



City of Bell, California
Public Works Department

**SPECIFICATIONS AND CONTRACT DOCUMENTS FOR
PRITCHARD FIELD IMPROVEMENT PROJECT - PHASE 2
CIP 25-3062
7006 WALKER AVE, BELL, CA 90201
FY 2025-2026**

PREPARED BY THE CITY OF BELL

Bids due: 2:00 PM on Thursday, January 8, 2026
via OpenGov (<https://procurement.opengov.com/portal/cityofbell>)

Approved by: _____



John Oskoui, P.E.
Interim Public Works Director

**Please submit questions directly on OpenGov via the “Q&A” tab by
Wednesday, December 17, 2025, 5:00 PM.**

These plans and specifications are the exclusive property of the City of Bell and shall not be used in any manner without prior consent of the City of Bell. Any reuse of these plans and specifications by others shall be at other's sole risk and without liability to the City of Bell

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**PUBLIC WORKS DEPARTMENT
OF THE CITY OF BELL
PRITCHARD FIELD IMPROVEMENT PROJECT - PHASE 2
CIP 25-3062
7006 WALKER AVE, BELL, CA 90201
FY 2025-2026**

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**NOTICE INVITING SEALED BIDS FOR
PRITCHARD FIELD IMPROVEMENT PROJECT - PHASE 2
CIP 25-3062
7006 WALKER AVE, BELL, CA 90201
FY 2025-2026**

PUBLIC NOTICE IS HEREBY GIVEN that electronic bids will be received by the City furnishing all materials, equipment, tools, labor, and incidentals as required for construction the above stated project in accordance with the specifications and drawings on file at the Public Works Department of the City of Bell. Bids will be accepted up to 2:00 PM on Thursday, January 8, 2026. Bids submitted after this date and time will not be accepted by the City. All bids must be made through OpenGov and on the forms furnished therein. Prospective bidders must register as a vendor in OpenGov in order to access the bid solicitation package, receive addenda and notification when issued and submit a bid.

SCOPE OF WORK

The work to be performed or executed under these specifications consists of furnishing all materials, equipment, tools, labor, and incidentals as required by the contract documents for the Pritchard Field Improvement Project.

The project generally consists of construction of permeable asphaltic concrete pavement, construction of concrete curb and gutter and required adjacent pavement, sidewalk, driveway approach, construction of concrete curb and walkways, installation of synthetic turf and stabilized decomposed granite, install concrete pavers, furnish and install picnic shelters, light poles and fixtures, lighting and electrical system, park furniture including benches, picnic tables, litter receptacles, drinking fountain, adjustment of existing catch basins and installing dry wells, furnish and install perimeter fence with single and double gates, construction of concrete perimeter wall with integrated lighting, furnish and install perimeter fence panels, furnish and install vehicular gate, install new irrigation system, install landscaping, install mulch in landscape areas, furnish and install trees, furnish and install decorative boulders, install pavement markings and striping, install parking signs, furnish and install concrete wheel stops, furnish and install an informational kiosk, install city- furnished entry monument, provide 90 day maintenance for installed landscape and irrigation system; and other incidentals and appurtenant work necessary for construction of the project per the plans and specifications.

It is the intent of this contract to have the contractor perform the PRITCHARD FIELD IMPROVEMENT PROJECT - PHASE 2, CIP 25-3062, 7006 WALKER AVE, BELL, CA 90201, FY 2025-2026 IN THE CITY OF BELL, and other appurtenances in accordance with these SPECIFICATIONS and PLANS.

LICENSE REQUIREMENT

At the time of contract award, the Contractor shall possess a Class A Contractor's License. No bid will be accepted from a Contractor who has not been licensed in accordance with the Provisions of Chapter 9, Division III, of the Business and Professions Code of the State of California at the time the bid is submitted.

Effective January 1, 2015, in order to be awarded and to perform work on public works projects, prime contractors and subcontractors must possess and maintain registration with the Department of Industrial Relations (DIR) at

<https://efiling.dir.ca.gov/PWCR>. This is a separate requirement from the Contractors State License Board (CSLB) licensing requirement. See the Special Provisions for additional details.

MANDATORY PRE-BID MEETING AND SITE VISIT

A mandatory pre-bid meeting will be held on **Thursday, December 11, 2025, at 11:00 AM**, at the project site (on Walker Avenue, northeast of Florence Avenue in the City of Bell). No allowances for cost adjustments will be made if a Bidder fails to adequately examine the Project site before submitting a Bid.

BID OPENING

Bids shall be submitted through the City's OpenGov portal at: <https://procurement.opengov.com/portal/cityofbell>. Bids will be accepted up to **2:00 PM PST on January 8, 2026**. No oral, faxed, emailed, or telephonic bids or alternatives will be considered. Once the bid deadline is reached, no further submissions are accepted into the system. Bidders are solely responsible for ensuring that their bid is received in proper time, and bidders assume all risks arising out of their chosen means of submission. An online bid opening will take place through OpenGov. Bidders are invited to access the bid opening through the OpenGov portal. Accepted bids shall become the property of the City. Each bid must be accompanied by a bidder's bond payable to the order of the CITY OF BELL for an amount not less than ten percent (10%) of the bid price submitted. The bond of the successful bidder shall be forfeited to the CITY OF BELL if such bidder fails to enter into the contract to perform the work within fifteen (15) days after written Notice of Award.

BID REVIEW

The City of Bell reserves the right, after opening bids, to reject any or all bids, or to make award to the lowest responsible and responsive bidder and reject all other bids; to waive any informality in the bidding; to accept any bid or portion thereof; and to take all bids under advisement for a period of sixty (60) days. Bids will be compared on the basis of Total Bid Price. Nothing in this section shall relieve the Contractor of his obligations relative to starting work as required elsewhere in these specifications.

TIME LIMIT AND NOTICE TO PROCEED

Following Notice to Proceed, the Contractor shall have **60 Working Days** to complete the work. The Contractor will not be allowed to start work prior to the date in the Notice to Proceed and not until he has returned the executed contract and has submitted contract bonds and liability insurance acceptable to the City of Bell as required in the Specifications.

PLANS AND SPECIFICATIONS

Electronic copies of the bid documents are available at no cost. The bid documents may be obtained via OpenGov under the "Documents" tab at (<https://procurement.opengov.com/portal/cityofbell>)

The City hereby affirmatively ensures that minority business enterprises will be afforded full opportunity to submit bids in response to this notice and will not be discriminated against on the basis of race, color, national origin, ancestry, sex, or religion in any consideration leading to the award of Contract.

WAGE RATES AND LABOR CODE REQUIREMENTS

Attention is directed to the provisions of Sections 1774, 1775, 1776, 1777.5 and 1777.6 of the State Labor Code. Sections 1774 and 1775 require the Contractor and all Subcontractors to pay not less than the prevailing wage rates to all workmen employed in the execution of the contract and specify forfeitures and penalties for failure to do so. The minimum wages to be paid are those determined by the State Director of the Department of Industrial Relations. Section 1776 requires the Contractor and all Subcontractors to keep accurate payroll records, specifies, the contents thereof, their inspection and duplication procedures, and certain notices required of the Contractor pertaining to their location.

This project is also funded by CPF Federal Funds, Federal Labor Standards Provisions, including the prevailing wage requirements of the Davis-Bacon and Related Acts will be enforced. The current Federal Wage Decision is the one in effect 10-days prior to the bid opening date and can be found online at <https://sam.gov/content/wage-determinations>. If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, the Contractor and subcontractors shall pay not less than the higher wage rate. The Department will not accept lower State wage rates not specifically included in the Federal minimum wage determinations.

This is a HUD Section 3 covered construction contract. The Bidder/Proposer must declare an intent to comply with Section 3 requirements, including benchmarks, in order to be a responsive bidder/proposer eligible for contract award.

The work to be performed under this Contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance of HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

The Bidder/Proposer is required to complete and submit the Declaration of Intent to comply with Section 3 Requirements - Required Contract Forms and Certifications, certifying that they intend to comply with the Section 3 provisions as defined in Section 8.43 (Section 3 of the Housing and Urban Development Act of 1968, As Amended) in Sample Standard Contract. Further, Proposers are required to comply with the requirements under the said provision for the term of any contract awarded pursuant to this solicitation.

Prospective bidders/proposers should carefully read the information including – Contract Notices, Section 3 Provisions for Housing and Community Development Assistance and Public Housing Assistance as Applicable. Proposals that fail to comply with the requirements of Section 3 will be considered non-responsive and excluded from further consideration.

The Contractor must comply with the requirements of the Build America, Buy America (BABA) Act, 41 USC 8301 note, and all applicable rules and notices, as may be amended, if applicable to the Grantee's infrastructure project. Pursuant to HUD's Notice, "Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance" (88 FR

17001), any funds obligated by HUD on or after the applicable listed effective dates, are subject to BABA requirements, unless excepted by a waiver.

Compliance with the Contract Work Hours and Safety Standards Act, amended by the Federal Acquisition Streamlining Act of 1994 (40 U.S.C. 327-330), Clean Air Act and the Clean Water Act, and Executive Order 11738, "Administration of the Clean Air Act and Federal Water Pollution Control Act with Respect to Federal Contracts." is required. Compliance with Executive Order 13202 entitled, "Preservation of Open Competition and Government Neutrality Towards Government Contractors' Labor Relations on Federal Federally Funded Construction Projects" is also required.

By: _____
Angela Bustamante
City Clerk, City of Bell

**PUBLIC WORKS DEPARTMENT
OF THE CITY OF BELL**

**PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2
CIP 25-3062
7006 WALKER AVE, BELL, CA 90201
FY 2025-2026**

INSTRUCTIONS TO BIDDERS

PROPOSAL FORMS

Bids shall be submitted in writing on the Proposal Forms provided by the City of Bell. All information requested therein must be clearly and legibly set forth in the manner and form indicated. All Addenda shall be acknowledged in the proposal.

PROPOSAL BID SHEET

Bidders shall give unit prices for each and all of the items set forth. No aggregate bids will be considered. The bidder shall set forth for each item of work, in clearly legible figures, a unit item price and a total for the item in the respective spaces provided for this purpose. The quantities listed in the Bid sheets are supplied to give an indication of the general scope of work, but the accuracy of figures is not guaranteed, and the bidder shall make his own estimates from the drawings. In case of a variation between the unit price and the totals shown by the bidder, the unit price will be considered to be the bid. The Contractor shall submit to the City of Bell an attachment to the project bid sheet a project schedule indicating each task.

PROPOSAL GUARANTEE (BID BOND)

Proposals shall be accompanied by a proposal guarantee consisting of a certified check or bid bond payable to the City of Bell in the minimum amount of ten percent (10%) of the total amount bid. Any proposal not accompanied by such a guarantee will not be considered. If a bidder to whom a notice to award contract is issued fails or refuses to execute the contract documents or furnish the required insurance policies and bonds as set forth in those documents, the proposal guarantee may be forfeited to the City of Bell. The proposal guarantees of all bidders will be held until the successful bidder has properly executed all contract documents and furnished the required insurance policies and bonds.

NON-COLLUSION AFFIDAVIT

Bidder shall declare that the only persons or parties interested in the proposal as principals are those named therein; that no officer, agent or employee of the City of Bell is personally interested, directly or indirectly, in the proposal; that the proposal is made without connection to any other individual, firm or corporation making a bid for the same work; and that the proposal is in all respects fair and without collusion or fraud. The Non-Collusion Affidavit shall be executed and submitted with the proposal.

DELIVERY OF PROPOSAL

Bidders must submit electronic bids through the OpenGov portal at <https://procurement.opengov.com/portal/cityofbell>. The City will only consider Bids from contractors that have transmitted successfully and have been issued a confirmation number with a time stamp from OpenGov indicating that the Bid was submitted successfully. Transmission of Bids by any other means will not be accepted. Bidders

experiencing technical difficulties with bid submission process may contact OpenGov Support at (650) 336-7167. If you continue to have technical problems email German Alvarez at galvarez@cityofbell.org. The City cannot guarantee timely assistance or assurance that any given problem will be resolved by the bid submission deadline.

WITHDRAWAL OF PROPOSALS

A proposal may be withdrawn by a written request signed by the bidder. Such requests must be delivered to the City Clerk's office prior to the bid opening hour stipulated in the "Notice Inviting Sealed Bids." The withdrawal of a proposal will not prejudice the right of the bidder to submit a new proposal, providing there is time to do so. Proposals may not be withdrawn after said hour without forfeiture of the proposal guarantee, unless agreed to otherwise by the City of Bell.

IRREGULAR PROPOSALS

Unauthorized conditions, limitations, or provisions attached to a proposal will render it irregular and may cause its rejection. The completed proposal forms shall be without interlineation, alterations or erasures. No oral, telegraphic or telephonic proposal, modification or withdrawal will be considered.

TAXES

No mention shall be made in the proposal of Sales Tax, Use Tax or any other tax, as all amounts bid will be deemed and held to include any such taxes which may be applicable.

DISQUALIFICATION OF BIDDERS

In the event that any bidder acting as a prime contractor has an interest in more than one proposal, all such proposals will be rejected, and the bidder will be disqualified. This restriction does not apply to subcontractors or suppliers who may submit quotations to more than one bidder. No contract will be executed unless the bidder is licensed in accordance with the provisions of the State Business and Professions Code.

LEGAL RESPONSIBILITIES

All proposals must be submitted, filed, made and executed in accordance with State and Federal laws relating to bids for contracts of this nature whether the same are expressly referred to herein or not. Any Bidder submitting a proposal shall by such action thereby agree to each and all the terms, conditions, provisions and requirements set forth, contemplated and referred to in the Plans, Specifications, and Contract Documents and to full compliance therewith.

INTERPRETATION OF SPECIFICATIONS AND DOCUMENTS

If any person contemplates submission of a bid for the proposed contract and is in doubt as to the true meaning of any part of the specifications or other proposed contract documents, or find apparent discrepancies in, or apparent omissions from the specifications, he may submit to the City Engineer of said City of Bell a written request for an interpretation or correction thereof, which must be received by the City Engineer at least seven (7) days prior to the date of receipt of bids. No request shall be taken within the seven (7) days prior to bid opening. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the proposed documents shall be made only by addendum duly issued and copy of such addendum will be mailed, faxed, or delivered to each person receiving a set of such documents. Interpretations, corrections, or changes of the Bid Documents made in any other manner

will not be binding and bidders shall not rely upon such interpretations, corrections, and changes. The City Engineer will not be responsible for any other explanation or interpretations of the proposed documents.

ADDENDA OR BULLETINS

The City Engineer may, without approval of the City Council of the City of Bell, issue addenda to the Contract Documents during the period of advertising for bids, for the purpose of clarifying or correcting Specifications, Plans or Bid Proposal, provided that any such addenda do not substantially change the original scope and intent of the project. The effect of all addenda to the Contract Documents shall be considered in the bid and said addenda shall be acknowledged in the proposal. Before submitting his bid, each bidder shall inform himself as to whether any addenda have been issued. Purchasers of Contract Documents will be furnished copies of such addenda by fax, certified mail or personal delivery during the period of advertising and shall signify receipt of same in the "Acknowledgment of Addenda," page of the proposal. Failure to cover in this bid any such addenda issued shall render his bid irregular and shall result in its rejection by the City of Bell.

AWARD OF CONTRACT

Following a review of the bids, the City of Bell shall determine whether to award the contract or to reject any or all bids. The Award of Contract, if made, will be to the lowest responsible and responsive Bidder as determined solely by the City of Bell. City of Bell reserves the right to reject any or all proposals, to accept any bid or portion thereof, to waive any irregularity, and to take the bids under advisement for the period of time stated in the "Notice Inviting Sealed Bids," all as may be required to provide for the best interests of City of Bell. In no event will an award be made until all necessary investigations are made as to the responsibility and qualifications of the Bidder to whom the award is contemplated. No Bidder may withdraw his proposal for a period of forty-five (45) days after the time set for opening thereof.

LABOR CODE

Pursuant to the provisions of Sections 1770-1773 of the Labor Code of the State of California, City of Bell has obtained from the State Director of the Department of Industrial Relations the general provisions rate of per diem wages and the general prevailing rate for holiday and overtime work in this locality for each craft, classification or type of workman anticipated to be needed to execute the contract. These rates are on file with the City Clerk and shall be posted at the job site. Copies will be made available to any interested party on request. It shall be the responsibility of the prime Contractor to comply with all applicable sections of the Labor Code. It is the Contractor's responsibility to immediately inform City of Bell of any classifications used by Contractor that is not posted for purposes of prevailing wage requirements.

Original Certified Payroll Records for the Contractor and Subcontractors shall be submitted to City of Bell on approved forms by the tenth day of each month. Progress payments may be withheld pending receipt of any outstanding records. City of Bell may conduct interviews with workers to verify compliance with applicable labor laws and wage requirements. Suspected irregularities and discrepancies may be reported to the appropriate agencies for review and enforcement.

Travel and subsistence payments to each workman needed to execute the work shall be made as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with Section 1773.8 of the Labor Code. The Contractor shall comply with the provisions of Section 1774 of the Labor Code. Failure to comply with the subject section will subject the Contractor to penalty and forfeiture provisions of Section 1775 of the Labor Code. City of Bell will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate set forth in the contract. The possibility of wage increases is one of the elements to be considered by the Contractor in determining his bid and will not under any circumstances be considered as the basis of a claim against City of Bell on the contract.

The Contractor and Subcontractors shall comply with Section 1777.6 of the Labor Code, which stipulates that it shall be unlawful to refuse to accept otherwise qualified employees as registered apprentices solely on the grounds of race, religious creed, color, national origin, ancestry, sex or age, except as provided in Section 3077, of such employee.

