not apply.

C. WATER

1. As specified in Section 01 51 36, Watering.
2. At the time aggregate base is spread, it shall have a moisture content sufficient to obtain the require compaction. Such moisture shall be uniformly distributed throughout the materials.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

- A. As specified in State Standard Specifications.

3.2 SPREADING

- A. The aggregate base course material shall be deposited and spread to the required compacted thickness by means that will maintain the uniformity of the mixture. The aggregate base course shall be free from pockets of coarse or fine material.
- B. Deliver aggregate base to the area to be paved as a uniform mixture and spread each layer in one operation.
- C. Aggregate base placed at locations which are inaccessible to the spreading equipment shall be spread in two layers by any means to obtain the specified results.
- D. The aggregate shall not be treated with lime, cement or other chemical materials before the Durability Index test has been performed.

- E. The surface of the finished aggregate base at any point shall not vary more than ± 0.05 -foot from the grade shown.

3.3 *PLACING*

- A. If the required compacted depth of the aggregate base course exceeds 6 inches, place course in two or more layers of approximately equal thickness. The maximum compacted thickness of any one layer shall not exceed 6 inches.

3.4 *PLACING LEAN CONCRETE BASE*

- A. Place as specified in State Standard Specifications, Section 28-4 - Lean Concrete Base Rapid Setting.

3.5 *MIXING*

- A. Mixing shall be in accordance with one of the methods set forth in State Standard Specifications, Section 28-4.03B.

3.6 *MOISTURE CONTROL*

- A. When spread, aggregate base shall have a moisture content sufficient to obtain the specified compaction.

3.7 *SURFACE FINISHING*

- A. Use a smooth steel wheel roller for the final rolling of top surface base course. Water surface and evenly spread loose stones before final rolling. Make minimum of two complete passes over area to embed stones. Correct soft spots developed during rolling.
- B. Compacted aggregate base course surface shall be smooth and free from waves and other irregularities. Unsatisfactory portions of base course shall be corrected, at no additional expense to the Owner.

3.8 *MATERIAL ACCEPTANCE REQUIREMENTS*

- A. Acceptance will be based on periodic samples and tests taken following mixing and before placing.

3.9 *TOLERANCES*

- A. Surface: The finished surface of the base course will be tested with a 10-foot straightedge or other device. The variation between any two contacts with the surface shall not exceed ± 0.05 feet.
- B. Width: Plan dimension, ± 0.10 feet.
- C. Thickness: Plan dimension, ± 0.05 feet.

- D. Any areas not complying with these tolerances shall be reworked to obtain conformity, at no additional expense to the Owner.

3.10 MAINTENANCE

- A. Maintain base course in a satisfactory condition until surfaced or until final acceptance.

END OF SECTION

ASPHALT CONCRETE PAVING

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The work of this section consists of constructing one or more surface courses composed of a mixture of aggregate, filler if required, asphalt material and placed on a prepared base to lines, grades and details, as shown on the plans and covered within these specifications. This section includes asphalt patching for areas where utility lines cross existing paved surfaces, trench resurfacing, saw cutting and resurfacing additional paving widths as required in the contract or under permit requirements.
- B. Mix aggregate and asphalt binder at a central mixing plant. Haul, spread, and compact the mixture for paved areas as shown and as specified.
- C. Upon completion of all paving, finish the entire roadway. Trim and shape cut and fill slopes to produce smooth surfaces and uniform cross sections. Clean the finished pavement of all dirt and foreign material.
- D. Cross sections of paving shall be as indicated in the Plans.

1.2 RELATED WORK

- A. Section 31 23 17 – Trenching, Backfilling and Compacting

1.3 REFERENCES

- A. Section 22 – Finishing Roadway, State Standard Specifications
- B. Section 39 – Asphalt Concrete, State Standard Specifications

1.4 SUBMITTALS

- A. Submittals shall be in accordance with the Standard General Conditions and the Supplementary Conditions.
- B. Certificates:
 - 1. Certification from the supplier that the asphalt concrete is of correct type and meets requirements of this section.
 - 2. Job mix formula shall be submitted with certification that the mix formula meets the requirements of Standard Specification Section 39, Asphalt Concrete.

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The job mix formula shall include definite single values for:

- a. The percent of aggregate passing the specified sieve, based on dry weight of aggregate.
- b. The percent of bituminous material to be added, based on the total weight of the mix.
- c. Kind and amount of chemical additives (anti-stripping, hydrated lime, etc.) as established by the design procedure.
- d. Maximum theoretical density.
- e. Temperature ranges for the bituminous material at the point of mixing with the aggregates and bituminous mixture at the paving machine.

1.5 QUALITY ASSURANCE

- A. Asphalt concrete supplier to prepare a mix design; to recommend adjustments to the proportions of the mix, as necessary, to conform to the mix design; and to consult with the Contractor and the Engineer during paving as required.
- B. Density: Acceptable density of the in-place asphalt concrete pavement shall be 95 percent of the optimum values as determined from the mix design formula. Field sampling and density determination shall be made in accordance with AASHTO T230-68, or an accepted nuclear procedure.
- C. Testing shall be performed in such a manner that will least encumber the performance of the work.

PART 2 PRODUCTS

2.1 ASPHALTS

- A. Asphalt binder to be mixed with aggregate shall be liquid asphalt PG 64-16, conforming to State Standard Specifications Section 92, Asphalt Binders.
- B. Asphalt Concrete shall be Type A, in accordance with State Standard Specifications 39-2.02.

2.2 AGGREGATE

- A. The combined aggregate grading of the asphalt concrete shall be Type A, 3/4-inch maximum grading, per Section 39-2.02B(4)(b), of the State Standard Specifications.

2.3 *TACK COAT*

- A. Tack coat shall conform with Section 94, Grade SS1h of the State Standard Specifications.

PART 3 EXECUTION

3.1 *GENERAL*

- A. The pavement section shall comply with City Standards and as shown on the Plans.
- B. Prior to any paving and surfacing operations, all pipes and conduits shall be installed and properly backfilled as shown.

3.2 *STORAGE*

- A. Storage of materials shall comply with the requirements of Section 39, State Standard Specifications.

3.3 *MIXING*

- A. Mixing shall conform to the approved mix design.
- B. The weight of asphalt binder to be mixed with aggregate shall be between 3 percent and 7 percent of the weight of the dry aggregate.

3.4 *SUBGRADE*

- A. Subgrade shall conform to Section 39-2.01C(3)(b), State Standard Specifications.
- B. Unless otherwise specified, the upper six inches of subgrade beneath the structural section shall be scarified, moisture conditioned as necessary and compacted to at least 95 percent relative density.

3.5 *EQUIPMENT*

- A. Spreading and compacting equipment shall conform to State Standard Specifications Section 39-2.01C(2), Spreading and Compacting Equipment.

3.6 *PLACING AND COMPACTING*

- A. Placing and compacting shall conform to State Standard Specifications Section 39-2.05(3)(d), Placing and Compacting Hot Mix Asphalt.
- B. Apply mixture only during hours of daylight; when air temperature is 50 degrees F or higher; when surfaces to be paved are dry and free of frost, snow or ice; and when precipitation is not imminent.

3.7 MISCELLANEOUS AREAS

- A. Paving miscellaneous areas shall conform to State Standard Specifications Section 39-2.01C(9), Miscellaneous Areas and Dikes.

3.8 TRENCH RESURFACING

- A. At areas where asphalt concrete had been removed due to pipeline construction, trench shall be resurfaced with asphalt concrete. Unless otherwise noted, asphalt concrete resurfacing shall match the existing thickness of the asphalt and base course removed.
 - 1. Base course shall be as specified in Section 32 11 23, Aggregate Base, and in this Section.
- B. If an edge of a trench resurfacing occurs within three feet of an existing edge of pavement, lip of gutter or the face of curb, or if no gutter is present, the Contractor shall remove all existing paving to the lip of gutter or curb face and or, edge of existing pavement and resurface with the applicable trench resurfacing section. The limits of removal are minimum requirements.
- C. If during the Contractor's operations pavement is disturbed outside the limits of removal, Contractor shall make the necessary repairs at no additional cost to the Owner.

3.9 ACCEPTANCE REQUIREMENTS

- A. Surface Tolerance: The variation between any two contacts with the surface shall not exceed ± 0.015 foot in 10 feet. Correct all humps or depressions exceeding the specified tolerance by removing defective work and replacing it with new material at no additional expense to the Owner.
- B. A uniform compacted thickness shall be obtained for each course equal to or greater than the thickness shown. Individual tests shall not vary by more than ± 0.02 foot.
- C. Width: Plan dimension, ± 0.02 foot.
- D. Thickness: Plan dimension, ± 0.02 foot.

END OF SECTION

SECTION 32 31 00

FENCING AND GATES

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Provide all labor, materials and equipment and perform all operations necessary to complete to install chain link fencing as specified, shown on the Drawings, or as directed.
- B. Install salvaged chain fence and gate as indicated on the Plans

1.2 RELATED WORK

- A. Section 03 30 01 – Cast-in-Place Concrete
- B. Section 31 23 19 – Structure Excavation and Backfilling

1.3 REFERENCES

- A. Section 80 – Fences, State Standard Specifications

1.4 SUBMITTALS

- A. As specified in Section 01 33 00 – Submittal Procedures

PART 2 PRODUCTS

- A. Chain Link shall conform to State Standard Specifications Section 80-3.02
- B. Fence lines adjacent to residences shall be furnished with brown ultraviolet resistant PVC privacy slats conforming with State Standard Specifications Section 80-3.02E.
- C. Right of Way fence shall conform to State Standard Specifications Section 80-3.
- D. Fire Department: Contra Costa County Fire Department standard plans and specifications (Knox Vault 4400-SingleLock_W_2 or approved equivalent). See attached product sheet.