WORKER'S COMPENSATION CERTIFICATE

Section 3700 of the State Labor Code requires that every employer shall secure the payment compensation by either being insured against liability to pay compensation with one or more insurers or by securing a certificate of consent to self-insure from the State Director of Industrial Relations. In accordance with this section and with Section 1861 of the State Labor Code, the Contractor shall sign a Compensation Insurance Certificate which is included with the Agreement and submit same to City of Bell along with the other required Contract Documents, prior to performing any work. Reimbursement for this requirement shall be considered as included in the various items of work.

CLAYTON ACT AND CARTWRIGHT ACT

Section 4552 of the State Government Code specifies that in executing a public works contract with City of Bell to supply goods, services or materials, the Contractor or Subcontractor offers and agrees to assign to City of Bell all rights, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 commencing with Sec. 16700) of Part 2 of Division 7 of the Business and Professions Code, arising from purchase of goods, services or materials pursuant to the contract or subcontract. This assignment shall become effective when City of Bell tenders final payment to the Contractor without further acknowledgement by the parties.

SUBLETTING AND SUBCONTRACTING

Pursuant to the Subletting and Subcontracting Fair Practices Act (commencing with Section 4100 of the Public Contract Code), bidders are required to list in their proposal the name and location of place of business of each Subcontractor who will perform work or labor or render services in or about the construction of the work or improvement or a Subcontractor who specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the Plans and Specifications in excess of ½ of 1% of this prime Contractor's total bid of \$10,000, whichever is greater. Any other information required by City of Bell pertaining to Subcontractors may be submitted with the bid, or up to twenty-four (24) hours after the deadline established in the Notice Inviting Sealed Bids. Failure to list a Subcontractor for a portion of the work means that the prime Contractor will do that portion of the work. It is City of Bell's intent for the Subletting and

Subcontracting Fair Practices Act to apply to all phases of the work.

Substituting a Subcontractor in place of a Subcontractor listed in the original bid without City of Bell approval or subcontracting work to which no Subcontractor was designated in the original bid (and was required to be designated) or other subcontracting violations, may at City of Bell's discretion, result in cancellation of the contract or a financial penalty.

The Contractor shall perform with its own organization, contract work amounting to at least 50% of the contract price (see Sec. 2-3.1 General – Subcontracts). Failure to meet this requirement is grounds for rejection of the bid or cancellation of the contract. City of Bell reserves the right to waive the 50% requirement if it deems it to be in the best interests of City of Bell.

SUBSTITUTION OF SECURITIES

In accordance with the State of California Public Contract Code, Section 22300, the Contractor may substitute securities for any monies withheld by City of Bell to ensure performance under the contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with City of Bell or with a State or Federally chartered bank as the escrow agent, who shall pay such monies to the Contractor upon notification by City of Bell of Contractor's satisfactory completion of the contract. The type of securities deposited, and the method of release shall be approved by City of Bell Counsel's office.

CONSTRUCTION CLAIMS/WAIVER OF CLAIMS

Effective January 1, 1991, Section 20104 et seq. of the California Public Contract Code prescribes a process of utilizing informal conferences, non-binding judicially supervised mediation and judicial arbitration to resolve disputes on construction claims of \$375,000 or less. City of Bell has also adopted additional requirements and limitations regarding claims. (See the appropriate sections in the Special Provisions and General Specifications.)

At the completion of the project the Contractor shall execute, and City of Bell shall approve a, "Final Closeout Agreement and Release of All Claims," concurrently with the final acceptance of the project and the filing of the Notice of Completion. The "Final Closeout Agreement and Release of All Claims," shall be based on the final contract amount minus any damages.

BIDDER:

Firm Name

By

Print Name

Signature

**PUBLIC WORKS DEPARTMENT
OF THE CITY OF BELL**

**PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2
CIP 25-3062
7006 WALKER AVE, BELL, CA 90201
FY 2025-2026**

PROPOSAL

TO THE CITY CLERK OF THE CITY OF BELL ("Agency").

In accordance with Agency's, "Notice Inviting Bids," the undersigned Bidder hereby proposes to furnish all materials, equipment, tools, labor and incidentals required for the above stated project as set forth in the Specifications and Contract Documents therefore, and to perform all work in the manner and time prescribed therein.

Bidder declares that this proposal is based upon careful Examination of the Work Site, Plans, Specifications, Instructions to Bidders and Contract Documents. If this proposal is accepted for award, Bidder agrees to enter into a contract with Agency at the unit and/or lump sum prices set forth in the following Proposal Bid Sheet. Bidder understands that failure to execute the Contract Documents and furnish the required insurance policies and bonds in the manner and time prescribed shall be considered breach of contract and may result in the rejection of the bid and forfeiture to Agency of the Bid Bond accompanying this proposal.

Bidder understands that a bid is required for the entire work that the estimated quantities set forth in the Proposal Bid Sheet are solely for the purpose of project administration and comparison of bids and that final compensation under the contract will be based upon the actual quantities of work satisfactorily completed. It is agreed that the unit and/or lump sum prices bid include all appurtenant expenses, taxes, royalties and fees. In the case of discrepancies in the amounts bid, unit prices shall govern over extended amounts, and the lump sum total shall govern over the subtotals.

Bidder agrees and acknowledges that he is aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for workman's compensation or to undertake self-insurance in accordance with the provisions of that code and that the Bidder will comply with such provisions of that code before commencing the performance of this Contract if awarded to it.

Bidder certifies that in all previous contracts or subcontracts, all reports which may have been due under the requirements of any agency, State or Federal **Equal Employment Opportunity** orders have been satisfactorily filed and that no such reports are currently outstanding.

Bidder declares in the **Non-Collusion Affidavit** included herein that the only persons or parties interested in this proposal as principals are those named herein; that no officer, agent or employee of the Agency is personally interested, directly or indirectly, in this proposal; that this proposal is made without connection to any other individual, firm or corporation making a bid for the same work; and that this proposal is in all respects fair and without collusion or fraud.

Bidder understands that no bid will be accepted from a Contractor who has not been licensed in accordance with the provisions of Chapter 9, Division III of the Business and Professions Code of the State of California at the time the bid is submitted. Bidder has also received Section 7028.15(e) of the Business and Professions Code.

BIDDER'S NAME _____

BIDDER'S ADDRESS _____

PHONE (_____) _____

Subscribed and sworn to before me

BY: _____

this _____ day of _____, _____.

(Print Name of Owner or President of
Corporation/Company)

(Signature of Notary Public)

(Signature)

(SEAL)

(Title)

(Date)

(Signature of Secretary of
Corporation/Company)

BIDDER'S INFORMATION

Bidder certifies under penalty of perjury under the laws of the State of California that the following information is true and correct:

Name of Individual Contractor, Company or Corporation: _____

Business Address: _____

Telephone: (_____) _____

California State Contractor's License No. and Class: _____

Original Date Issued: _____ Expiration Date: _____

Department of Industrial Relations Registration no. _____

Registration Date: _____ Expiration Date: _____

Email Address _____

The following are the names, titles, addresses and phone numbers of all individuals, firm members, partners, joint ventures and company or corporate officers having a principal interest in this proposal:

<u>Name</u>	<u>Title</u>	<u>Address</u>	<u>Telephone</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Corporation organized under the laws of the State of _____

The dates of any voluntary or involuntary bankruptcy judgments against any principal having an interest in this proposal are as follows:

All current and prior D.B.A.'s, aliases and fictitious business names for any principal having an interest in this proposal are as follows:

For all arbitrations, lawsuits, settlements or the like (in or out of court) you have been involved in with project owners (public agencies, private companies, etc.) in the past five (5) years:

1. Provide the names, addresses, and telephone numbers of the parties.

2. Briefly summarize the parties' claims and defenses.

3. State the tribunal (i.e., Superior Court, American Arbitration Association, etc.) the matter number and the outcome.

4. Have you ever had a contract terminated by the owner/agency? If so, explain.

5. Have you ever failed to complete a project? If so, explain.

6. Have you ever been terminated for cause and then had it converted to a "termination of convenience"? If so, explain.

For any projects you have been involved with in the last five (5) years did you have any claims or actions:

		Circle One
1.	By you against the owner?	Yes/No
2.	By the owner against you?	Yes/No
3.	By any outside agency or individual for labor compliance (i.e. failure to pay prevailing wage, falsifying certified payrolls, etc.)	Yes/No
4.	By subcontractors (Stop Notices, etc.)	Yes/No
5.	Are any claims or actions unresolved or outstanding?	Yes/No

If yes to any of the above, please explain. (Attach additional sheets, if necessary.)

Failure of the bidder to provide all requested information in a complete and accurate manner shall be considered non-responsive and may result in rejection of the bid, forfeiture of the bid security and other penalties.

Subscribed and sworn to before me
this ____ day of _____, ____.

By: _____
(Print Name of Owner or President of
Corporation/Company)

(Signature of Notary Public)

(Signature)

(SEAL)

(Title)

(Date)

(Signature of Secretary of
Corporation/Company)

LIST OF SUBCONTRACTORS AND SUBCONTRATOR'S BID

The bidder shall set forth in the bid subcontractors on the subject project as required in the Public Contract Code, Sections 4100 – 4113. Substituting a subcontractor in place of subcontractor listed in the original bid without Agency approval or subcontracting work to which no subcontractor was designated in the original bid (and was required to be designated) or other subcontracting violations may, at the Agency's sole discretion, result in cancellation of the contract or a financial penalty. The Contractor shall perform with its own organizations contract work amounting to at least 50% of the contract price per Section 2-3.1 General – Subcontracting. Failure to meet this requirement may result in rejection of the bid or cancellation of the contract.

Name, Address, Telephone Number, and Classification of Subcontractor	Licens e No. and Type	Bid Item No. Or Description of Work	% of Work	Dollar Amount

TOTAL PERCENTAGE OF SUBCONTRACTORS _____%

Bidder proposes to subcontract certain portions of the work and to procure materials and equipment from suppliers and vendors as follows:

REFERENCES

Failure of the bidder to provide all required information in a complete and accurate manner shall be considered non-responsive and may result in the rejection of the bid and forfeiture of the bid security. Failure to demonstrate adequate experience may result in rejection of the bid.

For all public agency projects you have worked on (or are currently working on) in the past three (3) years in excess of \$ _____, provide the following required information:

1) Project Name/Number _____

Project Description _____

Approximate Construction Dates From ____/____/____ To ____/____/____

Agency Name _____

Address _____

Contact Person _____ Telephone (____) _____

Original Contract Amount \$ _____ Final Contract Amount \$ _____

If final amount is different from original, please explain (change orders, extra work, etc.)

Did you file any claims against the Agency? Did the Agency file any claims against you/Contractor? If yes, briefly explain and indicate outcome of claims.

2) Project Name/Number _____

Project Description _____

Approximate Construction Dates From ____/____/____ To ____/____/____

Agency Name _____

Address _____

Contact Person _____ Telephone (____) _____

Original Contract Amount \$ _____ Final Contract Amount \$ _____

If final amount is different from original, please explain (change orders, extra work, etc.)

Did you file any claims against the Agency? Did the Agency file any claims against you/Contractor? If yes, briefly explain and indicate outcome of claims.

3) Project Name/Number _____

Project Description _____

Approximate Construction Dates From ____/____/____ To ____/____/____

Agency Name _____

Address _____

Contact Person _____ Telephone (____) _____

Original Contract Amount \$ _____ Final Contract Amount \$ _____

If final amount is different from original, please explain (change orders, extra work, etc.)

Did you file any claims against the Agency? Did the Agency file any claims against you/Contractor? If yes, briefly explain and indicate outcome of claims.

List any other projects (private, older than three (3) years, etc.) that may represent qualifying similar experience:

1) Project Name/Number _____

Project Description _____

Approximate Construction Dates From ____/____/____ To ____/____/____

Agency Name _____

Address _____

Contact Person _____ Telephone (____) _____

Original Contract Amount \$_____ Final Contract Amount \$_____

If final amount is different from original, please explain (change orders, extra work, etc.)

Did you file any claims against the Agency? Did the Agency file any claims against you/Contractor? If yes, briefly explain and indicate outcome of claims.

2) Project Name/Number _____

Project Description _____

Approximate Construction Dates From ____/____/____ To ____/____/____

Agency Name _____

Address _____

Contact Person _____ Telephone (____) _____

Original Contract Amount \$_____ Final Contract Amount \$_____

If final amount is different from original, please explain (change orders, extra work, etc.)

Did you file any claims against the Agency? Did the Agency file any claims against you/Contractor? If yes, briefly explain and indicate outcome of claims.

3) Project Name/Number _____

Project Description _____

Approximate Construction Dates From ____/____/____ To ____/____/____

Agency Name _____

Address _____

Contact Person _____ Telephone (____) _____

Original Contract Amount \$_____ Final Contract Amount \$_____

If final amount is different from original, please explain (change orders, extra work, etc.)

Did you file any claims against the Agency? Did the Agency file any claims against you/Contractor? If yes, briefly explain and indicate outcome of claims.

DESIGNATION OF SURETIES

The following are the names, addresses and phone numbers for all brokers and sureties from whom Bidder intends to procure insurance and bonds (list by insurance/bond type):

BIDDER'S NAME: _____

BASE BID SCHEDULE PUBLIC WORKS DEPARTMENT OF THE CITY OF BELL PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2 CIP 25-3062 7006 WALKER AVE, BELL, CA 90201 FY 2025-2026					
Item No.	Description	Qty	Unit	Unit Cost	Total Cost
1	Mobilization and Demobilization (This amount included Traffic Control and Construction Sign shall not exceed 5% of the total bid amount)	1	LS	\$_____	\$_____
2	Erosion Control - Best Management Practices (BMPS), temporary water pollution control.	1	LS	\$_____	\$_____
3	Remove existing landscape, clear and grub.	1	LS	\$_____	\$_____
4	Backfill trench (next to the transformer) and grade site	1	LS	\$_____	\$_____
5	Remove two (2) existing driveway approaches	345	SF	\$_____	\$_____
6	Remove existing PCC curb and gutter and one-foot-wide strip of adjacent AC Pavement (pavement depth + 1 inch)	200	LF	\$_____	\$_____
7	Remove existing PCC sidewalk	1,080	SF	\$_____	\$_____
8	Construct 24 ft wide driveway approach per SSPWC STD PLAN 110-2, TYPE C.	225	SF	\$_____	\$_____
9	Construct concrete curb & gutter per SPPWC STD PLAN 112-2 & 120-3 Type A2-6- and 1-foot-wide strip of adjacent AC pavement (existing depth +1")	200	LF	\$_____	\$_____
10	Construct concrete sidewalk per SPPWC STD PLAN 112-2 & 113-2.	1,455	SF	\$_____	\$_____
11	Construct 4" thick concrete paving in dog park, natural gray color, with medium broom finish. Joints per project specifications.	1,325	SF	\$_____	\$_____
12	Construct 6" curb and gutter & local depression at existing catch basin in parking lot per SPPWC STD PLAN 120-3 Type A2-6 & 313-4.	180	LF	\$_____	\$_____
13	Remove catch basin frame and cover. Trim existing catch basin box to flow line elevation.	4	EA	\$_____	\$_____
14	Construct dry well 8' depth. Contractor to perform a drainage test to confirm exact area of work to be performed. Keep clear min 6" from edge of walkway and planting.	10	EA	\$_____	\$_____
15	Construct 3" ac permeable pavement over 4" thick aggregate base on compacted native soil. Process soil per "Greenbook".	7,700	SF	\$_____	\$_____
16	Install parking lot pavement striping and markings, furnish and install signs per plans and specifications	1	LS	\$_____	\$_____
17	Furnish & install 6' long concrete wheel stops.	20	EA	\$_____	\$_____
18	Excavate , haul-away and dispose existing native soil, furnish & install 4" thick decomposed granite (2" lifts), color California Gold w/stabilizer over compacted 4" thick CMB material.	5,435	SF	\$_____	\$_____
19	Furnish & install synthetic turf per plans and specifications and manufacturer's recommendations (K9 Grass Classic + by Forever Lawn)	3,110	SF	\$_____	\$_____

BASE BID SCHEDULE PUBLIC WORKS DEPARTMENT OF THE CITY OF BELL PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2 CIP 25-3062 7006 WALKER AVE, BELL, CA 90201 FY 2025-2026					
Item No.	Description	Qty	Unit	Unit Cost	Total Cost
20	Furnish and install 24" x 36" single station information kiosk: Demonstration Garden: Custom Digifuse panel by coast recreation. Contact Eric Lewis at RecWest Outdoor Products, Inc. (818) 590-0312.	3	EA	\$_____	\$_____
21	Furnish & install concrete pavers at picnic areas: 4" x 8" 'Holland Stone' By 'Belgard'. 60mm. Pavers set on a concrete base. herringbone pattern w/ band. Color: Rio. per manufacturer's recommendations.	990	SF	\$_____	\$_____
22	Furnish & install 'Aqualine' permeable pavers: 4-1/2" x 9" by 'Belgard'. 80mm. Sand setting bed. Herringbone pattern w/ band. Color: Rio. per manufacturer's recommendations.	1,120	SF	\$_____	\$_____
23	Furnish & install boulders: Baja Cresta 3'-4'. Distributor: Decorative Stone Solutions.	20	EA	\$_____	\$_____
24	Furnish & install 4' H Elite Double Wire Fence; 6' panel, face mounting by Omega Fence Systems w/ metal dog silhouette. Post embedded to 12" wide concrete mow curb. Color: Black. Supply shop drawings for City approval prior to installation.	245	LF	\$_____	\$_____
25	Furnish & install 4' H Elite Double Wire Gate; Model #: C-GPM30XX48 by Omega Fence Systems. Color: Black. In-ground post. Supply shop drawings for City approval prior to installation.	2	EA	\$_____	\$_____
26	Furnish & Install Boundary Fence; Decorative metal panels 4' H x 4' W decorative panels on top of 12" H x 12" wide concrete curb wall. Panel color: Black. Supply shop drawings for City approval prior to installation.	180	LF	\$_____	\$_____
27	Furnish & Install 12" H x 12" W concrete curb wall per details E, F, & G, sheet CD2.	180	LF	\$_____	\$_____
28	Furnish & Install Boundary Pedestrian Gates; 5' H x 8' W Double Swing Gates W/ 4' X 4' Decorative Panels. Panel Color: Black. Supply Shop Drawings for City approval prior to installation.	1	LS	\$_____	\$_____
29	Furnish & Install Boundary Vehicular Gates with Track; (1) 21'-6" L x 5' H & (1) 8'-9" L x 5' H Double Sliding Gates With 4' x 4' Decorative Panels. Panel Color: Black. Supply Shop Drawings for City approval prior to installation.	1	LS	\$_____	\$_____
30	Furnish & install 'Charlie' steel picnic table by 'Landscape Forms', without umbrella hole, surface mount, powdercoat color: Titanium Metallic.	4	EA	\$_____	\$_____
31	Furnish & install 'Stay' bench by 'Landscape Forms', style: backed bench 2 divider, paver mount, powdercoat color: Titanium Metallic.	2	EA	\$_____	\$_____

BASE BID SCHEDULE PUBLIC WORKS DEPARTMENT OF THE CITY OF BELL PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2 CIP 25-3062 7006 WALKER AVE, BELL, CA 90201 FY 2025-2026					
Item No.	Description	Qty	Unit	Unit Cost	Total Cost
32	Furnish & install 'Petoskey' litter receptacle by 'Landscape Forms', Style: backed bench 2 divider, paver mount, powdercoat color: Titanium Metallic.	3	EA	\$_____	\$_____
33	Furnish & install drinking fountain by 'Most Dependable Fountains, Inc.' Model: 10145 SM W/ pet fountain & bottle filler, Color: Green. (M.D.F., INC. 901-867-0039) Contractor to install drywell adjacent drinking fountain, see detail B, sheet CP2.	1	EA	\$_____	\$_____
34	Furnish & install 9' twist concrete bench by 'QCP' Model: Q1-TW108-B. Color: French Gray, finish: Craftsmen Etch	2	EA	\$_____	\$_____
35	Furnish & install 20'x20' Icon shade structure with (2) electrical outlets in post and shelter lights on beam, see electrical drawings. Construct 7' H columns w/ concrete cap around post. Model: SQ20M2C-P6, by Icon Shelter Systems Inc., roof Color: Patina Green, frame color: Slate.	2	EA	\$_____	\$_____
36	Furnish & install overhead shade structure - Leaf Shelter, By 'Poligon'. Model: Lef-8x14 multi-rib roof. Frame color: Surrey Beige, roof color: Evergreen.	2	EA	\$_____	\$_____
37	Furnish & install pet waste station and footing, by Uline model: H-2898 (sign), H-2897 (dispenser), H-3491 (receptacle), & H-1662 (post).	2	EA	\$_____	\$_____
38	Furnish & install new 48" Box trees including fertilizers and/or amendments and root barrier, as shown on the plans and as described in the detail drawings and specs.	5	EA	\$_____	\$_____
39	Furnish & install new 36" Box trees including fertilizers and/or amendments and root barrier, as shown on the Plans and as described in the detail drawings and specs.	8	EA	\$_____	\$_____
40	Furnish & install new 24" Box trees including fertilizers and/or amendments and root barrier, as shown on the plans and as described in the detail drawings and specs.	14	EA	\$_____	\$_____
41	Furnish & install new 15 gal. container plants including fertilizers and/or amendments, as shown on the plans, and as described in the detail drawings and specs.	27	EA	\$_____	\$_____
42	Furnish & install new 5 gal. container plants including fertilizers and/or amendments, as shown on the Plans, and as described in the detail drawings and specs.	700	EA	\$_____	\$_____
43	Furnish & install new 1 gal. container plants including fertilizers and/or amendments, as shown on the Plans and as described in the detail drawings and specs.	109	EA	\$_____	\$_____
44	Furnish & install shredded bark mulch to a minimum depth of 3" over all planting areas as shown on the drawings and specs.	8,400	SF	\$_____	\$_____

BASE BID SCHEDULE PUBLIC WORKS DEPARTMENT OF THE CITY OF BELL					
PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2 CIP 25-3062 7006 WALKER AVE, BELL, CA 90201 FY 2025-2026					
Item No.	Description	Qty	Unit	Unit Cost	Total Cost
45	Provide 90 day of Landscape & Irrigation maintenance to include weeding, trash, and debris removal, testing and repairing irrigation system, trimming to remove dead wood and correct erratic growth. No hedging, balling, or shearing is required.	1	LS	\$_____	\$_____
46	Furnish and install complete irrigation system per plans and specifications including trenching and backfilling to accommodate installation of mainlines, lateral lines, spray valves and heads, valves, pipe sleeves and all other needed parts.	1	LS	\$_____	\$_____
47	Furnish & install new Junction Boxes at electrical stub outs as shown on the drawings and specs.	2	EA	\$_____	\$_____
48	Furnish & install new shade structure branch wiring for lighting #12 & 1#12 GND IN 1" C.	1	LS	\$_____	\$_____
49	Furnish & install new shade structure branch wiring for GFCI receptacles 2#10 & 1#10 GND IN 1" C.	1	LS	\$_____	\$_____
50	Furnish & install new electrical GFCI outlets at picnic areas shade structure as shown on the drawings and specs.	6	EA	\$_____	\$_____
51	Furnish & install new 4' Linear all mounted LED system direct (A), wet location, motion sensor at picnic areas shade structures as shown on the drawings and specs.	8	EA	\$_____	\$_____
52	Furnish & install footing and new Solar Urban Pole and Light Fixture (B), Bug Rating B1-U0-G2, Type 3 distribution as shown on the drawings and specs.	5	EA	\$_____	\$_____
53	Furnish & install footing and new Solar Urban Pole and Light Fixture (C), Bug Rating B1-U0-G2, Type 4W distribution as shown on the drawings and specs.	4	EA	\$_____	\$_____
54	Furnish & install new 6" Dia. In-ground LED Up Light Fixture (D), distribution as shown on the drawings and specs.	42	EA	\$_____	\$_____
55	Furnish & install new Mount WP GFCI/WP ECB 20A 208/120V on Structure as shown on the drawings and specs.	1	LS	\$_____	\$_____
56	Furnish & install new 120V 20A Astronomical Time Clock GFCI, TR WP as shown on the drawings and specs.	1	LS	\$_____	\$_____
57	Furnish & install new Astronomical WP Time Switch 1 hr max to control Type A as shown on the drawings and specs.	1	LS	\$_____	\$_____
58	Furnish & install new (2)-1"C Conduit Stub Out as shown on the drawings and specs	470	LF	\$_____	\$_____
59	Allowance for conduits/wiring/connections, etc.	1	LS	\$_____	\$_____
BASE BID SCHEDULE TOTAL AMOUNT IN NUMBERS					\$_____
BASE BID SCHEDULE TOTAL AMOUNT IN WORDS:					

PROJECT BID SHEET

The Contractor shall complete this Project Bid Sheet for use only by Agency for comparison of bids and compensation to the Contractor for this project. The estimated quantities and itemized descriptions (see *Technical Provisions* for detailed descriptions) listed in the Project Bid Sheet are supplied to give an indication of the general size of the work. The accuracy of the estimated quantities is not guaranteed. Unit prices are intended to be the basis for additions, deletions or substitutions to the work, if required. Lump sum prices and/or quantities shall be considered all-inclusive and shall not be considered for price and/or quantity adjustment. The work to be performed shall include, but not be limited to, the items described. The bid shall include the furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals necessary to complete the PROJECT per specifications. The Contractor shall provide a separate price (*in figures*) for the following:

TOTAL BASE BID PRICE IN FIGURES

\$ _____

TOTAL BASE BID PRICE IN WORDS

The Bidder shall note that if the contract is awarded, it will be based on the lowest properly submitted bid provided that the Bidder has the proper qualifications and has met all requirements. City of Bell reserves the right to reject any or all bids.

Attached hereto in cash, a certified check, a cashier's check or a bidder's bond in the amount of ten percent (10%) of the amount bid, which is agreed shall be retained as liquidated damages by City of Bell if the undersigned fails or refuses to execute the agreement and furnish the required bonds and certificates of insurance within the time provided.

It is understood that:

1. The undersigned has carefully examined all Contract Documents which will form a part of the Contract including the following: Notice Inviting Bids, Instructions to Bidders, Proposal, Agreement, General Specifications, Special Provisions, Technical Specifications, Plans and Addenda (if any).
2. The undersigned has carefully examined and fully understands all the limitations, requirements and possible consequences in the specific sections related to subcontracting, certified payroll records, claims, disclosures of past experience, payment, liquidated damages and waiver of claims.
3. City of Bell does not warranty the completeness or accuracy of the plans and specifications and that submission of a bid is sufficient evidence that the undersigned has investigated the site of the work, is satisfied as to the nature and location of the work, and is fully informed as to all conditions and matters which can in any way affect the work or the cost thereof.

4. The undersigned fully understands the scope of work and has cleared carefully all words and figures inserted in the Proposal and further understands that City of Bell will be in no way responsible for any errors or omissions in the preparation of the Proposal.
5. The undersigned agrees, acknowledges and is aware of the provisions of Section 3700 of the Labor Code which requires every employee to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions before commencing the performance of the Contract it is awarded to the undersigned.
6. The undersigned will begin work after Notice to Proceed has been given, as herein specified; will meet all requirements in regard to bonds and insurance; and will complete said work within the time specified in the Instructions to Bidders.
7. The undersigned hereby certifies that this Proposal is genuine and not a sham or collusive, or made in the interest or in behalf of a person not herein named and the undersigned has not directly or indirectly induced or solicited any other bidder to put in a sham bid or any other person, firm or corporation to refrain from bidding. The undersigned has not in any manner sought by collusion to secure any advantage over any other Bidder.
8. The undersigned will accept an award and enter into a Contract for all work scheduled herein on which he submitted this bid. The awards for such work are to be entirely at the discretion of City of Bell after evaluation of the bids, as submitted.
9. The undersigned agrees that City of Bell shall, unless otherwise waived by City of Bell, recover or retain as liquidated damages an amount equal to the ten percent (10%) of the total amount of the award made, all in accordance with the foregoing stipulations, in the event the undersigned fails to execute a Contract and furnish the required bonds and insurance therefore within the time provided.
10. Submission of a bid will be deemed a binding offer to enter into the attached Contract on the terms contained therein for 60 days from the bid opening.
11. If awarded the Contract, Contractor agrees to begin and to complete the work per specifications. Contractor further agrees to execute and return the Contract Documents, bonds and insurance certificates within fifteen (15) days after the date of the Notice to Award. This is a valid and binding proposal to do all the work herein described.

I hereby certify that the enclosed bid presents a balanced bid and therefore each line item bears its proportionate share of profit.

Respectfully submitted,

Contractor's Business Name

By

Business Address

Title

Agency State, Zip

Date

Business Telephone Number

ACKNOWLEDGMENT OF ADDENDA

The Bidder shall signify receipt of all Addenda here, if any:

ADDENDUM NO.	DATE RECEIVED	SIGNATURE

**PUBLIC WORKS DEPARTMENT
OF THE CITY OF BELL**

**P PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2
7006 WALKER AVE, BELL, CA 90201
FY 2025-2026**

BID BOND

KNOW ALL MEN BY THESE PRESENTS that _____
_____ as Bidder, and

_____ as
Surety, are held and firmly bound unto the City of Bell, a California charter city, as CITY,
in the penal sum of ten percent (10%) of the total amount bid by Bidder to Agency for the
above stated project, for the payment of which sum, Bidder and Surety agree to be bound,
jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that, whereas Bidder is about to
submit a bid to the City for the above stated project, if said bid is rejected, or if said bid is
accepted and a contract is awarded and entered into by Bidder and Bidder files the
required Faithful Performance and Labor and Material Bonds in the manner and time
specified, then this obligation shall be null and void. Otherwise it shall remain in full force
and effect in favor of the City.

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

WITNESS our hands this _____ day of _____, _____.

Subscribed and sworn to before me

By:

_____ this _____ day of _____, _____.

(Print Name of Owner or President of
Corporation/Company)

(Signature of Notary Public)

(Signature)

(SEAL)

(Title)

(Date)

BID BOND

Subscribed and sworn to before me
this _____ day of _____, _____.

Signature of Notary Public

(SEAL)

(Print Surety's Name)

(Mailing Address)

By: _____
(Print Name)

(Signature)

(Title)

NOTE: SIGNATURES OF CORPORATE AND SURETY OFFICIALS MUST BE NOTARIZED.

(SEAL)

BIDDER'S NAME _____

PUBLIC CONTRACT CODE

Public Contract Code Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has ____ , has not ____been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a checkmark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Public Contract Code Section 10162 Questionnaire

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes ____ No ____

If the answer is yes, explain the circumstances in the following space.

Public Contract Code 10232 Statement

In conformance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

*(THE BIDDER'S EXECUTION ON THE SIGNATURE PORTION
OF THIS PROPOSAL SHALL ALSO CONSTITUTE AN
ENDORSEMENT AND EXECUTION OF THOSE
CERTIFICATIONS WHICH ARE A PART OF THIS PROPOSAL)*

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

The bidder _____,
proposed subcontractor _____, hereby
certifies that he has _____, has not _____, participated in a previous contract or subcontract
subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, or
11246, and that, where required, he has filed with the Joint Reporting Committee, the Director of
the Office of Federal Contract Compliance, a Federal Government contracting or administering
agency, or the former President's Committee on Equal Employment Opportunity, all reports due
under the applicable filing requirements.

Note: The above certification is required by the Equal Employment Opportunity Regulations of
the Secretary of Labor (41 CFR 60-1.7(b) (1)), and must be submitted by bidders and
proposed subcontractors only in connection with contracts and subcontracts which are
subject to the equal opportunity clause. Contracts and subcontracts which are exempt
from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts
or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders
or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous
contract or subcontract subject to the Executive Orders and have not filed the required
reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and
subcontracts unless such contractor submits a report covering the delinquent period or
such other period specified by the Federal Highway Administration or by the Director,
Office of Federal Contract Compliance, U.S. Department of Labor.

Non-collusion Affidavit
(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

To the CITY of BELL
PUBLIC WORKS DEPARTMENT

In conformance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Note: The above Non-collusion Affidavit is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Non-collusion Affidavit. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

**NON-COLLUSION DECLARATION TO BE EXECUTED
BY
BIDDER AND SUBMITTED WITH BID**

The undersigned declares:

I am the _____ of _____, 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.

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].

Title

Federal Forms and Other Requirements:

1.	Federal Labor Standards Provisions (HUD - 4010)	Page 2
2.	Equal Employment Opportunity Clause	Page 12
3.	Clean Air and Water Acts	Page 21
4.	Labor Codes Section 1771 – 1815	Page 22
5.	Certification of Understanding and Authorization *	Page 27
6.	Equal Employment Opportunity Commitment *	Page 28
7.	Report of Additional Classification and Rate **	Page 29
8.	Bidders Questionnaire *	Page 30
9.	Non-Segregated Facilities Certification *	Page 32
10.	Past Performance Certification *	Page 33
11.	Federal Lobbyist Certification *	Page 35
12.	Declaration of Intent with Section 3 *	Page 35
13.	Notice of Section 3 Commitment *	Page 36
14.	Section 3 Business Concern Certification *	Page 37
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* *Must Submit Form with Bid*

** *Must Submit Form with Bid If Needed*

HUD-4010
Federal Labor Standards Provisions

U.S. Department of Housing and Urban Development
Office of Davis-Bacon and Labor Standards

A. APPLICABILITY

The Project or Program to which the construction work covered by this Contract pertains is being assisted by the United States of America, and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

1. Minimum wages and fringe benefits

- i. All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in 29 CFR 5.5(d) and (e), the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(v) of these contract clauses; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under 29 CFR 5.5(a)(1)(iii)) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

ii. Frequently recurring classifications

- A. In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to 29 CFR 5.5(a)(1)(iii), provided that:
 1. The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;
 2. The classification is used in the area by the construction industry; and
 3. The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.
- B. The Administrator will establish wage rates for such classifications in accordance with 29 CFR 5.5(a)(1)(iii)(A)(3). Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

iii. Conformance

- A. The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be

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classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

1. The work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is used in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- B. The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.
- C. If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- D. In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- E. The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under 29 CFR 5.5 (a)(1)(iii)(C) and (D). The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to 29 CFR 5.5 (a)(1)(iii)(C) or (D) must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

iv. Fringe benefits not expressed as an hourly rate

Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

v. Unfunded plans

If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in 29 CFR 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

- vi. Interest** In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding

i. Withholding requirements

The U. S. Department of Housing and Urban Development may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in 29 CFR 5.5(a) for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in 29 CFR 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work (or otherwise working in construction or development of the project under a development statute) all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in 29 CFR 5.5(a)(3)(iv), HUD may on its own initiative and after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

ii. Priority to withheld funds

The Department has priority to funds withheld or to be withheld in accordance with 29 CFR 5.5(a)(2)(i) or (b)(3)(i), or both, over claims to those funds by:

- A. A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- B. A contracting agency for its reprocurement costs;
- C. A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- D. A contractor's assignee(s);
- E. A contractor's successor(s); or
- F. A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.

3. Records and certified payrolls

i. Basic record requirements

- A. **Length of record retention.** All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.
- B. **Information required** Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.
- C. **Additional records relating to fringe benefits.** Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(v) that the wages of any laborer or mechanic include the amount of any

costs reasonably anticipated in providing benefits under a plan or program described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

- D. Additional records relating to apprenticeship** Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

ii. Certified payroll requirements

A. Frequency and method of submission The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to HUD if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the certified payrolls to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to HUD. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system

B. Information required The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i)(B), except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/sites/dolgov/files/WH/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the sponsoring government agency (or the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records).