PART 3 EXECUTION

3.1 FENCES AND GATES

- A. Install Automatic Sliding Gate and associated equipment in accordance with the plans; including but not limited to card reader, mounting, pedestal, traffic loops,

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ABOVE GROUND FUEL STORAGE AND DISPENSING
gate operator, controls, etc.

- B. Installation shall be in accordance with State Standard Specifications, Section 80, and with State Standard Plans Drawing A85, A85A and as indicated on the Plans.
- C. Relocation and installation of other fencing materials shall be in accordance with the plans and standard construction practices.
- D. Install Knox vault onto the nearest area of the wall directly across from the card reader station. Field verify with City staff or representative.

END OF SECTION



Appendix A

Permits



CONTRA COSTA COUNTY
FIRE PROTECTION DISTRICT
FIRE PREVENTION BUREAU

4005 Port Chicago Highway
Suite 250
Concord, CA 94520
(925) 941-3300 Phone
(925) 941-3309 Fax

P-2023-000067

AGST

1/9/23

Project Number

Date Submitted

CONTACT PERSON: NANCY REBHOLTZ
PHONE: (925) 584-5386
E-MAIL: nrebholtz@tridenteng.com
APPLICANT: TRIDENT ENVIRONMENTAL AND ENGINEERING, INC.
ADDRESS, CITY, STATE: 395 CAROL COURT, SUITE G
BRENTWOOD, CA 94513
LICENSE #: A 760516

PROJECT NAME: CITY OF PITTSBURG ENVIRONMENTAL CENTER
ADDRESS, CITY: 2581 HARBOR STREET, PITTSBURG

THE PLANS AND SPECIFICATIONS SUBMITTED TO THE FIRE DISTRICT FOR THE INSTALLATION OF A 12,000 GALLON SPLIT (8,000/4,000) GASOLINE/DIESEL ABOVE GROUND UL 2085 FUEL TANK WITH DISPENSERS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE 2019 CALIFORNIA FIRE CODE (CFC), THE 2019 CALIFORNIA BUILDING CODE (CBC) AND THE STATE FIRE MARSHAL'S REGULATIONS (TITLE 19 CCR), AND THE NATIONAL FIRE PROTECTION AGENCY (NFPA).

THE PLANS SUBMITTED FOR REVIEW ARE APPROVED, **APPROVED WITH COMMENTS**, DENIED SUBJECT TO THE FOLLOWING ITEMS THAT REQUIRE COMPLIANCE OR CORRECTION:

FAILURE TO COMPLY WITH THE REQUIREMENTS CONTAINED HEREIN MAY RESULT IN THE NEED FOR REINSPECTIONS, ADDITIONAL FEES, AND POTENTIAL DELAY OF PROJECT COMPLETION.

1. Bollards for vehicle impact protection shall be not less than 4-inch diameter steel, concrete filled, not less than 3 feet above grade and not less than 3 feet below grade into a minimum 15-inch diameter concrete base. Maximum spacing shall not exceed 4 feet between bollards. (312), (2306.4), (5703.6.4), (5704.2.9.7.4) CFC
2. Protected aboveground tanks shall not be filled in excess of 95 percent of their capacity. An overfill prevention system shall be provided. During tank-filling operations, the system shall comply with one of the following: (2306.6.2.3), (5704.2.9.7.5) CFC
 - The overfill prevention system shall include the following:

An independent means of notifying the person filling the tank that the fluid level has reached 90 percent of tank capacity by providing an audible or visual alarm signal, providing a tank level gauge marked at 90 percent of tank capacity, or other approved means.

Automatic shut off of the flow of fuel to the tank when the quantity of liquid in the tank reaches 95 percent of tank capacity. For rigid hose fuel-delivery systems, an approved means shall be provided to empty the fill hose into the tank after the automatic shutoff device is activated.
- OR**
- The system shall reduce the flow rate to not more than 15 gallons per minute so that at the reduced flow rate, the tank will not overfill for 30 minutes, and automatically shut off flow into the tank so that none of the fittings on the top of the tank are exposed to product because of overfilling.
3. An approved anti-siphon device shall be installed in each external pipe connected to the protected the above-ground tank where the pipe extends below the level of the top of the tank. (2306.6.2.4), (5704.2.9.7.9) CFC
4. A spill container having a capacity of not less than 5 gallons shall be provided for each fill connection. For tanks with a remote fill connection, a portable spill container is permitted. (2306.6.2.6), (5704.2.9.7.7) CFC
5. A permanent sign shall be provided at the fill point for the tank, documenting the filling procedure and the tank calibration chart. (5704.2.9.7.5.1) CFC

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6. The fill pipe shall be provided with a means for making a direct connection to the tank vehicle's fuel delivery hose so that the delivery of fuel is not exposed to the open air during the filling operation. Where any portion of the fill pipe exterior to the tank extends below the level of the top of the tank, a check valve shall be installed in the fill pipe not more than 12 inches from the fill hose connection. (2306.6.2.2), (5704.2.9.7.6) CFC
7. Vent pipe outlets shall be located not less than 12 feet above the finished ground level. (5704.2.7.3.3) CFC
8. The primary tank and enclosed secondary containment space shall also be provided with emergency relief venting that will relieve excessive internal pressure caused by exposure to fires. The venting shall be installed and maintained in accordance with Section 22.7 of NFPA 30. (2306.6.2.5), (5704.2.7.4) CFC
9. For top-loaded tanks, a metallic fill pipe shall be designed and installed to minimize the generation of static electricity by terminating the pipe within 6 inches of the bottom of the tank, and it shall be installed in a manner that avoids excessive vibration. (5704.2.7.5.5) CFC
10. An approved emergency disconnect switch shall be provided at an approved location to stop the transfer of fuel to the fuel dispensers in the event of a fuel spill or other emergency. The emergency disconnect switch for exterior fuel dispensers shall be provided with ready access and shall be located within 100 feet of, but not less than 20 feet from, the fuel dispensers. Such devices shall be distinctly labeled as: EMERGENCY FUEL SHUTOFF. Signs shall be provided in approved locations. The height of the emergency disconnect switch shall be not less than 42 inches and not more than 48 inches measured vertically, from the floor level to the activating button. (2303.2) CFC
11. Dispensing equipment used at unsupervised locations shall comply with one of the following: (2304.3.7) CFC
 - Dispensing devices shall be programmed or set to limit uninterrupted fuel delivery to 25 gallons and require a manual action to resume delivery.
 - The amount of fuel being dispensed shall be limited in quantity by a preprogrammed card as approved.
12. An approved **automatic** emergency shutoff valve designed to close in the event of a fire or impact shall be properly installed in the liquid supply line at the base of each dispenser supplied by a remote pump. The valve shall be installed so that the shear groove is flush with or within ½ inch of the top of the concrete dispenser island and there is clearance provided for maintenance purposes around the valve body and operating parts. Emergency shutoff valves shall be installed and maintained in accordance with the manufacturer's instructions, tested at the time of initial installation and not less than yearly thereafter by manually tripping the hold-open linkage. (2305.2.4), (2306.7.4) CFC
13. Dispenser hoses shall be not more than 18 feet in length unless otherwise approved. Dispenser hoses shall be listed and approved. When not in use, hoses shall be reeled, racked or otherwise protected from damage. (2306.7.5) CFC
14. Dispenser hoses shall be equipped with a listed emergency breakaway device designed to retain liquid on both sides of a breakaway point. Such devices shall be installed and maintained in accordance with the manufacturer's instructions. Where hoses are attached to hose-retrieving mechanisms, the emergency breakaway device shall be located between the hose nozzle and the point of attachment of the hose-retrieval mechanism to the hose. (2306.7.5.1) CFC
15. A listed automatic-closing-type hose nozzle valve shall be used incorporating all of the following features: (2306.7.6.1) CFC
 - The hose nozzle valve shall be equipped with an integral latch-open device.
 - Where the flow of product is normally controlled by devices or equipment other than the hose nozzle valve, the hose nozzle valve shall not be capable of being opened unless the delivery hose is pressurized. If pressure to the hose is lost, the nozzle shall close automatically.
 - The hose nozzle shall be designed such that the nozzle is retained in the fill pipe during the filling operation.
 - The system shall include listed equipment with a feature that causes or requires the closing of the hose nozzle valve before the product flow can be resumed or before the hose nozzle valve can be replaced in its normal position in the dispenser.
16. A telephone or other approved, clearly identified means to notify the fire department shall be provided on the site in a location approved by the fire code official. (2304.3.6) CFC
17. Dispenser operating instructions shall be conspicuously posted in approved locations on every dispenser and shall indicate the location of the emergency controls. (2304.3.4) CFC

18. An approved emergency procedures sign shall be posted in a conspicuous location and shall read: (2304.3.5) CFC

IN CASE OF FIRE, SPILL OR RELEASE
 1. USE EMERGENCY PUMP SHUTOFF
 2. REPORT THE ACCIDENT!
 FIRE DEPARTMENT TELEPHONE NO. _____
 FACILITY ADDRESS _____

19. Warning signs shall be conspicuously posted within sight of each dispenser in the fuel-dispensing area and shall state the following: (2305.6) CFC

- No smoking.
- Shut off motor.
- Discharge your static electricity before fueling by touching a metal surface away from the nozzle.
- To prevent static charge, do not reenter your vehicle while gasoline is pumping.
- If a fire starts, do not remove nozzle—back away immediately.
- It is unlawful and dangerous to dispense gasoline into unapproved containers.
- No filling of portable containers in or on a motor vehicle. Place container on ground before filling.

20. Signs prohibiting smoking and open flames shall be posted. Warning signs shall be of a durable material. Signs warning of the hazard of flammable liquids shall have white lettering on a red background and shall read: DANGER—FLAMMABLE LIQUIDS. Letters shall be not less than 3 inches in height and 1/2 inch in stroke. Signs shall be posted in locations as required by the fire code official. Piping containing flammable liquids shall be identified in accordance with ASME A13.1. (5703.5), (5704.2.3) CFC

21. The tank shall bear a label and placard identifying the material therein. Placards shall be in accordance with NFPA 704. Provide an NFPA 704 placard on the exterior of the fuel tank as follows:

Health; (blue)-1, Fire; (red)-3, Reactivity; (yellow)-0



NFPA 704 placards shall be visible from all angles of approach. (5704.2.3), (5003.5) CFC

22. An approved portable fire extinguisher complying with Section 906 with a minimum rating of 2-A:20-B:C shall be provided and located such that an extinguisher is not more than 75 feet from pumps, dispensers or storage tank fill-pipe openings. (2305.5) CFC
23. Fenced and diked areas surrounding above-ground tanks shall be kept free from vegetation, debris and other material that is not necessary to the proper operation of the tank and piping system. Weeds, grass, brush, trash and other combustible materials shall be kept not less than 10 feet from fuel-handling equipment. (2305.7) CFC
24. **Prior to being placed in service, the tank and associated piping shall be field tested in accordance with Sections 5704.2.12, 5703.6.3 CFC and the Table below, unless otherwise supported by the manufacturer's specifications.**

	Field Test	Duration
Primary Tank Test	3 to 5 p.s.i.g.	60 minutes
Secondary Tank Test	3 to 5 p.s.i.g.	60 minutes
Primary Piping Test	Hydrostatically at 150% of anticipated pressure Or Pneumatically at 110% of anticipated pressure	Sufficient time period to complete visual inspection of joints and connections. Minimum of 10 minutes with no leakage or permanent distortion
Secondary Piping Test	5 p.s.i.g.	Sufficient time period to complete visual inspection of joints and connections. Minimum of 10 minutes with no leakage or permanent distortion

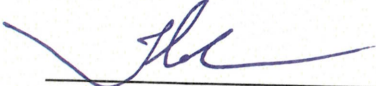
CCCFPD Project #: P-2021-05101 AGST

CONTACT THE FIRE DISTRICT (MINIMUM 2 WORKING DAYS IN ADVANCE) AT 925-941-3300 EXT 3902 TO SCHEDULE TESTS AND FINAL INSPECTION.

APPROVED PLANS SHALL BE ONSITE AT THE TIME OF INSPECTION. FAILURE TO HAVE APPROVED PLANS ON SITE MAY RESULT IN THE CANCELLATION OF THE INSPECTION, AND A REINSPECTION FEE BEING ASSESSED.

FIRE DISTRICT APPROVAL DOES NOT RELIEVE THE DESIGNER/CONTRACTOR FROM FULLY COMPLYING WITH ALL APPLICABLE FIRE CODE REQUIREMENTS, NOR DOES IT ABROGATE THE REQUIREMENTS OF OTHER AUTHORITIES HAVING JURISDICTION.

FEEL FREE TO CONTACT THE FIRE DISTRICT AT 925-941-3300 IF YOU HAVE ANY QUESTIONS.



Reviewed by: Ted Leach, Fire Inspector II

Date

5/10/23



**CONTRA COSTA COUNTY
FIRE PROTECTION DISTRICT
FIRE PREVENTION BUREAU**

4005 Port Chicago Highway
Suite 250
Concord, CA 94520
(925) 941-3300 Phone
(925) 941-3309 Fax

P-2023-000066

Project Number

AGST (Removal)

1/9/23

Date Submitted

CONTACT PERSON: NANCY REBHOLTZ
PHONE: (925) 584-5386
E-MAIL: nrebholtz@tridenteng.com
APPLICANT: TRIDENT ENVIRONMENTAL AND ENGINEERING, INC.
ADDRESS, CITY, STATE: 395 CAROL COURT, SUITE G
BRENTWOOD, CA 94513
LICENSE #: A 760516

PROJECT NAME: CITY OF PITTSBURG ENVIRONMENTAL CENTER
ADDRESS, CITY: 2581 HARBOR STREET, PITTSBURG

WE HAVE REVIEWED THE SUBMITTAL FOR THE REMOVAL OF A 1,000 GALLON ABOVEGROUND GASOLINE STORAGE TANK FROM THE SUBJECT SITE. OUR REVIEW IS TO INSURE COMPLIANCE WITH THE MINIMUM CODE REQUIREMENTS RELATED TO FIRE AND LIFE SAFETY IN ACCORDANCE WITH SECTION 5704.2.14 OF THE 2019 CALIFORNIA FIRE CODE (CFC).

THE PLANS SUBMITTED FOR REVIEW ARE APPROVED, **APPROVED WITH COMMENTS**, DENIED SUBJECT TO THE FOLLOWING ITEMS THAT REQUIRE COMPLIANCE OR CORRECTION:

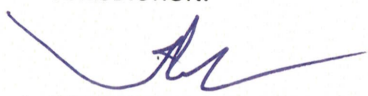
FAILURE TO COMPLY WITH THE REQUIREMENTS CONTAINED HEREIN MAY RESULT IN THE NEED FOR REINSPECTIONS, ADDITIONAL FEES, AND POTENTIAL DELAY OF PROJECT COMPLETION.

1. Provide a minimum of two readily available portable fire extinguishers (minimum rating of 4:A-40B:C) on site during the storage tank removal process.
2. A Calibrated meter capable of measuring Lower Explosive Limit (LEL) and oxygen levels shall be readily available on-site.
3. Post "No Smoking" signs near the removal area.
4. Per the submittal documents, the tank is to be cleaned thoroughly and inerted, and is to be transported to a recycling facility as "non-hazardous" waste. Prior to cutting the tank or removing from site, the contractor shall provide the fire inspector documentation that certifies the tank as non-hazardous (clean).

CONTACT THE FIRE DISTRICT (MINIMUM 2 WORKING DAYS IN ADVANCE) AT 925-941-3300 EXT 3902 TO SCHEDULE AN INSPECTION.

APPROVED PLANS SHALL BE ONSITE AT THE TIME OF INSPECTION. FAILURE TO HAVE APPROVED PLANS ON SITE MAY RESULT IN THE CANCELLATION OF THE INSPECTION, AND A REINSPECTION FEE BEING ASSESSED.

FIRE DISTRICT APPROVAL DOES NOT RELIEVE THE DESIGNER/CONTRACTOR FROM FULLY COMPLYING WITH ALL APPLICABLE FIRE CODE REQUIREMENTS, NOR DOES IT ABROGATE THE REQUIREMENTS OF OTHER AUTHORITIES HAVING JURISDICTION.


Reviewed by: Ted Leach, Fire Inspector II

5/10/23
Date

The KnoxVault 4400 is the largest capacity exterior rapid access key lock box available. It secures a combination of these items: 50 keys, access cards, emergency plans, and a FDC Wrench. Trusted by first responders to gain access to businesses, universities, multi-housing complexes, and commercial/industrial buildings.



FEATURES

- ✓ A high-capacity volume that stores a combination of multiple keys, access cards, entry credentials, and plans
- ✓ UL Listed: UL 1037, UL 437, UL 1610, and UL 13327
- ✓ Durable Knox-Coat® finish performs four times better than standard powder coating

BENEFITS

- ✓ Provides rapid access into buildings and holds a larger volume of contents
- ✓ Reduces forced entries and property damage
- ✓ Minimizes potential for first responder injuries
- ✓ Compliant to National Fire Codes: IBC, IFC, and NFPA

OPTIONS

- ✓ For additional security, the Knox Tamper Alert can be connected to the building's alarm system
- ✓ Recess and surface mounting models available
- ✓ Available in black, aluminum, and dark bronze
- ✓ Dual lock configuration

ACCESSORIES

- ✓ Multi-Purpose Switch for use on electrical doors, gates, and other electrical equipment
- ✓ Recess Mounting Kit for new concrete or masonry construction

ORDERING SPECIFICATIONS

To ensure procurement and delivery of the KnoxVault 4400, it's recommended that the following specification verbiage be used:

KnoxVault surface/recessed mount with/without UL Listed Knox Tamper Alert, 1/4" plate steel housing, 5/8" thick steel door with interior gasket seal and stainless steel door hinge. Vault & lock UL Listed. Lock has 1/8" thick stainless steel dust cover with tamper seal mounting capability. Vault has anti-theft drill resistant hard-plate lock protector.