- C. Statement of Compliance** Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:
1. That the certified payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information and basic records are being maintained under 29 CFR 5.5 (a)(3)(i), and such information and records are correct and complete;
 2. That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly

- from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3; and
- 3. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.
 - D. **Use of Optional Form WH-347** The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by 29 CFR 5.5(a)(3)(ii)(C).
 - E. **Signature** The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.
 - F. **Falsification** The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.
 - G. **Length of certified payroll retention** The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.
- iii. **Contracts, subcontracts, and related documents** The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.
- iv **Required disclosures and access**
- A. **Required record disclosures and access to workers** The contractor or subcontractor must make the records required under 29 CFR 5.5(a)(3)(i)-(iii), and any other documents that HUD or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by 29 CFR 5.1, available for inspection, copying, or transcription by authorized representatives of HUD or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.
 - B. **Sanctions for non-compliance with records and worker access requirements** If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to 29 CFR 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.
 - C. **Required information disclosures** Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to HUD if the agency is a party to

the contract, or to the Wage and Hour Division of the Department of Labor. If the Federal agency is not such a party to the contract, the contractor, subcontractor, or both, must, upon request, provide the full Social Security number and last known address, telephone number, and email address of each covered worker to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to HUD, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity

i. Apprentices

- A. Rate of pay** Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- B. Fringe benefits** Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.
- C. Apprenticeship ratio** The allowable ratio of apprentices to journeymen on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to 29 CFR 5.5(a)(4)(i)(D). Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in 29 CFR 5.5(a)(4)(i)(A), must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.
- D. Reciprocity of ratios and wage rates** Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

- ii Equal employment opportunity** The use of apprentices and journeymen under this part must be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

5 Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6 Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (11), along with the applicable wage determination(s) and such other clauses or contract modifications as the U.S. Department of Housing and Urban Development may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate.

7 Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8 Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9 Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

- i. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or 29 CFR 5.12(a).
- ii. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or 29 CFR 5.12(a).
- iii. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11 Anti-retaliation It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- i. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, or 29 CFR parts 1, 3, or 5;
- ii. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5;
- iii. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5; or
- iv. Informing any other person about their rights under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5.

B. Contract Work Hours and Safety Standards Act (CWHSSA)

The Agency Head must cause or require the contracting officer to insert the following clauses set forth in 29 CFR 5.5(b)(1), (2), (3), (4), and (5) in full, or (for contracts covered by the Federal Acquisition Regulation) by reference, in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses must

be inserted in addition to the clauses required by 29 CFR 5.5(a) or 4.6. As used in this paragraph, the terms "laborers and mechanics" include watchpersons and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in 29 CFR 5.5(b)(1) the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchpersons and guards, employed in violation of the clause set forth in 29 CFR 5.5(b)(1), in the sum of \$31 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in 29 CFR 5.5(b)(1).
3. **Withholding for unpaid wages and liquidated damages**
 - i. **Withholding process** The U.S Department of Housing and Urban Development or the recipient of Federal assistance may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in 29 CFR 5.5(b) on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in 29 CFR 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.
 - ii **Priority to withheld funds** The Department has priority to funds withheld or to be withheld in accordance with 29 CFR 5.5(a)(2)(i) or (b)(3)(i), or both, over claims to those funds by:
 - A. A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
 - B. A contracting agency for its procurement costs;
 - C. A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
 - D. A contractor's assignee(s);
 - E. A contractor's successor(s); or
 - F. A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.
4. **Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in 29 CFR 5.5(b)(1) through (5) and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in 29 CFR 5.5(b)(1) through (5). In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss,

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due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

- 5 Anti-retaliation** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:
- i. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in 29 CFR part 5;
 - ii. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or 29 CFR part 5;
 - iii. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or 29 CFR part 5; or
 - iv. Informing any other person about their rights under CWHSSA or 29 CFR part 5.
- C. CWHSSA required records clause** In addition to the clauses contained in 29 CFR 5.5(b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other laws referenced by 29 CFR 5.1, the Agency Head must cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor must maintain regular payrolls and other basic records during the course of the work and must preserve them for a period of 3 years after all the work on the prime contract is completed for all laborers and mechanics, including guards and watchpersons, working on the contract. Such records must contain the name; last known address, telephone number, and email address; and social security number of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid; daily and weekly number of hours actually worked; deductions made and actual wages paid. Further, the Agency Head must cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph must be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview workers during working hours on the job.
- D. Incorporation of contract clauses and wage determinations by reference** Although agencies are required to insert the contract clauses set forth in this section, along with appropriate wage determinations, in full into covered contracts, and contractors and subcontractors are required to insert them in any lower-tier subcontracts, the incorporation by reference of the required contract clauses and appropriate wage determinations will be given the same force and effect as if they were inserted in full text.
- E. Incorporation by operation of law** The contract clauses set forth in this section (or their equivalent under the Federal Acquisition Regulation), along with the correct wage determinations, will be considered to be a part of every prime contract required by the applicable statutes referenced by 29 CFR 5.1 to include such clauses, and will be effective by operation of law, whether or not they are included or incorporated by reference into such contract, unless the Administrator grants a variance, tolerance, or exemption from the application of this paragraph. Where the clauses and applicable wage determinations are effective by operation of law under this paragraph, the prime contractor must be compensated for any resulting increase in wages in accordance with applicable law.

F. HEALTH AND SAFETY

The provisions of this paragraph (F) are applicable where the amount of the prime contract exceeds **\$100,000**.

1. No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his or her health and safety, as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.
2. The contractor shall comply with all regulations issued by the Secretary of Labor pursuant to 29 CFR Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96), 40 U.S.C. § 3701 et seq.
3. The contractor shall include the provisions of this paragraph in every subcontract, so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

EQUAL EMPLOYMENT OPPORTUNITY CLAUSE.

During the performance of this contract, the contractor agrees as follows:

- a. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- b. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
- c. The contractor will send to each labor union or representative of workers with which he/she has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- d. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- e. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- f. In the event of the contractor's noncompliance with the nondiscrimination clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole, or in part, and the contractor may be declared ineligible for further government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- g. The contractor will include the provisions of Paragraph 1a through 1g in every subcontract or purchase order unless exempted by rule, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

EQUAL EMPLOYMENT SPECIFICATIONS

(Executive Order 11246).

a. As used in these specifications:

- (1) Covered area means the geographical area described in the solicitation from which this contract resulted;
- (2) Director means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- (3) Employer Identification Number (EIN) means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Return, United States Treasury Department Form 941.
- (4) Minority includes:
 - (a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin)
 - (b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race);
 - (c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (d) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

- b. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
- c. If the contractor is participating (pursuant to 41 CFR Part 60-4.5) in a Hometown Plan approved by the United States Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and time tables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO Clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
- d. The contractor shall implement the specific affirmative action standards provided in paragraphs 3g (1) through 3g (16) of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should

reasonable be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

- e. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minority or women shall excuse the contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.
- f. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the United States Department of Labor.
- g. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
 - (1) Ensure and maintain working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - (2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.
 - (3) Maintain a current file of the name, address, and telephone numbers of each minority and female off-the street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the contractor may have taken.
 - (4) Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

- (5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 3g (2) above.
- (6) Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- (7) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on- site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- (8) Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.
- (9) Direct its recruitment efforts, both oral and written, to minority, female, and community organizations; to schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment sources, the contractor shall send written notification to organizations such as the above, describing the opening, screening procedures, and tests to be used in the selection process.
- (10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth, both on the site and in other areas of a contractor's work force.
- (11) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3, Uniform Guidelines on Employee Selection Procedures.
- (12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- (13) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

- (14) Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- (15) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- (16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the contractor's EEO policies and affirmative action obligations.
- h. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations 3g(1) through (16). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 3g(1) through (16) of these specifications provided that the contractor actively participates in the group, makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.
- i. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
- j. The contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.
- k. The contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
- l. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
- m. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative actions steps, at least as extensive as those standards prescribed in Paragraph 3g of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these

specifications, the Director shall proceed in accordance with 41 CFR Part 60-1.8 (Show Cause Notice).

- n. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
- o. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).
- p. The Director, from time to time, shall issue goals and timetables for minority and female utilization which shall be based on appropriate work force, demographic or other relevant data and which shall cover construction projects or construction contracts performed in specific geographic areas. The goals, which shall be applicable to each construction trade in a covered contractor's or subcontractor's entire work force which is working in the area covered by the goals and timetables, shall be published as notices in the Federal Register, and shall be inserted by the contracting officers and applicants, as applicable, in the Notice required by 41 CFR 60-4.2.

SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS.

For a federally assisted construction contract in excess of \$10,000, the contractor/subcontractor shall:

- a. Forward the following EEO certification forms to the contract awarding authority prior to contract award: Certification of Non-segregated Facilities and Certification with Regard to the Performance of Previous Contracts or Subcontracts Subject to the Equal Opportunity Clause and the Filing of Required Reports.
- b. Submit a notification of subcontracts awarded to the Director, Office of Federal Contract Compliance Programs, United States Department of Labor - ESA, 200 Constitutional Avenue, NW, Room C3325, Washington, D.C., 20210, within 10 working days of award of any subcontract in excess of \$10,000, listing the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting date and completion dates of the subcontract; and the geographical area in which the contract is to be performed.
- c. Send a notice of the contractor's commitment to equal employment opportunity to labor unions or representatives of workers prior to commencement of construction work.
- d. Display an equal employment opportunity poster in a conspicuous place available to employees and applicants for employment.

- e. For contracts in excess of \$10,000, bind subcontractors to the Federal Equal Employment Opportunity requirements by including the provisions of Paragraphs 1 through 3, above, in the subcontract.
- f. Upon commencement of construction work and until the work is completed, forward the Monthly Employment Utilization Report (Form CC-257) to the contract awarding authority by the end of each work month. With the initial monthly report, the contractor/subcontractor shall attach the Contractor's List of Federal and Non-Federal Work in Bid Condition Area to the monthly report.

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL
EMPLOYMENT OPPORTUNITY**

(Executive Order 11246)

- a. The Offeror or Bidder's attention is called to the Equal Opportunity Clause and the Standard Federal Equal Employment Specifications set forth herein.
- b. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregated work force in each trade on all construction work in the covered area, are as follows:

Goals for Minority and Female Participation in Timetables, Each Trade: 28.3%, 6.9%

These goals are applicable to all the contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR Part 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order, and the regulations of 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

- c. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

- d. As used in this notice, and in the contract resulting from this solicitation, the covered area is the Standard Metropolitan Statistical Area of Los Angeles-Long Beach, specifically the County of Los Angeles, State of California.

CONTRACTING WITH SMALL BUSINESS, MINORITY FIRMS, WOMEN'S BUSINESS ENTERPRISE AND LABOR SURPLUS AREA FIRMS.

- a. It is national policy to award a fair share of contracts to Small business and Minority Firms. Accordingly, affirmative steps must be taken to assure that Small Business and Minority Firms are utilized when possible, as sources of supplies, equipment, construction and services. Affirmative steps include the following:
 - 1. Including qualified Small Business and Minority Firms on solicitation lists.
 - 2. Assuring that Small Business and Minority Firms are solicited whenever they are potential sources.
 - 3. When economically feasible, dividing total requirements into smaller tasks or quantities so as to permit maximum Small Business and Minority Firm participation.
 - 4. Where the requirement permits, establishing delivery schedules which will encourage participation by Small Business and Minority Firms.
 - 5. Using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce, as required.
 - 6. If any subcontracts are to be let, requiring the prime contractor to take the affirmative steps in a1 through a5 above.
- b. Grantees shall take similar appropriate affirmative action in support of Women's Business Enterprises.
- c. Grantees are encouraged to procure goods and services from Labor Surplus Areas.

CIVIL RIGHTS ACT OF 1964. *Under Title VI of the Civil Rights Act of 1964, no person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.*

SECTION 503 OF THE REHABILITATION ACT OF 1973. *Any contract in excess of \$10,000 entered into by any Federal department or agency for the procurement of personal property and non-personal services (including construction) for the United States shall contain a provision requiring that the party contracting with the United States shall take affirmative action to employ and advance in employment qualified individuals with disabilities. No otherwise qualified individual with handicaps in the United States shall, solely by reason of his or her handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal assistance.*

SECTION 109 OF THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974. *No person in the United States on the grounds of race, color, national origin, or sex be excluded from*

participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.

VIETNAM ERA VETERANS' READJUSTMENT ASSISTANCE ACT OF 1974, as amended.

Covered contracts entered into by any department or agency for the procurement of personal property and non- personal services (including construction) for the United States, shall contain a provision requiring that the party contracting with the United States shall take affirmative action to employ and advance in employment qualified special disabled veterans, veterans of the Vietnam era and any other veterans who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized. The provisions of this section shall apply to any subcontract entered into by a prime contractor in carrying out any contract for the procurement of personal property and non-personal services (including construction) for the United States.

AGE DISCRIMINATION ACT OF 1975. *No person in the Unites States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.*

COMPLIANCE WITH CLEAN AIR AND WATER ACTS

(Applicable to federally assisted construction contracts and related subcontracts exceeding \$150,000)

During the performance of this contract, the contractor and all subcontractors shall comply with the requirements of the Clean Air Act, as amended, 42 USC 1857 et seq., the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended.

In addition to the foregoing requirements, all nonexempt contractors and subcontractors shall *furnish* to the owner, the following:

1. A stipulation by the contractor or subcontractors, that any facility to be utilized in the performance of any non exempt contract or subcontract, is not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR 15.20.
2. Agreement by the contractor to comply with all the requirements of Section 114 of the **Clean Air Act**, as amended, (42 USC 1857c-8) and Section 308 of the Federal Water Pollution Control Act, as amended, (33 USC 1318) relating to inspection, monitoring, entry, reports and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations and guidelines issued there under.
3. A stipulation that as a condition for the award of the contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized, or to be utilized for the contract, is under consideration to be listed on the EPA List of Violating Facilities.
4. Agreement by the contractor that he will include, or cause to be included, the criteria and requirements in paragraph (1) through (4) of this section in every nonexempt subcontract and requiring that the contractor will take such action as the government may direct as a means of enforcing such provisions.

LABOR CODE SECTIONS
(1771, 1774, 1775, 1776, 1777.5, 1813, AND 1815)

§1771. Except for public works projects of one thousand dollars (\$1,000) or less, not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the public work is performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed as provided in this chapter, shall be paid to all workers employed on public works.

This section is applicable only to work performed under contract, and is not applicable to work carried out by a public agency with its own forces. This section is applicable to contracts let for maintenance work.

§1774. The contractor to whom the contract is awarded, and any subcontractor under him, shall pay not less than the specified prevailing rates of wages to all workmen employed in the execution of the contract.

§1775.

(a) (1) The contractor and any subcontractor under the contractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit not more than fifty dollars (\$50) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rates as determined by the director for the work or craft in which the worker is employed for any public work done under the contract by the contractor or, except as provided in subdivision (b), by any subcontractor under the contractor.

(2) (A) The amount of the penalty shall be determined by the Labor Commissioner based on consideration of both of the following:

(i) Whether the failure of the contractor or subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the contractor or subcontractor.

(ii) Whether the contractor or subcontractor has a prior record of failing to meet its prevailing wage obligations.

(B) The penalty may not be less than ten dollars (\$10) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, unless the failure of the contractor or subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the contractor or subcontractor.

(i) The penalty may not be less than twenty dollars (\$20) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the contractor or subcontractor has been assessed penalties within the previous three years for failing to meet its prevailing wage obligations on a separate contract, unless those penalties were subsequently withdrawn or overturned.

(ii) The penalty may not be less than thirty dollars (\$30) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Labor Commissioner determines that the violation was willful, as defined in subdivision (c) of Section 1777.1.

(C) When the amount due under this section is collected from the contractor or subcontractor, any outstanding wage claim under Chapter 1 (commencing with Section 1720) of Part 7 of Division 2 against that contractor or subcontractor shall be satisfied before applying that amount to the penalty imposed on that contractor or subcontractor pursuant to this section.

(D) The determination of the Labor Commissioner as to the amount of the penalty shall be reviewable only for abuse of discretion.

(E) The difference between the prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by the contractor or subcontractor, and the body awarding the contract shall cause to be inserted in the contract a stipulation that this section will be complied with.

(b) If a worker employed by a subcontractor on a public works project is not paid the general prevailing rate of per diem wages by the subcontractor, the prime contractor of the project is not liable for any penalties under subdivision (a) unless the prime contractor had knowledge of that failure of the subcontractor to pay the specified

prevailing rate of wages to those workers or unless the prime contractor fails to comply with all of the following requirements:

- (1) The contract executed between the contractor and the subcontractor for the performance of work on the public works project shall include a copy of the provisions of Sections 1771, 1775, 1776, 1777.5, 1813, and 1815.
- (2) The contractor shall monitor the payment of the specified general prevailing rate of per diem wages by the subcontractor to the employees, by periodic review of the certified payroll records of the subcontractor.
- (3) Upon becoming aware of the failure of the subcontractor to pay his or her workers the specified prevailing rate of wages, the contractor shall diligently take corrective action to halt or rectify the failure, including, but not limited to, retaining sufficient funds due the subcontractor for work performed on the public works project.
- (4) Prior to making final payment to the subcontractor for work performed on the public works project, the contractor shall obtain an affidavit signed under penalty of perjury from the subcontractor that the subcontractor has paid the specified general prevailing rate of per diem wages to his or her employees on the public works project and any amounts due pursuant to Section 1813.

(C) The Division of Labor Standards Enforcement shall notify the contractor on a public works project within 15 days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a subcontractor on that public works project to pay workers the general prevailing rate of per diem wages.

§1776.