Exterior Dimensions: Surface Mount: 7"H x 7"W x 5"D
 Recessed Mount Flange: 9 1/2"H x 9 1/2"W

Lock: UL Listed. Double-action rotating tumblers and hardened steel pins accessed by a biased cut key

Finish: Knox-Coat® proprietary finishing process

Colors: Black, Dark Bronze, or Aluminum

P/N: KnoxVault 4400 (mfr's cat. ID)

Manufacturer: The Knox Company

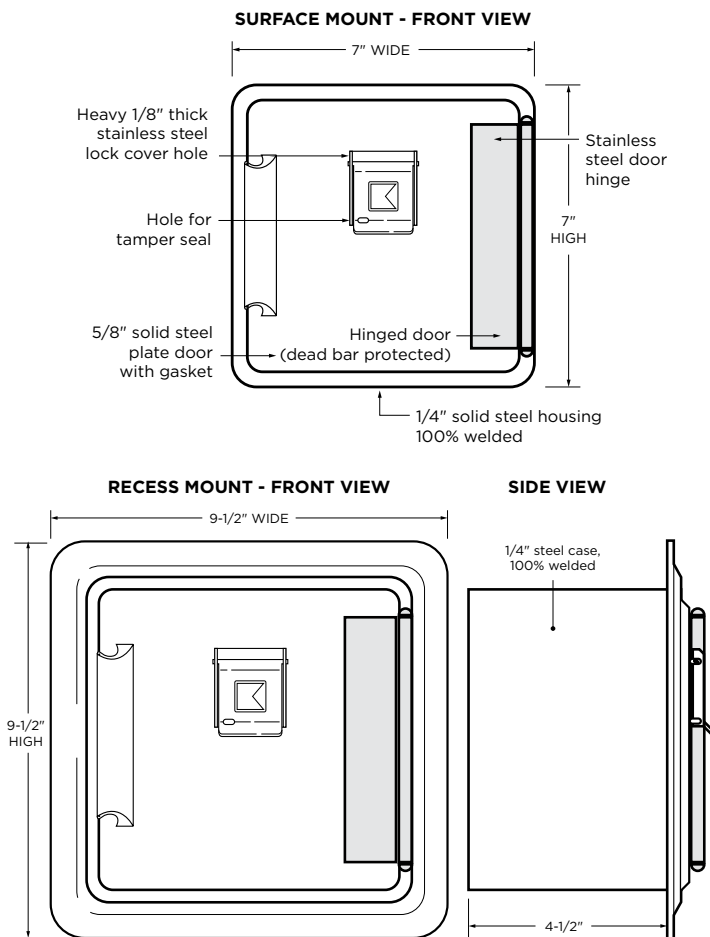


WEIGHT:

Surface Mount: 28 lbs
 Recessed Mount: 29 lbs

DIMENSIONS:

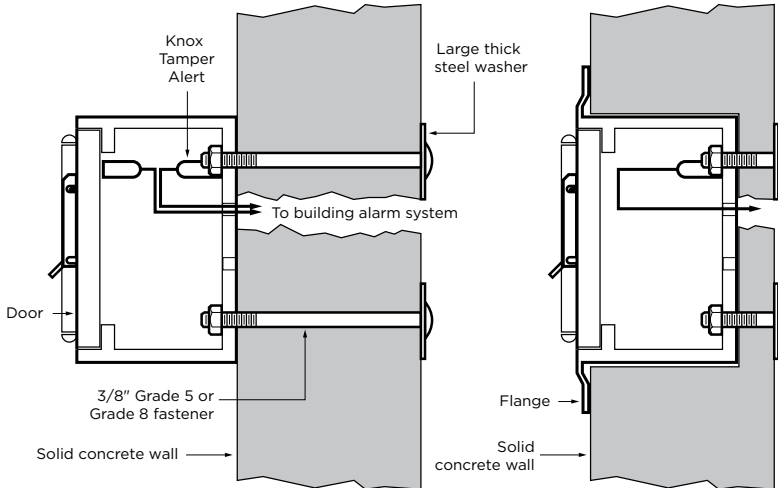
Surface Mount Body: 7"H x 7"W x 5"D
 Recessed Mount Flange: 9 1/2"H x 9 1/2"W



GENERAL MOUNTING INSTRUCTIONS

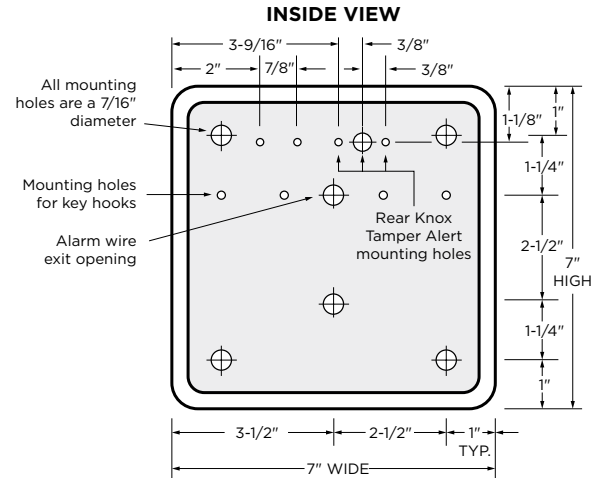
**Suggested minimum mounting height:
6 feet above ground.**

ATTENTION: KnoxVault is a very strong device that **MUST** be mounted properly to ensure maximum security and resist physical attack.



KnoxVault 4400 Surface Mount

KnoxVault 4400 Recessed Mount



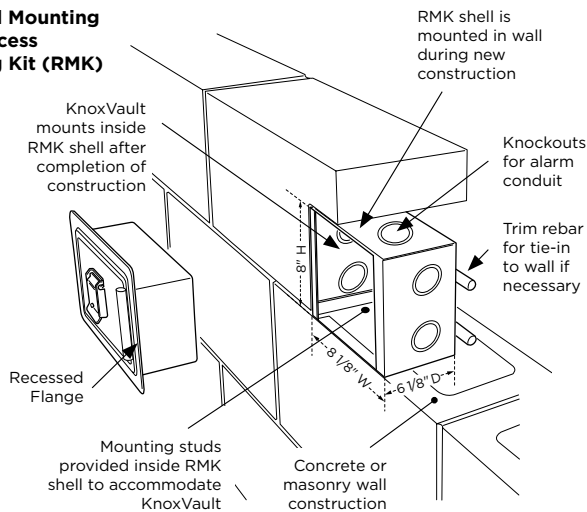
RECESS MOUNTING KIT INSTALLATION INSTRUCTIONS

The Recess Mounting Kit (RMK) includes shell housing and mounting hardware, which may only be used for recessed models to cast-in-place within new concrete or masonry construction. The KnoxVault is mounted into the shell housing after construction is completed.

RECESS MOUNTING KIT DIMENSIONS

Rough-in Dimensions:
8-1/2"H x 8-1/2"W x 7"D

Recessed Mounting Using Recess Mounting Kit (RMK)



IMPORTANT:

Care should be taken to ensure the front of the Recess Mounting Kit (RMK) shell housing, including the cover plate and screw heads, is flush with the wall. The RMK must be plumbed to ensure vertical alignment of the vault.

ABOUT THE KNOX COMPANY

Since 1975, the Knox Company has successfully developed innovative rapid access solutions for first responders with products that provide fast, safe, and secure entry into commercial, industrial, and residential properties, while minimizing damage and maximizing safety. Today, more than 15,000 fire, EMS, and law enforcement departments/agencies depend on Knox products to gain access into over one million buildings/properties.

KNOX COMPANY
1601 W. DEER VALLEY RD
PHOENIX, AZ 85027

T. 800.552.5669

F. 623.687.2290

KNOXBOX.COM
INFO@KNOXBOX.COM

Appendix B

Water Meter Application



Construction Water Permit Fire Hydrant Water Meter

Fire Hydrant Meter #: _____ Date Issued: _____

Applicant/Company: _____ Tax ID: _____

Billing Address: _____ City/State/Zip: _____

Job Site: _____ Business License #: _____

Cell/Job Site Phone: _____ Office Phone: _____

Email Address: _____ Fax #: _____

Applicant Signature: _____ Print Name: _____

Meter Initial Reading: _____ Ccf Read by: _____
(Print Name)

Condition Upon Issuance: _____

Inspected By: _____

Date Returned: _____ Returned Reading: _____ Ccf

Condition Upon Return: _____

Inspected By: _____

Fire Hydrant Fees

(Resolution 17-13400)

	08/01/2022	01/01/2024	1/1/2025	1/1/2025	01/01/2027
Monthly Fixed Charge	\$330.00	\$340.00	\$360.00	\$380.00	\$485.00
Usage Charge	\$ 5.62 per CCF (748 gallons)	\$ 5.90 per CCF (748 gallons)	\$6.19 per CCF (748 gallons)	\$6.50 per CCF (748 gallons)	\$6.83 per CCF (748 gallons)
Deposit for Meter	\$ 1,200.00	(Refundable)			
Application Fee	\$ 35.00	(Non-refundable)			
Total Deposit	\$ 1,235.00				

Construction Water Permit Fire Hydrant Water Meter

All water to be used for construction purposes and drawn from a fire hydrant **MUST** be metered.

Picking Up a Hydrant Meter

1. Obtain a Construction Water Permit – Hydrant Meter Form from Pittsburg Water on the first floor of City Hall, 65 Civic Avenue.
2. Submit this completed form and pay fees according to the table .