(a) Each contractor and subcontractor shall 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 by him or her in connection with the public work. Each payroll record shall 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.
 - (2) The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.
- (b) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:
- (1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.
 - (2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.
 - (3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public may not be given access to the records at the principal office of the contractor.
- (c) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division. The payroll records may consist of printouts of payroll data that are maintained as computer records, if the printouts contain the same information as the forms provided by the division and the printouts are verified in the manner specified in subdivision (a).
- (d) A contractor or subcontractor shall file a certified copy of the records enumerated in subdivision(a) with the entity that requested the records within 10 days after receipt of a written request.
- (e) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor

Standards Enforcement shall be marked or obliterated to prevent disclosure of an individual's name, address, and social security number. The name and address of the contractor awarded the contract or the subcontractor performing the contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management

Cooperation Act of 1978 (29 U.S.C. Sec. 175a) shall be marked or obliterated only to prevent disclosure of an individual's name and social security number. A joint labor management committee may maintain an action in a court of competent jurisdiction against an employer who fails to comply with Section 1774. The court may award restitution to an employee for unpaid wages and may award the joint labor management committee reasonable attorney's fees and costs incurred in maintaining the action. An action under this subdivision may not be based on the employer's misclassification of the craft of a worker on its certified payroll records. Nothing in this subdivision limits any other available remedies for a violation of this chapter.

- (f) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city, and county, and shall, within five working days, provide a notice of a change of location and address.
- (g) The contractor or subcontractor has 10 days in which to comply subsequent to receipt of a written notice requesting the records enumerated in subdivision (a). In the event that the contractor or subcontractor fails to comply within the 10- day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars (\$25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.
- (h) The body awarding the contract shall cause to be inserted in the contract stipulations to effectuate this section.
- (i) The director shall adopt rules consistent with the California Public Records Act (Chapter 3.5 (commencing with Section 6250) of Division 7 of Title 1 of the Government Code) and the Information Practices Act of 1977 (Title 1.8 (commencing with Section 1798) of Part 4 of Division 3 of the Civil Code) governing the release of these records, including the establishment of reasonable fees to be charged for reproducing copies of records required by this section.

§1777.5.

- (a) Nothing in this chapter shall prevent the employment of properly registered apprentices upon public works.
- (b) Every apprentice employed upon public works shall be paid the prevailing rate of per diem wages for apprentices in the trade to which he or she is registered and shall be employed only at the work of the craft or trade to which he or she is registered.
- (c) Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprentice agreements under Chapter 4 (commencing with Section 3070) of Division 3 are eligible to be employed at the apprentice wage rate on public works. The employment and training of each apprentice shall be in accordance with either of the following:
 - (1) The apprenticeship standards and apprentice agreements under which he or she is training.
 - (2) The rules and regulations of the California Apprenticeship Council.
- (d) When the contractor to whom the contract is awarded by the state or any political subdivision, in performing any of the work under the contract, employs workers in any apprenticeable craft or trade, the contractor shall employ apprentices in at least the ratio set forth in this section and may apply to any apprenticeship program in the craft or trade that can provide apprentices to the site of the public work for a certificate approving the contractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, the decision of the apprenticeship program to approve or deny a certificate shall be subject to review by the Administrator of Apprenticeship. The apprenticeship program or programs, upon approving the contractor, shall arrange for the dispatch of apprentices to the contractor. A contractor covered by an apprenticeship program's standards shall not be required to submit any additional application in order

to include additional public works contracts under that program. "Apprenticeable craft or trade," as used in this section, means a craft or trade determined as an apprenticeable occupation in accordance with rules and regulations prescribed by the California Apprenticeship Council. As used in this section, "contractor" includes any subcontractor under a contractor who performs any public works not excluded by subdivision (o).

- (e) Prior to commencing work on a contract for public works, every contractor shall submit contract award information to an applicable apprenticeship program that can supply apprentices to the site of the public work. The information submitted shall include an estimate of journeyman hours to be performed under the contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to the awarding body if requested by the awarding body. Within 60 days after concluding work on the contract, each contractor and subcontractor shall submit to the awarding body, if requested, and to the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the contract. The information under this subdivision shall be public. The apprenticeship programs shall retain this information for 12 months.
- (f) The apprenticeship program that can supply apprentices to the area of the site of the public work shall ensure equal employment and affirmative action in apprenticeship for women and minorities.
- (g) The ratio of work performed by apprentices to journeymen employed in a particular craft or trade on the public work may be no higher than the ratio stipulated in the apprenticeship standards under which the apprenticeship program operates where the contractor agrees to be bound by those standards, but, except as otherwise provided in this section, in no case shall the ratio be less than one hour of apprentice work for every five hours of journeyman work.
- (h) This ratio of apprentice work to journeyman work shall apply during any day or portion of a day when any journeyman is employed at the jobsite and shall be computed on the basis of the hours worked during the day by journeymen so employed. Any work performed by a journeyman in excess of eight hours per day or 40 hours per week shall not be used to calculate the ratio. The contractor shall employ apprentices for the number of hours computed as above before the end of the contract or, in the case of a subcontractor, before the end of the subcontract. However, the contractor shall endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are employed at the jobsite. Where an hourly apprenticeship ratio is not feasible for a particular craft or trade, the Chief of the Division of Apprenticeship Standards, upon application of an apprenticeship program, may order a minimum ratio of not less than one apprentice for each five journeymen in a craft or trade classification.
- (i) A contractor covered by this section that has agreed to be covered by an apprenticeship program's standards upon the issuance of the approval certificate, or that has been previously approved for an apprenticeship program in the craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the applicable apprenticeship standards, but in no event less than the 1-to-5 ratio required by subdivision (g).
- (j) Upon proper showing by a contractor that he or she employs apprentices in a particular craft or trade in the state on all of his or her contracts on an annual average of not less than one hour of apprentice work for every five hours of labor performed by journeymen, the Chief of the Division of Apprenticeship Standards may grant a certificate exempting the contractor from the 1-to-5 hourly ratio, as set forth in this section for that craft or trade.
- (k) An apprenticeship program has the discretion to grant to a participating contractor or contractor association a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting the contractor from the 1-to-5 ratio set forth in this section when it finds that any one of the following conditions is met:
 - (1) Unemployment for the previous three-month period in the area exceeds an average of 15 percent.
 - (2) The number of apprentices in training in the area exceeds a ratio of 1 to 5.
 - (3) There is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either on a statewide basis or on a local basis.
 - (4) Assignment of an apprentice to any work performed under a public works contract would create a condition that would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large, or the specific task to which the apprentice is to be assigned is of a nature that training cannot be provided by a journeyman.
- (l) When an exemption is granted pursuant to subdivision (k) to an organization that represents contractors in a specific trade from the 1-to-5 ratio on a local or statewide basis, the member contractors shall not be

- required to submit individual applications for approval to local joint apprenticeship committees, if they are already covered by the local apprenticeship standards.
- (m)(1) A contractor to whom a contract is awarded, who, in performing any of the work under the contract, employs journeymen or apprentices in any apprenticeable craft or trade shall contribute to the California Apprenticeship Council the same amount that the director determines is the prevailing amount of apprenticeship training contributions in the area of the public works site. A contractor may take as a credit for payments to the council any amounts paid by the contractor to an approved apprenticeship program that can supply apprentices to the site of the public works project. The contractor may add the amount of the contributions in computing his or her bid for the contract.
- (2) At the conclusion of the 2002-03 fiscal year and each fiscal year thereafter, the California Apprenticeship Council shall distribute training contributions received by the council under this subdivision, less the expenses of the Division of Apprenticeship Standards for administering this subdivision, by making grants to approved apprenticeship programs for the purpose of training apprentices. The funds shall be distributed as follows:
- (A) If there is an approved multiemployer apprenticeship program serving the same craft or trade and geographic area for which the training contributions were made to the council, a grant to that program shall be made.
- (B) If there are two or more approved multiemployer apprenticeship programs serving the same craft or trade and geographic area for which the training contributions were made to the council, the grant shall be divided among those programs based on the number of apprentices registered in each program.
- (C) All training contributions not distributed under subparagraphs (A) and (B) shall be used to defray the future expenses of the Division of Apprenticeship Standards.
- (3) All training contributions received pursuant to this subdivision shall be deposited in the Apprenticeship Training Contribution Fund, which is hereby created in the State Treasury. Notwithstanding Section 13340 of the Government Code, all money in the Apprenticeship Training Contribution Fund is hereby continuously appropriated for the purpose of carrying out this subdivision and to pay the expenses of the Division of Apprenticeship Standards.
- (n) The body awarding the contract shall cause to be inserted in the contract stipulations to effectuate this section. The stipulations shall fix the responsibility of compliance with this section for all apprenticeable occupations with the prime contractor.
- (o) This section does not apply to contracts of general contractors or to contracts of specialty contractors not bidding for work through a general or prime contractor when the contracts of general contractors or those specialty contractors involve less than thirty thousand dollars (\$30,000).
- (p) All decisions of an apprenticeship program under this section are subject to Section 3081.

§1813. The contractor or subcontractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars (\$25) for each worker employed in the execution of the contract by the respective contractor or subcontractor for each calendar day during which the worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of this article. In awarding any contract for public work, the awarding body shall cause to be inserted in the contract a stipulation to this effect. The awarding body shall take cognizance of all violations of this article committed in the course of the execution of the contract and shall report them to the Division of Labor Standards Enforcement.

§ 1815. Notwithstanding the provisions of Sections 1810 to 1814, inclusive, of this code, and notwithstanding any stipulation inserted in any contract pursuant to the requirements of said sections, work performed by employees of contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1 1/2 times the basic rate of pay.

CERTIFICATION OF UNDERSTANDING AND AUTHORIZATION

Project Name_____

Contracting Agency_____ Project Number:_____

This is to certify that the principal and the authorized payroll officer(s), listed below, have received and read and a copy of the ***Federal Labor Standards Provisions (HUD-4010)*** and a copy of the ***Contractor's Guide to prevailing Wage Requirements for Federally-Assisted Construction Projects***, and that they understand the labor standards clauses pertaining to the above listed projects.

The following person(s) is/are designated as payroll officer for the undersigned and is/are authorized to sign the ***Statement of Compliance*** forms which will accompany each weekly payroll report for contractor listed below during the duration of this project.

☐ Contractor ☐ Subcontractor Business Name

License Number

Payroll Officer Name (Print)

Payroll Officer (Signature)

Payroll Officer Name (Print)

Payroll Officer (Signature)

Name of Person Authorized to Sign (Print)

(Authorized Signature)

Title

Date

EQUAL EMPLOYMENT OPPORTUNITY COMMITMENT

(03/31/17)

TO:

(Name of Labor Union, Workers Representative, etc)

(Address)

Contractor Name: _____

Project Name: _____

Project Number: _____

The Undersigned contractor holds a contract with _____, involving funds provided by the U. S. Government, or a subcontract with a prime contractor holding such contract. Under the provisions included in the contract or subcontract for the above referenced project, and in accordance with Executive Order 11246, the undersigned contractor is obligated not to discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. This obligation not to discriminate in employment includes, but is not limited to the follow:

1. Hiring, placement, upgrading, transfer or demotion;
2. Recruitment, advertising or solicitation for employment;
3. Treatment during employment;
4. Rates of pay or other forms of compensation;
5. Selection for training, including apprenticeship; and
6. Layoff or termination.

The undersigned contractor shall abide by the requirements of 41 CFR 60–300.5(a) and 60–741.5(a). These regulations prohibit discrimination against qualified individuals on the basis of protected veteran status or disability; and require affirmative action by prime contractors and subcontractors to employ, and advance in employment, qualified protected veterans and individuals with disabilities.

Copies of this notice will made available to worker representatives and be posted by the undersigned in conspicuous places available to employees or applicants for employment.

(Print Name)

By: _____
(Signature)

(Date)

(Title)

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT REPORT OF ADDITIONAL CLASSIFICATION AND RATE			HUD FORM 4230A Number 2501-0011 (Exp. 8/31/2022)				
1. FROM (name and address of requesting agency)		2. PROJECT NAME AND NUMBER					
4. BRIEF DESCRIPTION OF PROJECT		3. LOCATION OF PROJECT (City, County and State)					
5. CHARACTER OF CONSTRUCTION ☐ Building ☐ Residential ☐ Heavy ☐ Other (specify) ☐ Highway		6. WAGE DECISION NO. (include modification number, if any) DATE of WAGE DECISION:					
7. WAGE DECISION EFFECTIVE DATE (LOCK-IN):		☐ COPY ATTACHED					
8. WORK CLASSIFICATION(S)		HOURLY WAGE RATES <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">BASIC WAGE</th> <th style="width: 50%; text-align: center;">FRINGE BENEFIT(S) (if any)</th> </tr> </thead> <tbody> <tr><td style="height: 100px;"></td><td></td></tr> </tbody> </table>		BASIC WAGE	FRINGE BENEFIT(S) (if any)		
BASIC WAGE	FRINGE BENEFIT(S) (if any)						
9. PRIME CONTRACTOR (name, address)		9a. ☐ Agree ☐ Disagree					
9b. SIGNATURE DATE		10. SUBCONTRACTOR/EMPLOYER, IF APPLICABLE (name, address)					
Check All That Apply: ☐ The work to be performed by the additional classification(s) is not performed by a classification in the applicable wage decision. ☐ The proposed classification is utilized in the area by the construction industry. ☐ The proposed wage rate(s), including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage decision. ☐ The interested parties, including the employees or their authorized representatives, agree on the classification(s) and wage rate(s). ☐ Supporting documentation attached, including applicable wage decision.							
Check One: ☐ Approved, meets all criteria. DOL confirmation requested. ☐ One or more classifications fail to meet all criteria. DOL decision requested.							
_____ Agency Representative (Typed name and signature)		_____ Date _____ Phone Number					
		FOR HUD USE ONLY LR2000: Log in: Log out:					

HUD-4230A (8-19) PREVIOUS EDITION IS OBSOLETE

BIDDERS QUESTIONNAIRE FORM

Fill out all the following information and submit with Bid Proposal:

Bidder/Contractor's Name:			
Business Address:			
Telephone Number:			Email:
California State Contractor's License Number and Class:		#: 	
		Class: 	
Tax Identification Number:			
DIR Contractor Registration Number:			
UEI Number:			
Business License: Do you currently have an active City Business License?		☐ YES #: 	
		☐ NO	
Number of years of experience the company has as a contractor:			
DIR Contractor Worker(s) Classification (s) (e.g. laborer, electrician, cement mason etc.)			
Has the company or any principal having an interest in this Bid ever failed to complete a project?		☐ YES ☐ NO If yes, explain: 	
Has the company or any principal having an interest in this Bid ever been terminated for cause, even if was converted to a "termination of convenience"		☐ YES ☐ NO If yes, explain: 	
Type of Firm:		☐ Individual ☐ Partnership ☐ Limited Liability Company ☐ Corporation (State) ☐ Other (specify)	

☐ Minority Business Enterprise(MBE) ☐ Women Business Enterprise (WBE) ☐ Small Disadvantaged Business (SDB) ☐ Veteran Owned Business ☐ Disabled Veteran Owned Business ☐ None Apply	
List at least three related projects completed in the last five (5) years:	
1. Name of Project:	
Contact:	Phone:
Location of Project (City/State):	
Contact Amount:	Date Completed:
Brief Description of Work:	
2. Name of Project:	
Contact:	Phone:
Location of Project (City/State):	
Contact Amount:	Date Completed:
Brief Description of Work:	
3. Name of Project:	
Contact:	Phone:
Location of Project (City/State):	
Contact Amount:	Date Completed:
Brief Description of Work:	
Surety Company that will provide all Insurance Requirements:	
Name of Surety:	
Address:	
Surety Company:	

NON-SEGREGATED FACILITIES CERTIFICATION

FEDERALLY-ASSISTED CONSTRUCTION PROJECTS

The federally-assisted construction contractor certifies that he/she DOES NOT and WILL NOT:

1. Maintain or provide, for his/her employees, any segregated facilities at any of his/her establishments.
2. Permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained.

The federally-assisted contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract. As used in this certification, the term segregated facilities means any waiting room, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise.

The federally-assisted contractor agrees that (except where he/she has obtained identical certifications from proposed subcontractors for specific time periods) he/she will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause, and that he/she will retain such certifications in his/her files.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Date: _____ Project Number: _____

Company: _____

Address: _____

By: _____

Title: _____

CERTIFICATION
WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR
SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND
THE FILING OF REQUIRED REPORTS

The ☐ bidder, ☐ proposed sub-contractor, hereby certifies that he/she ☐ has, ☐ has not, participated in a previous contract or subcontract subject to the Equal Opportunity Clause, as required by Executive Orders 10925, 11114, or 11246, and that he/she ☐ has, ☐ has not, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Date: _____ Project Number: _____ Contract Award: \$ _____

Awarding Agency: _____

Contractor Name: _____ Total Number of Employees _____

Affiliate Company: _____

By: _____

Title: _____

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5 (Generally only contracts or subcontracts of \$10,000 or under are exempt).

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the U.S. Department of the Interior or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

SF-100 (EEO-1) must be filed by:

(A) All private employers who are:

- (1) Subject to Title VII of the Civil Rights Act of 1964 (as amended) with 100 or more employees.
- (2) Subject to Title VII who has fewer than 100 employees, if the company is owned or affiliated with another company, or there is centralized ownership, control or management so that the group legally constitutes a single enterprise, and the entire enterprise employs a total of 100 or more employees.

(B) All federal contractors (private employers), who:

- (1) Are not exempt as provided for by 41 CFR 60-1.5
- (2) Have 50 or more employees, and
 - a. Are prime contractors or first-tier subcontractors, and have a contract, subcontract, or purchase order amounting to \$50,000 or more; or
 - b. Serve as a depository of Government funds in any amount, or
 - c. Is a financial institution, which is an issuing, and paying agent for U.S. Savings Bonds and Notes.

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

* CONTRACTOR/SUBCONTRACTOR	
* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE	
Prefix:	* First Name: Middle Name:
* Last Name:	Suffix:
* Title:	
* SIGNATURE:	* DATE:

DECLARATION OF INTENT TO COMPLY WITH SECTION 3 REQUIREMENTS

As a minimum requirement for consideration of a contract award, the Bidder/Proposer shall declare his/her intent to comply with Section 3 (24 CFR 75) of the Housing and Urban Development Act of 1968, as amended (Section 3). The Bidder/Proposer is obliged, to the greatest extent feasible, to give opportunities for training and employment to low-income and very low-income persons residing in the service area or neighborhood in which the covered Section 3 project/service is located, and/or to award subcontracts to other Section 3 business concerns that provide economic opportunities for Section 3 workers and Targeted Section 3 workers.