Contractor Responsibilities:

1. All water to be used for construction purposes and drawn from a fire hydrant **MUST** be metered.
2. Contractor/Applicant **is responsible** to pay monthly fixed charges and a water usage charge which will be billed once a month, and after the meter is returned to Pittsburg Water. If account becomes delinquent, Public Works may request hydrant meter to be returned until account has been paid current.
3. The contractor/Applicant **is responsible** for reporting meter readings to Pittsburg Water during the **third week of every month**. **This form** and a **picture of the register** will need to be emailed to hydrants@pittsburgca.gov. If a meter reading is not provided by the **25th of each month**, a **\$37.00** verification meter reading fee will be charged to reimburse the city for the cost
4. The contractor **is responsible** to bring the hydrant meter to the Public Works Corporation Yard to have it officially read and tested every six months At this time, the condition of the meter will be checked, to determine if repairs are needed.
5. Contractor/Applicant **is responsible** for any and all damage to the meter and is required to keep the meter and register clean and free of obstructions which may affect the operation of the meter while issued to them.
6. Meters shall not be moved to another job site or taken outside city limits. Meters must be accessible to Public Works at all times.
7. Lost, stolen or severely damaged hydrant meters may result in the loss of deposit and/or additional charges to the applicant.
8. At any point Public Works could require the meter to be tested for accuracy.

PLEASE KEEP METERS INSIDE VEHICLES WHEN NOT IN USE. IF REGISTER ROLLS BACKWARDS EXTRA FEES MAY APPLY.

By signing below, I have read and understand all the rules and regulations regarding my hydrant meter.

Signature: _____

Date: _____

Appendix C

Project Stabilization Agreement

PROJECT STABILIZATION AGREEMENT

FORTHE CITY OF PITTSBURG

INTRODUCTION/FINDINGS

This Project Stabilization Agreement is entered into this ____ day of _____, 2018, by and between the City of Pittsburg (hereinafter, the “City”), together with contractors and subcontractors of all tiers, who shall become signatory to this Agreement by signing the **"Agreement To Be Bound" (Addendum A)** (all of whom are referred to herein as "Contractors/Employers"), and the Contra Costa County Building & Construction Trades Council ("Council") and its affiliated local Unions that have executed this Agreement (all of whom are referred to collectively as “Union” or "Unions").

The purpose of this Agreement is to promote the efficiency of construction operations for the City of Pittsburg through the use of skilled labor resulting in quality construction outcomes, and to provide for peaceful settlement of labor disputes and grievances without strikes or lockouts, thereby promoting the public interest in assuring the timely and economical completion of the Project.

WHEREAS, the timely and successful completion of the Project is of the utmost importance to the City to avoid increased costs resulting from delays in construction; and

WHEREAS, large numbers of workers of various skills will be required in the performance of the construction work, including those to be represented by the Unions signatory to this Agreement and employed by contractors and subcontractors who are signatory to this Agreement; and

WHEREAS, the use of skilled labor on construction work increases the safety of construction projects as well as the quality of completed work; and

WHEREAS, it is recognized that on a Project of this magnitude with multiple contractors and bargaining units on the job site 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 City, the Unions and the Contractor/Employers would be best served if the construction work proceeded in an orderly

manner without disruption because of strikes, sympathy strikes, work stoppages, picketing, lockouts, slowdowns or other interferences with work; and

WHEREAS, the Contractor/Employers and the Unions desire to mutually establish and stabilize wages, hours and working conditions for the workers employed on the Project to the end that a satisfactory, continuous and harmonious relationship will exist among the parties to this Agreement; and

WHEREAS, the parties agree that one of the primary purposes of this agreement is to avoid the tensions that might arise on the Project if Union and nonunion workers of different employers were to work side by side on the Project, thereby leading to labor disputes that could delay completion of the Project; and

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

WHEREAS, the contracts for the construction of the Project will be awarded in accordance with the applicable provisions of the California State Public Contract Code and state, local and federal laws; and

WHEREAS, the City has the absolute right to select the lowest responsive and responsible bidder for the award of construction contracts on the Project; and

WHEREAS, the City places high priority upon the development of comprehensive programs for the recruitment, training and employment of local area residents and military veterans, and recognizing the ability of local apprenticeship programs to provide meaningful and sustainable careers in the building and construction industry; and

WHEREAS, the parties signatory to this Agreement pledge their full good faith and trust to work towards mutually satisfactory completion of the Project.

NOW, THEREFORE, IT IS AGREED BETWEEN AND AMONG THE PARTIES HERETO, AS FOLLOWS:

ARTICLE I
DEFINITIONS

1.1 “Agreement” means this Project Stabilization Agreement (“PSA”).

1.2 “Agreement to be Bound” means the agreement (attached hereto and incorporated herein as Addendum A) which shall be executed by each and every Contractor(s)/Employer(s) as a condition of performing Project Work.

1.3 “City” means the City of Pittsburg and its City Council or any City-authorized individual.

1.4 “Completion” means that point at which there is Final Acceptance by the City of a Construction Contract. For this definition of “Completion,” “Final Acceptance” shall mean that point in time at which the City has determined upon final inspection that the work on a Construction Contract has been completed in all respects and all required contract documents, contract drawings, warranties, certificates, manuals and data have been submitted and training completed in accordance with the contract documents, the City has executed a written acceptance of the work, and a Notice of Completion has been filed.

1.5 “Construction Contract” means the public works or improvement contract(s) awarded by the City (including by design bid, design build, lease leaseback or other contracts under which Covered Work is performed) that are necessary to complete the Project.

1.6 “Contractor/Employer(s)” or “Contractor(s)” or “Employer(s)” means any individual, firm, partnership or corporation, or combination thereof, including joint ventures, that is an independent business enterprise, and their successors and assigns, that enters into contract with the City (whether by design bid, design build, lease leaseback or other means), with respect to the construction of any part of the Project under contract terms and conditions approved by the City and which incorporate this Agreement, and any of its contractors or subcontractors of any tier.

1.7 “Council” means the Contra Costa County Building & Construction Trades Council.

1.8 “Master Agreement” or “Schedule A” or “Master Labor Agreement” means the Master Collective Bargaining Agreement of each craft Union signatory hereto, copies of which shall be made available to the City upon request.

1.9 “Project” means a City construction project funded in whole or in part with City of Pittsburg funds where the engineer’s estimate or bid amount exceeds one million dollars (\$1,000,000), excluding those Projects set forth in the Side Letter executed concurrently with this Agreement. All Construction Contracts required to complete an integrated City construction project shall be considered in determining the threshold value. Projects outside of the above definition may require a Project Stabilization Agreement if passed by the City of Pittsburg City Council by a majority vote. The City, through its City Council, and the Council may mutually agree in writing to add additional components to the Project’s Scope of Work to be covered under this PSA. The term “Project” applies to all projects as defined in this section, whether used in the singular or plural herein.

1.10 “Project Manager” means the person or business entity designated by the City to oversee all phases of construction on the Project and the implementation of this Agreement.

1.11 “Union” or “Unions” means the Contra Costa Building and Construction Trades Council, AFL-CIO (“the Council”) and its affiliated Unions signatory to this Agreement, acting in their own behalf and on behalf of their respective affiliates and member organizations whose names are subscribed hereto and who have through their officers executed this Agreement.

ARTICLE II

SCOPE OF AGREEMENT

2.1 Parties: This Agreement shall apply and is limited to all Contractors/Employers performing Construction Contracts on the Project (including subcontractors at any tier), the City, the Council and its affiliated Unions signatory to this Agreement.

2.2 Applicability: The Agreement shall govern all Construction Contracts awarded on City Projects. For the purposes of this Agreement, the Construction Contract shall be considered complete as set forth in Section 1.4, except when the City directs a Contractor to engage in repairs, warranty work, punch list work, or modifications as required under the original Construction Contract with the City, or when a Contractor performs work under a change order for a Construction Contract.

2.3 Covered Work: This Agreement covers, without limitation, all on-site site preparation, surveying, construction, alteration, demolition, installation, improvement, painting or repair of

buildings, structures and other works, and related activities for the Project that is within the craft jurisdiction of one of the Unions and which is directly or indirectly part of the Project, including, without limitation to the following examples, geotechnical and exploratory drilling, temporary HVAC, landscaping and temporary fencing, pipelines (including those in linear corridors built to serve the Project), pumps, pump stations, and modular furniture installation. On-site work includes work done solely for the Project in temporary yards, dedicated sites, or areas adjacent to the Project, and at any on-site or off-site batch plant constructed solely to supply materials to the Project. This scope of work includes all soils and materials testing and inspection where such testing and inspection is a classification in which a prevailing wage determination has been published.

2.3.1 This Agreement shall apply to any start-up, calibration, commissioning performance testing, repair, maintenance, and operational revisions to systems and/or subsystems for the Project that are under a Construction Contract, including when performed after Completion, unless it is performed by City employees.

2.3.2 This Agreement covers all on-site fabrication work over which the City, Contractor(s) or subcontractor(s) possess the right of control (including work done for the Project in any temporary yard or area established for the Project). Additionally, this Agreement covers any off-site work, including fabrication, necessary for the Project defined herein, that is covered by a current Schedule A Agreement or local addenda to a National Agreement of the applicable Union(s) that is in effect as of the execution date of this Agreement.

2.3.3 The furnishing of supplies, equipment or materials which are stockpiled for later use shall not be covered by this Agreement. However, construction trucking work, such as the hauling and delivery of ready-mix, asphalt, aggregate, sand, soil, or other fill or similar material that is incorporated into the construction process as well as the off-hauling of soil, sand, gravel, rocks, concrete, asphalt, excavation materials, construction debris and excess fill, material and/or mud, shall be covered by the terms and conditions of this Agreement to the fullest extent allowed by law and by the prevailing wage determinations of the California Department of Industrial Relations. Contractor/Employer(s), including brokers, of persons providing construction trucking work shall provide certified payroll records to the City within ten (10) calendar days of written request or as required by bid specifications.