Bidder/Proposer agrees that, as a condition of responsiveness to the solicitation and prior to recommendation for contract award by the Local Contracting Agency (LCA), he/she will agree to comply with the Section 3 requirements by including the Section 3 contract language in the contract, to the greatest extent feasible, to meet the Section 3 benchmarks and report all accomplishments with required documentation on a quarterly basis for the duration of the contract.

The Section 3 benchmarks apply to all Section 3 covered contracts as follows:

- Public housing financial assistance benchmarks:
 - Section 3 workers: 25% or more for the total number of labor hours worked by all workers employed, and
 - Targeted Section 3 workers: 5% or more of the total number of labor hours worked by all workers employed of which is included as part of the 25% threshold in the previous bullet.
- Community development financial assistance benchmarks:
 - Section 3 workers: 25% or more for the total number of labor hours worked by all workers employed on a Section 3 project, and
 - Targeted Section 3 workers: 5% or more of the total number of labor hours worked by all workers employed on a Section 3 project of which is included as part of the 25% threshold in the previous bullet.

Failure of the Bidder/Proposer to agree to comply with the Section 3 requirements and reporting obligations shall be grounds for determining the Bidder/Proposer non-responsive, and no further consideration for contract award shall be granted.

I declare under penalty of perjury under the laws of the State of California that we agree to comply with the Section 3 requirements as stated above.

Name of Contractor/Subcontractor

Address

Print Name

Title

Signature

Date

NOTICE OF SECTION 3 COMMITMENT

TO:

(Name of Labor Union, Workers Representative, etc.)

(Address)

Name of Business (Contractor): _____

Project Name: _____ Project Number: _____

The Undersigned currently holds a contract with _____
involving Block Grant (CDBG) funds from the U. S. Department of Housing and Urban Development
or a subcontract with a prime contractor holding such contract.

You are advised that under the provisions of the above contract or subcontract and in accordance
with Section 3 of the Housing and Urban Development Act of 1968, the undersigned is obligated to
the greatest extent feasible, to give opportunities for employment and training to lower income
residence of the CDBG-assisted project area and to award contracts for work on the project to
business concerns which are located in or are owned in substantial part by project area residence.

Regarding employment opportunities for Section 3, the minimum number and job titles are:

Number	Job Classification

Regarding job referrals, request that consideration be given, to the greatest extent feasible, to
assignment of persons residing in the service area or neighborhood in which the project is located.

The anticipated date the work will begin is _____. For additional information, you may
contact _____ at (_____) _____.
Contact Person's Name Title

This notice is furnished to you pursuant to the provisions of the above contract or subcontract and
Section 3 of the Housing and Urban Development Act of 1968. Copies of this notice will be posted
by the undersigned in conspicuous places available to employees or applicants for employment.

(Print Name)

By: _____
(Signature)

(Date)

(Title)

SECTION 3 BUSINESS CONCERN CERTIFICATION

Business Name: _____

Address: _____

City/State/Zip Code: _____

Telephone Number: _____ **Email Address:** _____

This business is a Section 3 business concern based on one of the following categories, as documented:

- ☐ **A. Business is 51% or more owned by low- or very low-income persons,**
(Attach a Section 3 Worker Certification(s) for each owner to this certification.)
- ☐ **B. Over 75 percent (75%) of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers,**
Provide the following information for the prior three-month period:
- Indicate total number of labor hours performed by Section 3 workers: _____ Hours
 - Indicate total number of labor hours performed by all workers: _____ Hours
 - Calculate the percentage of labor hours by Section 3 workers: _____ %
- (Attach the Section 3 Worker Certifications and Section 3 Labor Hours Reports.)*
- ☐ **C. Business is 51% or more owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing.** *(Attach proof of public housing or Section 8-assisted housing residence.)*
- ☐ **D. The above-mentioned business firm is not a Section 3 business concern, but commits to the Section 3 goal:**
Written Commitment (Section 3 Economic Opportunity Plan), outline intentions to comply with the requirements of 24 CFR 75: (

(NOTE: FAILURE OF THE BUSINESS TO PROVIDE THE REQUIRED DOCUMENTATION AS NOTED ABOVE SHALL BE GROUNDS FOR THE LCA TO DETERMINE THE BUSINESS A NON-SECTION 3 BUSINESS CONCERN.)

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

Signature

Title

Date

TO BE COMPLETED BY LOCAL CONTRACTING AGENCY STAFF

This business meets the following category:

- ☐ 51% owned by low- or very low-income persons,
☐ 75% of labor hours performed by Section 3 workers, or
☐ 51% currently owned and controlled by public housing or Section 8-assisted housing residents.
☐ None of the above.

Approved by: (Print Name) _____ Signature: _____ Date: _____

SECTION 3/TARGETED SECTION 3 INCOME CERTIFICATION

Printed on:

Effective Date:

INSTRUCTIONS: All workers shall self-certify and submit this form to the prime contractor or subcontractor, to determine if the individual is a Section 3 worker or Targeted Section 3 worker as defined in 24 CFR Part 75. To determine "Annual (Gross) Income" fill in the blank fields below, then sign this statement to certify that the information is complete and accurate.

BASIC INFORMATION:

First Name:

Last Name:

Address:

ENTER/SELECT THE APPROPRIATE INFORMATION TO CONFIRM YOUR WORKER STATUS.

1. Are you a resident of public housing or a housing choice Voucher Holder (Section 8)?	☐ YES	☐ NO
2. Are you a Youth Build participant?	☐ YES	☐ NO
3. Do you live within one mile of the Project?	☐ YES	☐ NO

DEFINITION OF INCOME:

HUD 24 CFR Part 5

Low-income person means individuals whose incomes do not exceed 80 percent of the median income for the area.

Very low-income person means individuals whose incomes do not exceed 50 percent of the median family income for the area.

To verify Income Limits by Area: <https://www.huduser.gov/portal/datasets/il.html#2021>

*Please note that HUD updates income limits annually

Select the amount of individual income for the previous or annualized calendar year.

☐ Less than \$20,000	☐ \$35,001 – \$40,000	☐ \$55,001 – \$60,000
☐ \$20,001 – \$25,000	☐ \$40,001 – \$45,000	☐ \$60,001 – \$65,000
☐ \$25,001 – \$30,000	☐ \$45,001 – \$50,000	☐ \$65,001 – \$70,000
☐ \$30,001 – \$35,000	☐ \$50,001 – \$55,000	☐ More than \$70,000

INCOME INFORMATION:

Annual gross income (Individual/ One Person) for the previous or annualized calendar year: \$ _____

IDENTIFY COUNTY:

☐ Los Angeles County ☐ Orange County ☐ Riverside County ☐ San Bernardino County

I certify that this information is complete and accurate. I agree to provide, upon request, documentation on all income sources to the HUD Grantee/Program Administrator.

Printed Full Name

Signature

Date:

WARNING: The information provided on this form is subject to verification by HUD at any time, and Title 18, Section 1001 of the U.S. Code states that a person is guilty of a felony and assistance can be terminated for knowingly and willingly making a false or fraudulent statement to a department of the United States Government.

CERTIFICATION

THIS SECTION MUST BE COMPLETED BY THE AUTHORIZED BUSINESS OWNER/AGENT
(If the employer is certifying on behalf of employee)

The above-named person is: An applicant ☐ A permanent full-time ☐ A new hire/employee ☐			
What was the individual's Annual Gross Income for the previous or annualized calendar year? \$ _____			
This person's work Classification is: _____		Date of hire: _____	
_____	_____	_____	_____
<i>Business Name</i>	<i>Printed Name of Owner /Agent</i>	<i>Signature of Owner/Agent</i>	<i>Date</i>
*EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.			

THIS SECTION MUST BE COMPLETED BY LABOR COMPLIANCE AGENCY

The above individual is (Check the applicable statement below):	
☐ A Section 3 worker who currently fits or when hired within the past five years fit at least one of the following categories, as documented:	
1) The worker's income for the previous or annualized calendar year is below the income limit established by HUD.	
2) The worker is employed by a Section 3 business concern.	
3) The worker is a YouthBuild participant.	
☐ A Targeted Section 3 worker who currently fits at least one of the following categories, as documented:	
1) A worker employed by a Section 3 business concern; or	
2) A worker who currently fits or when hired fit at least one of the following categories, as documented within the past five years:	
a. Living within the service area or the neighborhood of the project.	
b. A YouthBuild participant.	
☐ Not a Section 3 worker or Targeted Section 3 worker.	
Initial: _____	

WARNING: The information provided on this form is subject to verification by HUD at any time, and Title 18, Section 1001 of the U.S. Code states that a person is guilty of a felony and assistance can be terminated for knowingly and willingly making a false or fraudulent statement to a department of the United States Government.

QUALITATIVE EFFORTS FOR CONTRACTORS

- ☐ Engaged in outreach efforts to generate job applicants who are Targeted Section 3 workers.

Date of Outreach Effort	Address of Outreach Effort

- ☐ Provided training or apprenticeship opportunities.

Date of Training	Address of Training

- ☐ Provided technical assistance to help Section 3 workers compete for jobs (e.g., resume assistance, coaching).

Date of Technical Assistance	Address of Technical Assistance

- ☐ Provided or connected Section 3 workers with assistance in seeking employment including: drafting resumes, preparing for interviews, and finding job opportunities connecting residents to job placement services.

Date of Workers Assistance	Address of Workers Assistance

- ☐ Held one or more job fairs.

Date of Job Fair	Address of Job Fair

- ☐ Provided or referred Section 3 workers to services supporting work readiness and retention (e.g., work readiness activities, interview clothing, test fees, transportation, childcare).

Date of Referral	Type of Service Provided or Referred

- ☐ Provided assistance to apply for/or attend community college, a four-year educational institution, or vocational/technical training.

Date of Assistance	Type of Educational Assistance Provided

- ☐ Assisted Section 3 workers to obtain financial literacy training and/or coaching.

Date of Assistance	Type of Training/Coaching Provided

- ☐ Engaged in outreach efforts to identify and secure bids from Section 3 business concerns.

Date of Outreach	Description of Outreach

- ☐ Provided technical assistance to help Section 3 business concerns understand and bid on contracts.

Date of Technical Assistance	Name of Business Concern

- ☐ Divided contracts into smaller jobs to facilitate participation by Section 3 business concerns.

Name of Business Concern

- ☐ Provided bonding assistance, guaranties, or other efforts to support viable bids from Section 3 business concerns.

Name of Business Concern	Description of Assistance

- ☐ Promoted use of business registries designed to create opportunities for disadvantaged and small businesses.

Date of Activity	Name of Business Registry

- ☐ Outreach, engagement, or referrals with the state one-stop system as defined in Section 121(e)(2) of the Workforce Innovation and Opportunity Act 17.

Date of Activity	Description of Activity

- ☐ Other: _____

Date of Activity	Description of Activity

(Print Name)

(Date)

(Signature)

(Title)

Contractor/Subcontractor Name

"General Decision Number: CA20250022 10/03/2025

Superseded General Decision Number: CA20240022

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

County: Los Angeles County in California.

BUILDING CONSTRUCTION PROJECTS; DREDGING PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:		Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.	
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:		Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.	

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker

protections under the Executive Orders is available at
<http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/03/2025
1	01/24/2025
2	02/07/2025
3	02/21/2025
4	02/28/2025
5	03/28/2025
6	06/06/2025
7	08/01/2025
8	08/08/2025
9	08/15/2025
10	08/22/2025
11	09/05/2025
12	09/19/2025
13	09/26/2025
14	10/03/2025

ASBE0005-002 09/01/2024

	Rates	Fringes
Asbestos Workers/Insulator (Includes the application of all insulating materials, protective coverings, coatings, and finishes to all types of mechanical systems).....	\$ 56.32	26.52
Fire Stop Technician (Application of Firestopping Materials for wall openings and penetrations in walls, floors, ceilings and curtain walls).....	\$ 39.94	20.65

ASBE0005-004 07/04/2022

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)....	\$ 23.52	13.37

BOIL0092-003 01/01/2024

	Rates	Fringes
BOILERMAKER.....	\$ 51.98	42.11

* BRCA0004-007 05/01/2024

	Rates	Fringes
BRICKLAYER; MARBLE SETTER.....	\$ 45.53	20.29

*The wage scale for prevailing wage projects performed in Blythe, China lake, Death Valley, Fort Irwin, Twenty-Nine Palms, Needles and 1-15 corridor (Barstow to the Nevada State Line) will be Three Dollars (\$3.00) above the standard San Bernardino/Riverside County hourly wage rate

BRCA0018-004 06/01/2024

	Rates	Fringes
MARBLE FINISHER.....	\$ 43.38	15.36
TILE FINISHER.....	\$ 37.96	13.77
TILE LAYER.....	\$ 51.82	19.32

BRCA0018-010 09/01/2024

	Rates	Fringes
TERRAZZO FINISHER.....	\$ 42.11	14.67
TERRAZZO WORKER/SETTER.....	\$ 49.62	15.26

CARP0213-001 07/01/2025

	Rates	Fringes
CARPENTER		
(1) Carpenter, Cabinet Installer, Insulation Installer, Hardwood Floor Worker and acoustical installer.....	\$ 52.24	26.18
(2) Millwright.....	\$ 52.24	26.68
(3) Piledrivermen/Derrick Bargeman, Bridge or Dock Carpenter, Heavy Framer, Rock Bargeman or Scowman, Rockslinger, Shingler (Commercial).....	\$ 52.37	26.18
(4) Pneumatic Nailer, Power Stapler.....	\$ 52.37	26.18
(5) Sawfiler.....	\$ 52.34	26.18
(6) Scaffold Builder.....	\$ 45.37	25.43
(7) Table Power Saw Operator.....	\$ 52.34	26.18

FOOTNOTE: Work of forming in the construction of open cut sewers or storm drains, on operations in which horizontal lagging is used in conjunction with steel H-Beams driven or placed in pre- drilled holes, for that portion of a lagged trench against which concrete is poured, namely, as a substitute for back forms (which work is performed by piledrivers): \$0.13 per hour additional.

CARP0213-002 07/01/2025

	Rates	Fringes
Diver		
(1) Wet.....	\$ 901.92	26.18
(2) Standby.....	\$ 450.96	26.18
(3) Tender.....	\$ 442.96	26.18
(4) Assistant Tender.....	\$ 418.96	26.18

Amounts in ""Rates' column are per day

CARP0213-004 07/01/2025

	Rates	Fringes
Drywall		
DRYWALL INSTALLER/LATHER....	\$ 52.24	26.18
STOCKER/SCRAPPER.....	\$ 21.45	11.27

CARP0721-001 07/01/2025

	Rates	Fringes
Modular Furniture Installer.....	\$ 25.00	13.06

ELEC0011-004 06/30/2023

	Rates	Fringes
ELECTRICIAN (INSIDE ELECTRICAL WORK)		
Journeyman Electrician.....	\$ 60.80	3%+29.77
ELECTRICIAN (INTELLIGENT TRANSPORTATION SYSTEMS Street Lighting, Traffic Signals, CCTV,and Underground Systems)		
Journeyman Transportation Electrician.....	\$ 60.80	3%+29.77
Technician.....	\$ 45.60	3%+29.77

FOOT NOTE:

CABLE SPLICER & INSTRUMENT PERSON: Recieve 5% additional per hour above Journeyman Electrician basic hourly rate.

TUNNEL WORK: 10% additional per hour.

SCOPE OF WORK - TRANSPORTATION SYSTEMS

ELECTRICIAN:

Installation of street lights and traffic signals,including electrical circuitry, programmable controllers, pedestal-mounted electrical meter enclosures and laying of pre-assembled multi-conductor cable in ducts, layout of electrical systems and communication installation, including proper position of trench depths and radius at duct banks, location for man holes, pull boxes, street lights and traffic signals. Installation of underground ducts for electrical,telephone, cable television and communication systems. Pulling,termination and

splicing of traffic signal and street lighting conductors and electrical systems including interconnect,detector loop, fiber optic cable and video/cable.

TECHNICIAN:

Distribution of material at job site, manual excavation and backfill, installation of system conduits and raceways for electrical, telephone, cable television and communication systems. Pulling, terminating and splicing of traffic signal and street lighting conductors and electrical systems including interconnect, detector loop, fiber optic cable and video/data.

* ELEC0011-007 01/01/2024

COMMUNICATIONS & SYSTEMS WORK (excludes any work on Intelligent Transportation Systems or CCTV highway systems)

	Rates	Fringes
Communications System		
Installer.....	\$ 46.47	3%+17.08

SCOPE OF WORK The work covered shall include the installation, testing, service and maintenance, of the following systems that utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for TV monitoring and surveillance, background foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms and low voltage master clock systems.

A. Communication systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems SCADA (Supervisory control/data acquisition PCM (Pulse code modulation) Inventory control systems Digital data systems Broadband & baseband and carriers Point of sale systems VSAT data systems Data communication systems RF and remote control systems Fiber optic data systems

B. Sound and Voice Transmission/Transference Systems Background-Foreground Music Intercom and Telephone Interconnect Systems Sound and Musical Entertainment Systems Nurse Call Systems Radio Page Systems School Intercom and Sound Systems Burglar Alarm Systems Low-Voltage Master Clock Systems Multi-Media/Multiplex Systems Telephone Systems RF Systems and Antennas and Wave Guide

C. *Fire Alarm Systems-installation, wire pulling and testing.

D. Television and Video Systems Television Monitoring and Surveillance Systems Video Security Systems Video

Entertainment Systems Video Educational Systems CATV and
CCTV

E. Security Systems, Perimeter Security Systems, Vibration
Sensor Systems
Sonar/Infrared Monitoring Equipment, Access Control Systems,
Card Access Systems

*Fire Alarm Systems

1. Fire Alarms-In Raceways: Wire and cable pulling in
raceways performed at the current electrician wage rate and
fringe benefits.
2. Fire Alarms-Open Wire Systems: installed by the Technician.