2.3.4 Work covered by this Agreement within the following craft jurisdictions shall be performed under the terms of their National Agreements as follows: the National Transient Lodge (NTL) Articles of Agreement, the National Stack/Chimney Agreement, the National Cooling Tower Agreement, and the National Agreement of Elevator Constructors, and any instrument calibration work and loop checking shall be performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Technicians, with the exception that Articles IV, XIV and XV of this Agreement shall apply to such work.

2.4 Exclusions

2.4.1 The Agreement is not intended to, and shall not affect or govern the award of public works contracts by the City which are not included in the Project.

2.4.2 The Agreement shall not apply to a Contractor/Employer's non-construction craft employees, including but not limited to executives, managerial employees, engineering employees and supervisors above the level of General Foreman (except those covered by existing Master Collective Bargaining Agreements), staff engineers or other professional engineers, administrative, management, office and clerical employees.

2.4.3 This Agreement shall not apply to any non-Project work performed on or near or leading to the site of work covered by this Agreement that is undertaken by state, county, city or other governmental bodies or their contractors; or by public or private utilities or their contractors. Work performed by public or private utilities including all electrical utility, voice-data-video, and security installation work ahead of and up to the electrical service entry connection or the main point of entry into the building shall be excluded. All electrical utility, voice-data-video, and security installation work performed after the electrical utility service entrance or the main point of entry shall be Covered Work. Additionally, all contracted work performed ahead of the service entrance connection and main point of entry that is inside the property line and that provides for access to the building via a conduit or series of conduits shall be Covered Work.

2.4.4 The Agreement shall not apply to off-site maintenance of leased equipment and on-site supervision of such work.

2.4.5 This Agreement shall not apply to any construction project outside the City's jurisdiction performed jointly with another public entity, where the City is not bidding the project.

2.5 Award of Contracts: It is understood and agreed that the City has the absolute right to select any qualified bidder for the award of Construction Contracts under this Agreement. The bidder need only be willing, ready and able to execute and comply with this Agreement. It is further agreed that this Agreement shall be included in all invitations to bid or solicitations for proposals from contractors or subcontractors for work on the Project that are issued on and after the effective date of this Agreement. A copy of all invitations to bid shall be provided at time of issuance to the Council.

ARTICLE III

EFFECT OF AGREEMENT

3.1 By executing the Agreement, the Unions and the City agree to be bound by each and all of the provisions of the Agreement.

3.2 By accepting the award of a construction contract for the Project, whether as contractor or subcontractor thereunder, the Contractor/Employer agrees to be bound by each and every provision of the Agreement and agrees that it will evidence its acceptance prior to the commencement of work by executing **the Agreement to be Bound** in the form attached hereto as **Addendum A**.

3.3 At the time that any Contractor/Employer enters into a subcontract with any subcontractor providing for the performance of a construction contract, the Contractor/Employer shall provide a copy of this Agreement to said subcontractor and shall require the subcontractor as a precondition of accepting an award of a construction subcontract to agree in writing, by executing the Agreement to be Bound, to be bound by each and every provision of this Agreement prior to the commencement of work. The obligations of a contractor may not be evaded by subcontracting.

3.4 This Agreement shall only be binding on the signatory parties hereto, and their successors and assigns, and shall not apply to the parents, affiliates, subsidiaries, or other ventures of any such party. Each Contractor shall alone be liable and responsible for its own individual acts and conduct and for any breach or alleged breach of this Agreement, except as otherwise provided by law or the applicable Schedule A. Any dispute between the Union(s) and the Contractor(s) respecting compliance with the terms of the Agreement, shall not affect the

rights, liabilities, obligations and duties between the signatory Union(s) and other Contractor(s) party to this Agreement.

3.5 It is mutually agreed by the parties that any liability by a signatory Union to this Agreement shall be several and not joint. Any alleged breach of this Agreement by a signatory Union shall not affect the rights, liabilities, obligations and duties between the signatory Contractor(s) and the other Union(s) party to this Agreement.

3.6 The provisions of this Agreement, including Schedules A's, which are incorporated herein by reference and which are the local Master Agreements of the Signatory Unions having jurisdiction over the work on the Project, shall apply to the work covered by this Agreement, notwithstanding the provisions of any other local, area and/or national agreements which may conflict with or differ from the terms of this Agreement. Where a subject covered by the provisions of this Agreement is also covered by a Schedule A, the provisions of this Agreement shall prevail. Where a subject is covered by the provisions of a Schedule A and is not covered by this Agreement, the provisions of the Schedule A shall prevail.

ARTICLE IV

WORK STOPPAGES, STRIKES, SYMPATHY STRIKES, AND LOCKOUTS

4.1 The Unions, City and Contractor(s)/Employer(s) covered by the Agreement agree that for the duration of the Project:

4.1.1 There shall be no strikes, sympathy strikes, work stoppages, picketing, handbilling or otherwise advising the public that a labor dispute exists, or slowdowns of any kind, for any reason, by the Unions or employees employed on the Project, at the job site of the Project or at any other facility of City because of a dispute on the Project. Disputes arising between the Unions and Contractor(s)/ Employer(s) on other City projects are not governed by the terms of the Agreement or this Article.

4.1.2 There shall be no lockout of any kind by a Contractor/Employer of workers employed on the Project.

4.1.3 If a Master Agreement expires before the Contractor/Employer completes the performance of work under the Construction Contract and the Union or Contractor/Employer gives notice of demands for a new or modified Master Agreement, the Union agrees that it will

not strike on work covered under this Agreement and the Union and the Contractor/Employer agree that the expired Master Agreement shall continue in full force and effect for work covered under this Agreement until a new or modified Master Agreement is reached. If the new or modified Master Agreement provides that any terms of the Master Agreement shall be retroactive, the Contractor/ Employer agrees to comply with any retroactive terms of the new or modified Master Agreement which are applicable to employees who were employed on the projects during the interim, with retroactive payment due within seven (7) calendar days of the effective date of the modified Master Agreement.

4.1.4 In the case of nonpayment of wages or trust fund contributions on the Project, the Union shall give the City and the Contractor/Employer(s) three (3) business days' notice when nonpayment of trust fund contributions has occurred and one (1) business days' notice when nonpayment of wages has occurred or when paychecks being tendered to a financial institution normally recognized to honor such paychecks will not honor such paycheck as a result of insufficient funds, of the intent to withhold labor from the Contractor/Employer(s)' or their subcontractor's workforce, during which time the Contractor/Employer shall have the opportunity to correct the default. In this instance, a Union's withholding of labor (but not picketing) from an Contractor/Employer who has failed to pay its fringe benefit contributions or failed to meet its weekly payroll shall not be considered a violation of this Article.

4.1.5 If the City contends that any Union has violated this Article, it will notify in writing (including email) the Senior Executive of the Council and the Senior Executive of the Union, setting forth the facts alleged to violate the Article, prior to instituting the expedited arbitration procedure set forth below. The Council will immediately use his/her best efforts to cause the cessation of any violation of this Article. The leadership of the Union will immediately inform the membership of their obligations under this Article. A Union complying with this obligation shall not be held responsible for unauthorized acts of employees it represents.

4.2 Expedited Arbitration: Any party to this Agreement shall institute the following procedure, prior to initiating any other action at law or equity, when a breach of this Article is alleged to have occurred:

4.2.1 A party invoking this procedure shall notify Robert Hirsch, as the permanent arbitrator, or Barry Winograd, as the alternate arbitrator under this procedure. In the event that the permanent arbitrator is unavailable at any time, the alternate will be contacted. If neither is

available, then a selection shall be made pursuant to the procedure in Section 14.2. Notice to the arbitrator shall be by the most expeditious means available, with notices by facsimile, email or telephone to the City and the party alleged to be in violation, and to the Council and involved local Union if a Union is alleged to be in violation.

4.2.2 Upon receipt of said notice, the City will contact the designated arbitrator named above or his alternate who will attempt to convene a hearing within twenty-four (24) hours if it is contended that the violation still exists.

4.2.3 The arbitrator shall notify the parties by facsimile, email or telephone of the place and time for the hearing. Said hearing shall be completed in one session, which, with appropriate recesses at the arbitrator's discretion, shall not exceed twenty-four (24) hours unless otherwise agreed upon by all parties. A failure of any party to attend said hearings shall not delay the hearing of evidence or the issuance of an award by the arbitrator.

4.2.4 The sole issue at the hearing shall be whether or not a violation of Article IV, Section 4.1 of the Agreement has occurred. The arbitrator shall have no authority to consider any matter of justification, explanation or mitigation of such violation or to award damages, which issue is reserved for court proceedings, if any. The award shall be issued in writing within three (3) hours after the close of the hearing, and may be issued without a written opinion. If any party desires a written opinion, one shall be issued within fifteen (15) calendar days, but its issuance shall not delay compliance with or enforcement of the award. The arbitrator may order cessation of the violation of this Article and other appropriate relief and such award shall be served on all parties by hand or registered mail upon issuance. Should a party found in violation of this Article fail to comply with an Arbitrator's award to cease the violation, the party in violation shall pay to the affected party (the City for a strike violation, the applicable Union(s) and trust fund(s) on behalf of the affected workers for a lockout violation) as liquidated damages the sum of ten thousand dollars (\$10,000.00) per shift for which it failed to comply, or portion thereof, until such violation is ceased. The Arbitrator shall retain jurisdiction to resolve any disputes regarding the liquidated damages claimed under this section.

4.2.5 Such award may be enforced by any Court of competent jurisdiction upon the filing of this Agreement and all other relevant documents referred to above in the following manner. Written notice of the filing of such enforcement proceedings shall be given to the other party. In the proceeding to obtain a temporary order enforcing the arbitrator's award as issued

under Section 4.2.4 of this Article, all parties waive the right to a hearing and agree that such proceedings may be ex parte. Such agreement does not waive any party's right to participate in a hearing for a final order or enforcement. The Court's order or orders enforcing the arbitrator's award shall be served on all parties by hand or delivered by certified mail.

4.2.6 Any rights created by statute or law governing arbitration proceedings inconsistent with the above procedure, or which interfere with compliance, are waived by the parties.

4.2.7 The fees and expenses of the arbitrator shall be divided equally between the party instituting the arbitration proceedings and the party alleged to be in breach of its obligation under this Article.

ARTICLE V

PRE-CONSTRUCTION CONFERENCE

5.1 Timing: The General Contractor, after conferring with the Council, shall convene and conduct a pre-job conference with representatives of all involved Contractors/Employers, who shall be prepared to announce craft assignments and to discuss in detail the scope of work and other issues as set forth below, and the Unions, at a location mutually agreeable to the parties at least twenty-one (21) calendar days prior to:

- (a) The commencement of any Project Work, and
- (b) The commencement of Project Work on each subsequently awarded construction contract or phase.

5.2 The conference shall be attended by a representative of each participating Contractor and each affected Union and the Council and City may attend at their discretion.

5.3 Pre-Job Conference. The pre-job conference will consist of:

- (a) A listing of each Contractor's scope of work;
- (b) The craft assignments;
- (c) The estimated number of craft workers required to perform the work;
- (d) Transportation arrangements;
- (e) The estimated start and completion dates of the work; and
- (f) Discussion of pre-fabricated materials.

5.4 Review Meetings: In order to ensure the terms of the PLA are being fulfilled and all concerns pertaining to the City, the Unions, and the Contractors are addressed, the Project Manager, General Contractor and Senior Executive of the Council or designated representatives thereof shall meet on a periodic basis during the term of construction of a Project.

ARTICLE VI
NO DISCRIMINATION

6.1 The Contractor/Employers and Unions agree to comply with all anti-discrimination provisions of federal, state, and local law, to protect employees and applicants for employment, on the Project.

ARTICLE VII
UNION SECURITY

7.1 The Contractor/Employers recognize the Union(s) as the sole bargaining representative of all craft employees working within the scope of this Agreement.

7.2 Contractor/Employer shall be responsible to ensure that all employees who are employed by the Contractor/Employer(s) shall, as a condition of employment, on or before the eighth (8th) day of consecutive or cumulative employment on a construction contract subject to this Agreement, be responsible for the payment of the applicable monthly working dues and any associated fees uniformly required for Union membership in the applicable local Union which is signatory to this Agreement and shall stay current with such working dues and fees for the duration of work on the Project. Further, there is nothing in this Agreement that would prevent non-union employees from joining the local Union.

7.3 Authorized representatives of the Unions shall give notice to a supervisor to access the Projects whenever work covered by this Agreement is being or will be performed on the Project.

ARTICLE VIII
REFERRAL

8.1 Contractor/Employers performing construction work on the Project described in the Agreement shall, in filling craft job requirements, utilize and be bound by the registration facilities and referral systems established or authorized by the Unions signatory hereto. The Contractor/Employer(s) shall have the right to reject any applicant referred by the Union(s), in accordance with the applicable Master Agreement.

8.2 The Contractor(s) shall have the unqualified right to select and hire directly all supervisors above general foreman it considers necessary and desirable, without such persons being referred by the Union(s), (unless covered by an existing Master Agreement).

8.3 In the event that referral facilities maintained by the Union(s) are unable to fill the requisition of a Contractor/Employer for employees within a forty-eight (48) hour period (Saturdays, Sundays and Holidays excluded) after such requisition is made by the Contractor/Employer(s), the Contractor/Employer(s) shall be free to obtain work persons from any source. A Contractor who hires any personnel to perform covered work on the Project pursuant to this Section shall immediately provide the appropriate Union with the name and address of such employee(s) and shall immediately refer such employee(s) to the appropriate Union to satisfy the requirements of Article VII of this Agreement.

8.4 **Local Hire:** It is in the interest of the parties to this Agreement to facilitate employment of City of Pittsburg and Local Area residents and to use resources in the Local Area in construction of the Project. The “Local Area” shall be defined as the communities of Pittsburg and Contra Costa County to be served by the Project. It is the objective of the parties that not less than twenty-five percent (25%) of all hours worked on the Project be worked by residents of the Local Area. The Unions will exert their utmost efforts to recruit sufficient numbers of skilled craft persons to fulfill the requirements of the contractor. The Parties to this Agreement support the development of increased numbers of skilled construction workers from the Local Area. To the extent allowed by law, and consistent with the Local Union’s hiring hall provisions, and as long as they possess the requisite skills and qualifications, residents of the Local Area, including journeymen and apprentices, shall be referred for Project work covered by this Agreement.

ARTICLE IX
WAGES AND BENEFITS

9.1 All Contractor/Employers agree to pay contributions to the established vacation, pension and other form of deferred compensation plan, apprenticeship, worker protection and assistance, and health benefit funds established by the applicable Master Agreement for each hour worked on the Project in the amounts designated in the Master Agreements of the appropriate signatory Unions.

9.2 By signing this Agreement, the Contractor/Employers adopt and agree to be bound by the written terms of the legally established Trust Agreements, as described in Section 9.1, which may from time to time be amended, specifying the detailed basis on which payments are to be made into, and benefits paid out of, such Trust Funds. The Contractors authorize the parties to such local trust agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratify and accept the trustees so appointed as if made by the Contractor(s). The Contractors/Employers agree to execute a separate Subscription Agreement(s) for Trust Funds when such Trust Fund(s) requires such document(s).

9.3 Wages, Hours, Terms and Conditions of Employment: The wages, hours and other terms and conditions of employment on the Project shall be governed by the Master Agreement of the respective crafts, to the extent such Master Agreement is not inconsistent with this Agreement. Where a subject is covered by the Master Agreement and not covered by this Agreement, the Master Agreement will prevail. When a subject is covered by both the Master Agreement and this Agreement, to the extent there is any inconsistency, this Agreement will prevail.

9.4 Holidays: Holidays shall be in compliance with the applicable Master Agreement.

ARTICLE X
APPRENTICES

10.1 Recognizing the need to develop adequate numbers of competent workers in the construction industry, the Contractor/Employer(s) shall employ apprentices of a California State-approved Joint Apprenticeship Training Program in the respective crafts to perform such work as

is within their capabilities and which is customarily performed by the craft in which they are indentured.

10.2 The apprentice ratios will be in compliance with the applicable provisions of the California Labor Code and Prevailing Wage Rate Determination.

10.3 Consistent with the Master Agreements and state law, there shall be no restriction on the utilization of apprentices in performing the work of their craft provided they are properly supervised.

ARTICLE XI

HELMETS TO HARDHATS

11.1 The Contractor/Employer(s) and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractor(s)/Employer(s) and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter “Center), a joint Labor-Management Cooperation Trust Fund, established under the authority of Section 6(b) of the Labor-Management Cooperation Act of 1978, 29 U.S.C. Section 175(a), and Section 302(c)(9) of the Labor-Management Relations Act, 29 U.S.C. Section 186(c)(9), and a charitable tax exempt organization under Section 501(c)(3) of the Internal Revenue Code, and the Center’s “Helmets to Hardhats” program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

11.2 The Unions and Contractor(s)/Employer(s) agree(s) to coordinate with the Center to participate in an integrated database of veterans and members of the National Guard and Reserves interested in working on the Project and of apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans and members of the National Guard and Reserves for bona fide, provable past experience.

ARTICLE XII
COMPLIANCE

12.1 It shall be the responsibility of the Contractor(s)/Employer(s) and Unions to investigate and monitor compliance with the provisions of the Agreement contained in Article IX. Nothing in this agreement shall be construed to interfere with or supersede the usual and customary legal remedies available to the Unions and/or employee benefit Trust Funds to collect delinquent Trust Fund contributions from Contractor(s)/Employer(s) on the Project. The City shall monitor and enforce compliance with prevailing wage requirements of the state only to the extent required by law, and Contractors/Employers' compliance with this Agreement.

ARTICLE XIII
EMPLOYEE GRIEVANCE PROCEDURE

13.1 All disputes involving discipline and/or discharge of employees working on the Project shall be resolved through the grievance and arbitration provision contained in the Master Agreement for the craft of the affected employee. No employee working on the Project shall be disciplined or dismissed without just cause.

ARTICLE XIV
GRIEVANCE ARBITRATION PROCEDURE

14.1 Project Labor Disputes: All project labor disputes involving the application or interpretation of the Master Agreement to which a signatory Contractor/Employer and a signatory Union are parties shall be resolved pursuant to the resolution procedures of that Master Agreement. All disputes relating to the interpretation or application of this Agreement shall be subject to resolution by the grievance arbitration procedures set forth herein.

14.2 No grievance shall be recognized unless the grieving party (Local Union or District Council on its own behalf, or on behalf of an employee whom it represents, or a Contractor/Employer on its own behalf) provides notice in writing to the party with whom it has a dispute within five (5) business days after becoming aware of the dispute but in no event more

than thirty (30) business days after it reasonably should have become aware of the event giving rise to the dispute. Time limits may be extended by mutual written agreement of the parties.

Step 1: Within five (5) business days after the receipt of the written notice of the grievance, the Business Representative of the involved Local Union or District Council, or his/her designee, or the representative of the employee, and the representative of the involved Contractor/Employer shall confer and attempt to resolve the grievance.

Step 2: In the event that the representatives are unable to resolve the dispute within the five (5) business days of the Step 1 meeting, within five (5) business days thereafter, the alleged grievance may be referred in writing by either involved party to the Business Manager(s) of the affected Union(s) involved and the Manager of Labor Relations of the Employer(s) or the Manager's designated representative, for discussion and resolution. Regardless of which party has initiated the grievance proceeding, prior to a Step 2 meeting, the Union(s) shall notify its International Union representative(s), which shall advise both parties if it intends on participating in a Step 2 meeting. The Project Manager and the Council shall have the right to participate in any efforts to resolve the dispute at Step 2.

Step 3: If the grievance is not settled in Step 2, within five (5) business days of the Step 2 meeting, either party may request the dispute be submitted to arbitration or the time may be extended by mutual consent of both parties. Within five (5) business days after referral of a dispute to Step 3, the representatives shall choose a mutually agreed upon arbitrator for final and binding arbitration. The parties agree that if the permanent arbitrator or his alternate is not available, an arbitrator shall be mutually agreed upon by the parties. If the parties cannot mutually agree, an arbitrator shall be selected by the alternate striking method from a list of four (4). Each party shall provide two (2) arbitrators for the list at the time of arbitration. The order of striking names from the list of arbitrators shall be determined by a coin toss, the winner of which shall decide whether they wish to strike first or second.

14.3 The decision of the Arbitrator shall be final and binding on all parties. The Arbitrator shall have no authority to change, amend, add to or detract from any of the provisions of the Agreement. The expense of the Arbitrator shall be borne equally by both parties. The Arbitrator shall arrange for a hearing on the earliest available date from the date of his/her selection. A decision shall be given to the parties within five (5) calendar days after completion of the hearing

unless such time is extended by mutual agreement. A written opinion may be requested by a party from the presiding arbitrator.

14.4 The time limits specified in any step of the Grievance Procedure set forth in Section 14.2 may be extended by mutual agreement of the parties. However, failure to process a grievance, or failure to respond in writing within the time limits provided above, without an agreed upon extension of time, shall be deemed a waiver of such grievance without prejudice, or without precedent to the processing of and/or resolution of like or similar grievances or disputes. In order to encourage the resolution of disputes and grievances at Steps 1 and 2 of this Grievance Procedure, the parties agree that such settlements shall not be precedent setting.

14.5 Retention: To the extent allowed by applicable law, at the time a grievance is submitted under this Agreement or any Master Agreement, the Union(s) may request that the City withhold and retain an amount from what is due and owing to the Contractor(s) against whom the grievance is filed, sufficient to cover the damages alleged in the grievance, should the Union(s) prevail. The amount shall be retained by the City until such time as the underlying grievance giving rise to the retention is withdrawn, settled, or otherwise resolved, and the retained amount shall be paid to whomever the parties to the grievance shall decide, or to whomever an Arbitrator shall so order.

14.6 Should any of the arbitrators listed in this Article or Article IV no longer work as a labor arbitrator, the City and the Council shall mutually agree to a replacement.

ARTICLE XV

WORK ASSIGNMENTS AND JURISDICTIONAL DISPUTES

15.1 The assignment of Covered Work will be solely the responsibility of the Employer performing the work involved; and such work assignments will be in accordance with the Plan for the Settlement of the Jurisdictional Disputes in the Construction Industry (the "Plan") or any successor Plan.

15.2 All jurisdictional disputes on this Project between or among the building and construction trades Unions and the Employers parties to this Agreement, shall be settled and adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted in the future by the

Building and Construction Trades Department. Decisions rendered shall be final, binding and conclusive on the Employers and Unions parties to this Agreement.

15.3 If a dispute arising under this Article involves the Northern California Carpenters Regional Council 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, Thomas Angelo, Robert Hirsch, and Thomas Pagan, and the Arbitrator's hearing on the dispute shall be held at the offices of the California State Building and Construction Trades Council in Sacramento, California, within fourteen (14) calendar days of the selection of the Arbitrator. All other procedures shall be as specified in the Plan.

15.4 All jurisdictional disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature, and the Employer's assignment shall be adhered to until the dispute is resolved. Individual employees violating this section shall be subject to immediate discharge.

15.5 Each Employer will conduct a pre-job conference with the Council prior to commencing work. The Project Manager and City will be advised in advance of all such conferences and may participate if they wish. Pre-job conferences for different Employers may be held together.

ARTICLE XVI

MANAGEMENT RIGHTS

16.1 Consistent with the Master Agreements, the Contractor/Employer(s) shall retain full and exclusive authority for the management of their operations, including the right to direct their work force in their sole discretion. No rules, customs or practices shall be permitted or observed which limit or restrict production, or limit or restrict the working efforts of employees, except that lawful manning provisions in the Master Agreement shall be recognized.

ARTICLE XVII
DRUG & ALCOHOL TESTING

17.1 The use, sale, transfer, purchase and/or possession of a controlled substance, alcohol and/or firearms at any time during the work day is prohibited.

17.2 Drug and alcohol testing shall be conducted in accordance with the Substance Abuse Prevention Policies set forth in each applicable Schedule A.

ARTICLE XVIII
SAVINGS CLAUSE

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

18.2 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 the entire Agreement shall be null and void.

18.3 If a court of competent jurisdiction determines that all or part of the Agreement is invalid and/or enjoins the City from complying with all or part of its provisions and the City accordingly determines that the Agreement will not be required as part of an award to a Contractor/Employer, the Unions will no longer be bound by the provisions of Article IV.

ARTICLE XIX
AMENDMENT/COUNTERPARTS/AUTHORITY

19.1 Any substantive modification of any provision or addendum to this Agreement must be reduced to writing and signed by the City, Council and Unions to be effective.

19.2 The section headings contained in this Agreement are inserted for convenience only and shall not affect in any way the meaning or interpretation of this Agreement. All defined terms used in this Agreement shall be deemed to refer to the singular and/or plural, in each instance as the context and/or particular facts may require.

19.3 This Agreement may be executed in counterparts, such that original signatures may appear on separate pages, and when bound together all necessary signatures shall constitute an original. Facsimile or scanned signature pages transmitted to other parties to this Agreement shall be deemed equivalent to original signatures.

19.4 Each of the persons signing this Agreement represents and warrants that such person has been duly authorized to sign this Agreement on behalf of the party indicated and each of the parties by signing this Agreement warrants and represents that such party is legally authorized and entitled to enter into this Agreement.

ARTICLE XX
TERM

20.1 The Agreement shall be included in the bid documents, requests for proposals, or other equivalent Project solicitation, which shall indicate that entering into this Agreement is a condition of the award of a Construction Contract for the Project.

20.2 This Agreement shall become effective on the latter day executed by the City or by the Council and shall remain in effect until Completion of each Project in accordance with Sections 1.4 and 2.2.

20.3 This Agreement shall remain in full force and effect for a period of five (5) years from the date it is entered into. Prior to the five (5) year anniversary of the effective date, the City and the Council shall meet and confer regarding their experience with Projects covered by the Agreement, and shall discuss whether to modify the Agreement or extend the Agreement for

an additional term. This Agreement shall remain in effect pending the parties' meet and confer efforts. No term extension or any substantive change to this agreement will be effective unless agreed to by the Council and approved by City Council.

CITY OF PITTSBURG

By _____ Date _____
City Manager

Attest:

City Clerk

Approved as to Form:

City Attorney

**CONTRA COSTA BUILDING AND
CONSTRUCTION TRADES COUNCIL (COUNCIL)**

By _____ Date _____

UNION SIGNATURES

[To be inserted]

ADDENDUM A
AGREEMENT TO BE BOUND

[Addressee]
[Address]
[City and State]

Re: City of Pittsburg Project Labor Agreement.

Dear Mr. /Ms. _____:

The undersigned party confirms that it agrees to be a party to and bound by the City of Pittsburg Project Stabilization Agreement as such Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms.

By executing this Agreement to Be Bound, the undersigned party subscribes to, adopts and agrees to be bound by the written terms of the legally established trust agreements as set forth in Section 9.1, as they may from time to time be amended, specifying the detailed basis upon which contributions are to be made into, and benefits made out of, such trust funds and ratifies and accepts the trustees appointed by the parties to such trust funds.

Such obligation to be a party to and bound by this Agreement shall extend to all work covered by the City of Pittsburg Project Stabilization Agreement undertaken by the undersigned party. The undersigned party shall require all of its subcontractors, of whatever tier, to become similarly bound for all their work within the scope of this Agreement by signing an identical Agreement to Be Bound.

This letter shall constitute a subscription agreement, to the extent of the terms of the letter. However, the undersigned agrees to execute a separate Subscription Agreement(s) for Trust Funds when such Trust Fund(s) so requires.

Contractor/Subcontractor: _____

Project Contract Number: _____

California State License Number:
or Motor Carrier (CA) Permit Number: _____

Name and Signature of Authorized Person: _____
(Print Name)

(Print Title)

(Signature)

Address and Telephone Number: _____

State Public Works Registration Number: _____