ELEC1245-001 01/01/2025

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer..	\$ 70.16	24.71
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment).....	\$ 53.30	22.26
(3) Groundman.....	\$ 40.76	21.76
(4) Powderman.....	\$ 51.87	18.79

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day,
Independence Day, Labor Day, Veterans Day, Thanksgiving Day
and day after Thanksgiving, Christmas Day

ELEV0018-001 01/01/2025

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 69.43	38.435+a+b

FOOTNOTE:

a. PAID VACATION: Employer contributes 8% of regular hourly
rate as vacation pay credit for employees with more than 5
years of service, and 6% for 6 months to 5 years of service.

b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence
Day, Labor Day, Veterans' Day, Thanksgiving Day, Friday
after Thanksgiving, and Christmas Day.

ENGI0012-004 08/01/2024

	Rates	Fringes
OPERATOR: Power Equipment (DREDGING)		
(1) Leverman.....	\$ 64.10	38.75

(2) Dredge dozer.....	\$ 58.13	38.75
(3) Deckmate.....	\$ 58.02	38.75
(4) Winch operator (stern winch on dredge).....	\$ 57.47	38.75
(5) Fireman-Oiler, Deckhand, Bargeman, Leveehand.....	\$ 56.93	38.75
(6) Barge Mate.....	\$ 57.54	38.75

ENGI0012-024 07/01/2023

Rates Fringes

OPERATOR: Power Equipment
(All Other Work)

GROUP 1.....	\$ 53.90	32.80
GROUP 2.....	\$ 54.68	32.80
GROUP 3.....	\$ 54.97	32.80
GROUP 4.....	\$ 56.46	32.80
GROUP 6.....	\$ 56.68	32.80
GROUP 8.....	\$ 56.79	32.80
GROUP 10.....	\$ 56.91	32.80
GROUP 12.....	\$ 57.08	32.80
GROUP 13.....	\$ 57.18	32.80
GROUP 14.....	\$ 57.21	32.80
GROUP 15.....	\$ 57.29	32.80
GROUP 16.....	\$ 57.41	32.80
GROUP 17.....	\$ 57.58	32.80
GROUP 18.....	\$ 57.68	32.80
GROUP 19.....	\$ 57.79	32.80
GROUP 20.....	\$ 57.91	32.80
GROUP 21.....	\$ 58.08	32.80
GROUP 22.....	\$ 58.18	32.80
GROUP 23.....	\$ 58.29	32.80
GROUP 24.....	\$ 58.41	32.80
GROUP 25.....	\$ 58.58	32.80

OPERATOR: Power Equipment
(Cranes, Piledriving &
Hoisting)

GROUP 1.....	\$ 55.25	32.80
GROUP 2.....	\$ 56.03	32.80
GROUP 3.....	\$ 56.32	32.80
GROUP 4.....	\$ 56.46	32.80
GROUP 5.....	\$ 56.68	32.80
GROUP 6.....	\$ 56.79	32.80
GROUP 7.....	\$ 56.91	32.80
GROUP 8.....	\$ 57.08	32.80
GROUP 9.....	\$ 57.25	32.80
GROUP 10.....	\$ 58.25	32.80
GROUP 11.....	\$ 59.25	32.80
GROUP 12.....	\$ 60.25	32.80
GROUP 13.....	\$ 61.25	32.80

OPERATOR: Power Equipment
(Tunnel Work)

GROUP 1.....	\$ 55.75	32.80
GROUP 2.....	\$ 56.53	32.80
GROUP 3.....	\$ 56.82	32.80
GROUP 4.....	\$ 56.96	32.80
GROUP 5.....	\$ 57.18	32.80
GROUP 6.....	\$ 57.29	32.80

GROUP 7.....\$ 57.41 32.80

PREMIUM PAY:

\$10.00 per hour shall be paid on all Power Equipment Operator work on the following Military Bases: China Lake Naval Reserve, Vandenberg AFB, Point Arguello, Seely Naval Base, Fort Irwin, Nebo Annex Marine Base, Marine Corp Logistics Base Yermo, Edwards AFB, 29 Palms Marine Base and Camp Pendleton

Workers required to suit up and work in a hazardous material environment: \$2.00 per hour additional. Combination mixer and compressor operator on gunite work shall be classified as a concrete mobile mixer operator.

SEE ZONE DEFINITIONS AFTER CLASSIFICATIONS

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Bargeman; Brakeman; Compressor operator; Ditch Witch, with seat or similar type equipment; Elevator operator-inside; Engineer Oiler; Forklift operator (includes loed, lull or similar types under 5 tons; Generator operator; Generator, pump or compressor plant operator; Pump operator; Signalman; Switchman

GROUP 2: Asphalt-rubber plant operator (nurse tank operator);Coil Tubing Rig Operator, Concrete mixer operator-skip type; Conveyor operator; Fireman; Forklift operator (includes loed, lull or similar types over 5 tons; Hydrostatic pump operator; oiler crusher (asphalt or concrete plant); Petromat laydown machine; PJU side dum jack; Screening and conveyor machine operator (or similar types); Skiploader (wheel type up to 3/4 yd. without attachment); Tar pot fireman; Temporary heating plant operator; Trenching machine oiler

GROUP 3: Asphalt-rubber blend operator; Bobcat or similar type (Skid steer); Equipment greaser (rack); Ford Ferguson (with dragtype attachments); Helicopter radioman (ground); Stationary pipe wrapping and cleaning machine operator

GROUP 4: Asphalt plant fireman; Backhoe operator (mini-max or similar type); Boring machine operator; Boxman or mixerman (asphalt or concrete); Chip spreading machine operator; Concrete cleaning decontamination machine operator; Concrete Pump Operator (small portable);Direct Push Operator (Geoprobe or similar types) Drilling machine operator, small auger types (Texoma super economatic or similar types - Hughes 100 or 200 or similar types - drilling depth of 30' maximum); Equipment greaser (grease truck); Guard rail post driver operator; Highline cableway signalman; Hydra-hammer-aero stomper; Micro Tunneling (above ground tunnel); Power concrete curing machine operator; Power concrete saw operator; Power-driven jumbo form setter operator; Power sweeper operator; Rock Wheel Saw/Trencher; Roller operator (compacting); Screed operator (asphalt or concrete); Trenching machine operator (up to 6 ft.); Vacuum or much truck

GROUP 6: Articulating material hauler; Asphalt plant engineer; Batch plant operator; Bit sharpener; Concrete joint machine operator (canal and similar type); Concrete planer operator; Dandy digger; Deck engine operator; Derrickman (oilfield type); Drilling machine operator, bucket or auger types (Calweld 100 bucket or similar types - Watson 1000 auger or similar types - Texoma 330, 500 or 600 auger or similar types - drilling depth of 45' maximum); Drilling machine operator; Hydrographic seeder machine operator (straw, pulp or seed), Jackson track maintainer, or similar type; Kalamazoo Switch tamper, or similar type; Machine tool operator; Maginnis internal full slab vibrator, Mechanical berm, curb or gutter(concrete or asphalt); Mechanical finisher operator (concrete, Clary-Johnson-Bidwell or similar); Micro tunnel system (below ground); Pavement breaker operator (truck mounted); Road oil mixing machine operator; Roller operator (asphalt or finish), rubber-tired earth moving equipment (single engine, up to and including 25 yds. struck); Self-propelled tar pipelining machine operator; Skiploader operator (crawler and wheel type, over 3/4 yd. and up to and including 1-1/2 yds.); Slip form pump operator (power driven hydraulic lifting device for concrete forms); Tractor operator-bulldozer, tamper-scraper (single engine, up to 100 h.p. flywheel and similar types, up to and including D-5 and similar types); Tugger hoist operator (1 drum); Ultra high pressure waterjet cutting tool system operator; Vacuum blasting machine operator

GROUP 8: Asphalt or concrete spreading operator (tamping or finishing); Asphalt paving machine operator (Barber Greene or similar type); Asphalt-rubber distribution operator; Backhoe operator (up to and including 3/4 yd.), small ford, Case or similar types; Cable Bundling Machine Operator (excluding handheld); Cable Trenching Machine Operator (Spider Plow or similar types) Cast-in-place pipe laying machine operator; Combination mixer and compressor operator (gunite work); Compactor operator (self-propelled); Concrete mixer operator (paving); Crushing plant operator; Drill Doctor; Drilling machine operator, Bucket or auger types (Calweld 150 bucket or similar types - Watson 1500, 2000 2500 auger or similar types - Texoma 700, 800 auger or similar types - drilling depth of 60' maximum); Elevating grader operator; Grade checker; Gradall operator; Grouting machine operator; Heavy-duty repairman; Heavy equipment robotics operator; Kalamazoo balliste regulator or similar type; Kolman belt loader and similar type; Le Tourneau blob compactor or similar type; Loader operator (Athey, Euclid, Sierra and similar types); Mobark Chipper or similar; Ozzie padder or similar types; P.C. slot saw; Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pumpcrete gun operator; RCM Cementing Unit Operator, Rail/Switch Grinder Operator (Harsco or similar types) Rock Drill or similar types; Rotary drill operator (excluding caisson type); Rubber-tired earth-moving equipment operator (single engine, caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator (multiple

engine up to and including 25 yds. struck); Rubber-tired scraper operator (self-loading paddle wheel type-John Deere, 1040 and similar single unit); Self-propelled curb and gutter machine operator; Shuttle buggy; Skiploader operator (crawler and wheel type over 1-1/2 yds. up to and including 6-1/2 yds.); Soil remediation plant operator; Surface heaters and planer operator; Tractor compressor drill combination operator; Tractor operator (any type larger than D-5 - 100 flywheel h.p. and over, or similar-bulldozer, tamper, scraper and push tractor single engine); Tractor operator (boom attachments), Traveling pipe wrapping, cleaning and bending machine operator; Trenching machine operator (over 6 ft. depth capacity, manufacturer's rating); trenching Machine with Road Miner attachment (over 6 ft depth capacity); Ultra high pressure waterjet cutting tool system mechanic; Water pull (compaction) operator

GROUP 10: Drilling machine operator, Bucket or auger types (Calweld 200 B bucket or similar types-Watson 3000 or 5000 auger or similar types-Texoma 900 auger or similar types-drilling depth of 105' maximum); Dual drum mixer, dynamic compactor LDC350 (or similar types); Monorail locomotive operator (diesel, gas or electric); Motor patrol-blade operator (single engine); Multiple engine tractor operator (Euclid and similar type-except Quad 9 cat.); Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Pneumatic pipe ramming tool and similar types; Prestressed wrapping machine operator; Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Rubber tired earth moving equipment operator (multiple engine, Euclid, caterpillar and similar over 25 yds. and up to 50 yds. struck), Tower crane repairman; Tractor loader operator (crawler and wheel type over 6-1/2 yds.); Woods mixer operator (and similar Pugmill equipment)

GROUP 12: Auto grader operator; Automatic slip form operator; Drilling machine operator, bucket or auger types (Calweld, auger 200 CA or similar types - Watson, auger 6000 or similar types - Hughes Super Duty, auger 200 or similar types - drilling depth of 175' maximum); Hoe ram or similar with compressor; Mass excavator operator less than 750 cu. yards; Mechanical finishing machine operator; Mobile form traveler operator; Motor patrol operator (multi-engine); Pipe mobile machine operator; Rubber-tired earth-moving equipment operator (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck); Rubber-tired self-loading scraper operator (paddle-wheel-auger type self-loading - two (2) or more units)

GROUP 13: Rubber-tired earth-moving equipment operator operating equipment with push-pull system (single engine, up to and including 25 yds. struck)

GROUP 14: Canal liner operator; Canal trimmer operator; Remote-control earth-moving equipment operator (operating a second piece of equipment: \$1.00 per hour additional); Wheel excavator operator (over 750 cu. yds.)

GROUP 15: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine-up to and including 25 yds. struck)

GROUP 16: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 17: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 50 cu. yds. struck); Tandem tractor operator (operating crawler type tractors in tandem - Quad 9 and similar type)

GROUP 18: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, up to and including 25 yds. struck)

GROUP 19: Rotex concrete belt operator (or similar types); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, up to and including 25 yds. struck)

GROUP 20: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 21: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

GROUP 22: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, up to and including 25 yds. struck)

GROUP 23: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and

similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating with the tandem push-pull system (multiple engine, up to and including 25 yds. struck)

GROUP 24: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 25: Concrete pump operator-truck mounted; Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck); Spyder Excavator Operator, with all attachments

CRANES, PILEDRIVING AND HOISTING EQUIPMENT CLASSIFICATIONS

GROUP 1: Engineer oiler; Fork lift operator (includes loed, lull or similar types)

GROUP 2: Truck crane oiler

GROUP 3: A-frame or winch truck operator; Ross carrier operator (jobsite)

GROUP 4: Bridge-type unloader and turntable operator; Helicopter hoist operator

GROUP 5: Hydraulic boom truck; Stinger crane (Austin-Western or similar type); Tugger hoist operator (1 drum)

GROUP 6: Bridge crane operator; Cretor crane operator; Hoist operator (Chicago boom and similar type); Lift mobile operator; Lift slab machine operator (Vagtborg and similar types); Material hoist and/or manlift operator; Polar gantry crane operator; Self Climbing scaffold (or similar type); Shovel, backhoe, dragline, clamshell operator (over 3/4 yd. and up to 5 cu. yds. mrc); Tugger hoist operator

GROUP 7: Pedestal crane operator; Shovel, backhoe, dragline, clamshell operator (over 5 cu. yds. mrc); Tower crane repair; Tugger hoist operator (3 drum)

GROUP 8: Crane operator (up to and including 25 ton capacity); Crawler transporter operator; Derrick barge operator (up to and including 25 ton capacity); Hoist operator, stiff legs, Guy derrick or similar type (up to and including 25 ton capacity); Shovel, backhoe, dragline, clamshell operator (over 7 cu. yds., M.R.C.)

GROUP 9: Crane operator (over 25 tons and up to and including 50 tons mrc); Derrick barge operator (over 25 tons up to and including 50 tons mrc); Highline cableway operator; Hoist operator, stiff legs, Guy derrick or similar type (over 25 tons up to and including 50 tons mrc); K-crane

operator; Polar crane operator; Self erecting tower crane operator maximum lifting capacity ten tons

GROUP 10: Crane operator (over 50 tons and up to and including 100 tons mrc); Derrick barge operator (over 50 tons up to and including 100 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 50 tons up to and including 100 tons mrc), Mobile tower crane operator (over 50 tons, up to and including 100 tons M.R.C.);

GROUP 11: Crane operator (over 100 tons and up to and including 200 tons mrc); Derrick barge operator (over 100 tons up to and including 200 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 100 tons up to and including 200 tons mrc); Mobile tower crane operator (over 100 tons up to and including 200 tons mrc) ; Tower crane operator and tower gantry

GROUP 12: Crane operator (over 200 tons up to and including 300 tons mrc); Derrick barge operator (over 200 tons up to and including 300 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 200 tons, up to and including 300 tons mrc); Mobile tower crane operator (over 200 tons, up to and including 300 tons mrc)

GROUP 13: Crane operator (over 300 tons); Derrick barge operator (over 300 tons); Helicopter pilot; Hoist operator, stiff legs, Guy derrick or similar type (over 300 tons); Mobile tower crane operator (over 300 tons)

TUNNEL CLASSIFICATIONS

GROUP 1: Skiploader (wheel type up to 3/4 yd. without attachment)

GROUP 2: Power-driven jumbo form setter operator

GROUP 3: Dinkey locomotive or motorperson (up to and including 10 tons)

GROUP 4: Bit sharpener; Equipment greaser (grease truck); Slip form pump operator (power-driven hydraulic lifting device for concrete forms); Tugger hoist operator (1 drum); Tunnel locomotive operator (over 10 and up to and including 30 tons)

GROUP 5: Backhoe operator (up to and including 3/4 yd.); Small Ford, Case or similar; Drill doctor; Grouting machine operator; Heading shield operator; Heavy-duty repairperson; Loader operator (Athey, Euclid, Sierra and similar types); Mucking machine operator (1/4 yd., rubber-tired, rail or track type); Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pneumatic heading shield (tunnel); Pumpcrete gun operator; Tractor compressor drill combination operator; Tugger hoist operator (2 drum); Tunnel locomotive operator (over 30 tons)

GROUP 6: Heavy Duty Repairman

GROUP 7: Tunnel mole boring machine operator

ENGINEERS ZONES

\$1.00 additional per hour for all of IMPERIAL County and the portions of KERN, RIVERSIDE & SAN BERNARDINO Counties as defined below:

That area within the following Boundary: Begin in San Bernardino County, approximately 3 miles NE of the intersection of I-15 and the California State line at that point which is the NW corner of Section 1, T17N,m R14E, San Bernardino Meridian. Continue W in a straight line to that point which is the SW corner of the northwest quarter of Section 6, T27S, R42E, Mt. Diablo Meridian. Continue North to the intersection with the Inyo County Boundary at that point which is the NE corner of the western half of the northern quarter of Section 6, T25S, R42E, MDM. Continue W along the Inyo and San Bernardino County boundary until the intersection with Kern County, as that point which is the SE corner of Section 34, T24S, R40E, MDM. Continue W along the Inyo and Kern County boundary until the intersection with Tulare County, at that point which is the SW corner of the SE quarter of Section 32, T24S, R37E, MDM. Continue W along the Kern and Tulare County boundary, until that point which is the NW corner of T25S, R32E, MDM. Continue S following R32E lines to the NW corner of T31S, R32E, MDM. Continue W to the NW corner of T31S, R31E, MDM. Continue S to the SW corner of T32S, R31E, MDM. Continue W to SW corner of SE quarter of Section 34, T32S, R30E, MDM. Continue S to SW corner of T11N, R17W, SBM. Continue E along south boundary of T11N, SBM to SW corner of T11N, R7W, SBM. Continue S to SW corner of T9N, R7W, SBM. Continue E along south boundary of T9N, SBM to SW corner of T9N, R1E, SBM. Continue S along west boundary of R1E, SMB to Riverside County line at the SW corner of T1S, R1E, SBM. Continue E along south boundary of T1s, SBM (Riverside County Line) to SW corner of T1S, R10E, SBM. Continue S along west boundary of R10E, SBM to Imperial County line at the SW corner of T8S, R10E, SBM. Continue W along Imperial and Riverside county line to NW corner of T9S, R9E, SBM. Continue S along the boundary between Imperial and San Diego Counties, along the west edge of R9E, SBM to the south boundary of Imperial County/California state line. Follow the California state line west to Arizona state line, then north to Nevada state line, then continuing NW back to start at the point which is the NW corner of Section 1, T17N, R14E, SBM

\$1.00 additional per hour for portions of SAN LUIS OBISPO, KERN, SANTA BARBARA & VENTURA as defined below:

That area within the following Boundary: Begin approximately 5 miles north of the community of Cholame, on the Monterey County and San Luis Obispo County boundary at the NW corner of T25S, R16E, Mt. Diablo Meridian. Continue south along the west side of R16E to the SW corner of T30S, R16E, MDM. Continue E to SW corner of T30S, R17E, MDM. Continue S to SW corner of T31S, R17E, MDM. Continue E to SW corner of T31S, R18E, MDM. Continue S along West side of R18E, MDM as it crosses into San Bernardino Meridian numbering area and becomes R30W. Follow the west side of R30W, SBM to the SW corner of T9N, R30W, SBM. Continue E along the south edge of T9N, SBM to the Santa

Barbara County and Ventura County boundary at that point which is the SW corner of Section 34. T9N, R24W, SBM, continue S along the Ventura County line to that point which is the SW corner of the SE quarter of Section 32, T7N, R24W, SBM. Continue E along the south edge of T7N, SBM to the SE corner to T7N, R21W, SBM. Continue N along East side of R21W, SBM to Ventura County and Kern County boundary at the NE corner of T8N, R21W. Continue W along the Ventura County and Kern County boundary to the SE corner of T9N, R21W. Continue North along the East edge of R21W, SBM to the NE corner of T12N, R21W, SBM. Continue West along the north edge of T12N, SBM to the SE corner of T32S, R21E, MDM. [T12N SBM is a think strip between T11N SBM and T32S MDM]. Continue North along the East side of R21E, MDM to the Kings County and Kern County border at the NE corner of T25S, R21E, MDM, continue West along the Kings County and Kern County Boundary until the intersection of San Luis Obispo County. Continue west along the Kings County and San Luis Obispo County boundary until the intersection with Monterey County. Continue West along the Monterey County and San Luis Obispo County boundary to the beginning point at the NW corner of T25S, R16E, MDM.

\$2.00 additional per hour for INYO and MONO Counties and the Northern portion of SAN BERNARDINO County as defined below:

That area within the following Boundary: Begin at the intersection of the northern boundary of Mono County and the California state line at the point which is the center of Section 17, T10N, R22E, Mt. Diablo Meridian. Continue S then SE along the entire western boundary of Mono County, until it reaches Inyo County at the point which is the NE corner of the Western half of the NW quarter of Section 2, T8S, R29E, MDM. Continue SSE along the entire western boundary of Inyo County, until the intersection with Kern County at the point which is the SW corner of the SE 1/4 of Section 32, T24S, R37E, MDM. Continue E along the Inyo and Kern County boundary until the intersection with San Bernardino County at that point which is the SE corner of section 34, T24S, R40E, MDM. Continue E along the Inyo and San Bernardino County boundary until the point which is the NE corner of the Western half of the NW quarter of Section 6, T25S, R42E, MDM. Continue S to that point which is the SW corner of the NW quarter of Section 6, T27S, R42E, MDM. Continue E in a straight line to the California and Nevada state border at the point which is the NW corner of Section 1, T17N, R14E, San Bernardino Meridian. Then continue NW along the state line to the starting point, which is the center of Section 18, T10N, R22E, MDM.

REMAINING AREA NOT DEFINED ABOVE RECIEVES BASE RATE

IRON0433-006 01/01/2025

	Rates	Fringes
IRONWORKER		
Fence Erector.....	\$ 45.78	26.51
Ornamental, Reinforcing		

and Structural.....\$ 50.70 35.15

PREMIUM PAY:

\$9.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval Reserve-Niland,
Edwards AFB, Fort Irwin Military Station, Fort Irwin Training Center-Goldstone, San Clemente Island, San Nicholas Island, Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine Base - Barstow, U.S. Naval Air Facility - Seale, Vandenberg AFB Army Defense Language Institute - Monterey, Fallon Air Base, Naval Post Graduate School - Monterey, Yermo Marine Corps Logistics Center
Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

LABO0300-001 07/01/2024

	Rates	Fringes
Brick Tender.....	\$ 41.53	22.54

LABO0300-003 07/01/2025

	Rates	Fringes
LABORER (TUNNEL)		
GROUP 1.....	\$ 53.60	25.74
GROUP 2.....	\$ 53.92	25.74
GROUP 3.....	\$ 54.38	25.74
GROUP 4.....	\$ 55.07	25.74
LABORER		
GROUP 1.....	\$ 46.48	25.95
GROUP 2.....	\$ 47.03	25.95
GROUP 3.....	\$ 47.58	25.95
GROUP 4.....	\$ 49.13	25.95
GROUP 5.....	\$ 49.48	25.95

LABORER CLASSIFICATIONS

GROUP 1: Cleaning and handling of panel forms; Concrete screeding for rough strike-off; Concrete, water curing; Demolition laborer, the cleaning of brick if performed by a worker performing any other phase of demolition work, and the cleaning of lumber; Fire watcher, limber, brush loader, piler and debris handler; Flag person; Gas, oil and/or water pipeline laborer; Laborer, asphalt-rubber material loader; Laborer, general or construction; Laborer, general clean-up; Laborer, landscaping; Laborer, jetting; Laborer, temporary water and air lines; Material hose operator (walls, slabs, floors and decks); Plugging, filling of shee bolt holes; Dry packing of concrete; Railroad maintenance, repair track person and road beds; Streetcar and railroad construction track laborers; Rigging and signaling; Scaler; Slip form raiser; Tar and mortar; Tool crib or tool house laborer; Traffic control by any method; Window cleaner; Wire mesh pulling - all concrete pouring operations

GROUP 2: Asphalt shoveler; Cement dumper (on 1 yd. or larger mixer and handling bulk cement); Cesspool digger and installer; Chucktender; Chute handler, pouring concrete, the handling of the chute from readymix trucks, such as walls, slabs, decks, floors, foundation, footings, curbs, gutters and sidewalks; Concrete curer, impervious membrane and form oiler; Cutting torch operator (demolition); Fine grader, highways and street paving, airport, runways and similar type heavy construction; Gas, oil and/or water pipeline wrapper - pot tender and form person; Guinea chaser; Headerboard person - asphalt; Laborer, packing rod steel and pans; Membrane vapor barrier installer; Power broom sweeper (small); Riprap stonepaver, placing stone or wet sacked concrete; Roto scraper and tiller; Sandblaster (pot tender); Septic tank digger and installer(lead); Tank scaler and cleaner; Tree climber, faller, chain saw operator, Pittsburgh chipper and similar type brush shredder; Underground laborer, including caisson bellower

GROUP 3: Buggymobile person; Concrete cutting torch; Concrete pile cutter; Driller, jackhammer, 2-1/2 ft. drill steel or longer; Dri-pak-it machine; Gas, oil and/or water pipeline wrapper, 6-in. pipe and over, by any method, inside and out; High scaler (including drilling of same); Hydro seeder and similar type; Impact wrench multi-plate; Kettle person, pot person and workers applying asphalt, lay-kold, creosote, lime caustic and similar type materials ("applying" means applying, dipping, brushing or handling of such materials for pipe wrapping and waterproofing); Operator of pneumatic, gas, electric tools, vibrating machine, pavement breaker, air blasting, come-alongs, and similar mechanical tools not separately classified herein; Pipelayer's backup person, coating, grouting, making of joints, sealing, caulking, diapering and including rubber gasket joints, pointing and any and all other services; Rock slinger; Rotary scarifier or multiple head concrete chipping scarifier; Steel headerboard and guideline setter; Tamper, Barko, Wacker and similar type; Trenching machine, hand-propelled

GROUP 4: Asphalt raker, lute person, ironer, asphalt dump person, and asphalt spreader boxes (all types); Concrete core cutter (walls, floors or ceilings), grinder or sander; Concrete saw person, cutting walls or flat work, scoring old or new concrete; Cribber, shorer, lagging, sheeting and trench bracing, hand-guided lagging hammer; Head rock slinger; Laborer, asphalt- rubber distributor boot person; Laser beam in connection with laborers' work; Oversize concrete vibrator operator, 70 lbs. and over; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, metallic or non-metallic, conduit and any other stationary type of tubular device used for the conveying of any substance or element, whether water, sewage, solid gas, air, or other product whatsoever and without regard to the nature of material from which the tubular material is fabricated; No-joint pipe and stripping of same; Prefabricated manhole installer; Sandblaster

(nozzle person), water blasting, Porta Shot-Blast

GROUP 5: Blaster powder, all work of loading holes, placing and blasting of all powder and explosives of whatever type, regardless of method used for such loading and placing;
Driller: All power drills, excluding jackhammer, whether core, diamond, wagon, track, multiple unit, and any and all other types of mechanical drills without regard to the form of motive power; Toxic waste removal

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Batch plant laborer; Changehouse person; Dump person; Dump person (outside); Swamper (brake person and switch person on tunnel work); Tunnel materials handling person; Nipper; Pot tender, using mastic or other materials (for example, but not by way of limitation, shotcrete, etc.)

GROUP 2: Chucktender, cabletender; Loading and unloading agitator cars;; Vibrator person, jack hammer, pneumatic tools (except driller); Bull gang mucker, track person; Concrete crew, including rodder and spreader

GROUP 3: Blaster, driller, powder person; Chemical grout jet person; Cherry picker person; Grout gun person; Grout mixer person; Grout pump person; Jackleg miner; Jumbo person; Kemper and other pneumatic concrete placer operator; Miner, tunnel (hand or machine); Nozzle person; Operating of troweling and/or grouting machines; Powder person (primer house); Primer person; Sandblaster; Shotcrete person; Steel form raiser and setter; Timber person, retimber person, wood or steel; Tunnel Concrete finisher

GROUP 4: Diamond driller; Sandblaster; Shaft and raise work

LABO0300-005 07/01/2025

	Rates	Fringes
Asbestos Removal Laborer.....	\$ 46.48	25.93

SCOPE OF WORK: Includes site mobilization, initial site cleanup, site preparation, removal of asbestos-containing material and toxic waste, encapsulation, enclosure and disposal of asbestos- containing materials and toxic waste by hand or with equipment or machinery; scaffolding, fabrication of temporary wooden barriers and assembly of decontamination stations.

LABO0345-001 07/01/2025

	Rates	Fringes
LABORER (GUNITE)		
GROUP 1.....	\$ 55.88	23.77
GROUP 2.....	\$ 54.93	23.77
GROUP 3.....	\$ 51.39	23.77

FOOTNOTE: GUNITE PREMIUM PAY: Workers working from a Bosn'n's Chair or suspended from a rope or cable shall receive 40 cents per hour above the foregoing applicable classification rates. Workers doing gunite and/or shotcrete work in a tunnel shall receive 35 cents per hour above the foregoing applicable classification rates, paid on a portal-to-portal basis. Any work performed on, in or above any smoke stack, silo, storage elevator or similar type of structure, when such structure is in excess of 75'-0"" above base level and which work must be performed in whole or in part more than 75'-0"" above base level, that work performed above the 75'-0"" level shall be compensated for at 35 cents per hour above the applicable classification wage rate.

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Rodmen, Nozzlemen

GROUP 2: Gunmen

GROUP 3: Reboundmen

LABO1184-001 07/01/2025

	Rates	Fringes
Laborers: (HORIZONTAL DIRECTIONAL DRILLING)		
(1) Drilling Crew Laborer...	\$ 47.94	20.86
(2) Vehicle Operator/Hauler.	\$ 48.11	20.86
(3) Horizontal Directional Drill Operator.....	\$ 49.96	20.86
(4) Electronic Tracking Locator.....	\$ 51.96	20.86
Laborers: (STRIPING/SLURRY SEAL)		
GROUP 1.....	\$ 49.30	23.97
GROUP 2.....	\$ 50.60	23.97
GROUP 3.....	\$ 52.61	23.97
GROUP 4.....	\$ 54.35	23.97

LABORERS - STRIPING CLASSIFICATIONS

GROUP 1: Protective coating, pavement sealing, including repair and filling of cracks by any method on any surface in parking lots, game courts and playgrounds; carstops; operation of all related machinery and equipment; equipment repair technician

GROUP 2: Traffic surface abrasive blaster; pot tender - removal of all traffic lines and markings by any method (sandblasting, waterblasting, grinding, etc.) and preparation of surface for coatings. Traffic control person: controlling and directing traffic through both conventional and moving lane closures; operation of all related machinery and equipment

GROUP 3: Traffic delineating device applicator: Layout and

application of pavement markers, delineating signs, rumble and traffic bars, adhesives, guide markers, other traffic delineating devices including traffic control. This category includes all traffic related surface preparation (sandblasting, waterblasting, grinding) as part of the application process. Traffic protective delineating system installer: removes, relocates, installs, permanently affixed roadside and parking delineation barricades, fencing, cable anchor, guard rail, reference signs, monument markers; operation of all related machinery and equipment; power broom sweeper

GROUP 4: Striper: layout and application of traffic stripes and markings; hot thermo plastic; tape traffic stripes and markings, including traffic control; operation of all related machinery and equipment

LABO1414-001 08/06/2025

	Rates	Fringes

LABORER

PLASTER CLEAN-UP LABORER....	\$ 46.17	25.97
PLASTER TENDER.....	\$ 48.72	25.97

Work on a swing stage scaffold: \$1.00 per hour additional.

PAIN0036-001 07/01/2023

	Rates	Fringes

Painters: (Including Lead Abatement)

(1) Repaint (excludes San Diego County).....	\$ 29.59	17.12
(2) All Other Work.....	\$ 38.52	18.64

REPAINT of any previously painted structure. Exceptions: work involving the aerospace industry, breweries, commercial recreational facilities, hotels which operate commercial establishments as part of hotel service, and sports facilities.

PAIN0036-006 09/01/2024

	Rates	Fringes

DRYWALL FINISHER/TAPER

Antelope Valley North of the following Boundary: Kern County Line to Hwy. #5, South on Hwy. #5 to Hwy. N2, East on N2 to Palmdale Blvd., to Hwy. #14, South to Hwy. #18, East to Hwy. #395.....	\$ 45.20	26.82
Remainder of Los Angeles County.....	\$ 49.33	26.82

PAIN0036-015 01/01/2025

	Rates	Fringes
GLAZIER.....	\$ 53.05	30.64

FOOTNOTE: Additional \$1.25 per hour for work in a condor,
from the third (3rd) floor and up Additional \$1.25 per
hour for work on the outside of the building from a swing
stage or any suspended contrivance, from the ground up

PAIN1247-002 01/01/2025

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 45.15	19.43

PLAS0200-009 08/03/2022

	Rates	Fringes
PLASTERER.....	\$ 47.37	19.64

PLAS0500-002 07/01/2025

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 47.70	27.07

PLUM0016-001 09/01/2025

	Rates	Fringes
PLUMBER/PIPEFITTER Work ONLY on new additions and remodeling of bars, restaurant, stores and commercial buildings not to exceed 5,000 sq. ft. of floor space.....	\$ 59.85	25.83
Work ONLY on strip malls, light commercial, tenant improvement and remodel work.....	\$ 44.29	24.16
All other work except work on new additions and remodeling of bars, restaurant, stores and commercial buildings not to exceed 5,000 sq. ft. of floor space and work on strip malls, light commercial, tenant improvement and remodel work.....	\$ 61.73	26.81

* PLUM0345-001 09/01/2025

	Rates	Fringes
PLUMBER		
Landscape/Irrigation Fitter..	\$ 44.75	26.20
Sewer & Storm Drain Work....	\$ 48.84	23.58

ROOF0036-002 08/01/2025

	Rates	Fringes
ROOFER.....	\$ 52.63	20.73

FOOTNOTE: Pitch premium: Work on which employees are exposed to pitch fumes or required to handle pitch, pitch base or pitch impregnated products, or any material containing coal tar pitch, the entire roofing crew shall receive \$1.75 per hour ""pitch premium"" pay.

SFCA0669-013 01/01/2024

DOES NOT INCLUDE THE CITY OF POMONA, CATALINA ISLAND, AND THAT PART OF LOS ANGELES COUNTY WITHIN 25 MILES OF THE CITY LIMITS OF LOS ANGELES:

	Rates	Fringes
SPRINKLER FITTER.....	\$ 45.31	27.91

SFCA0709-005 09/01/2025

THE CITY OF POMOMA, CATALINA ISLAND, AND THAT PART OF LOS ANGELES COUNTY WITHIN 25 MILES OF THE CITY LIMITS OF LOS ANGELES:

	Rates	Fringes
SPRINKLER FITTER (Fire).....	\$ 58.60	33.65

SHEE0105-002 01/01/2025

LOS ANGELES (South of a straight line between Gorman and Big Pines including Catalina Island)

	Rates	Fringes
SHEET METAL WORKER		
(1) Light Commercial: Work on general sheet metal and heating and AC up to 4000 sq ft.....	\$ 35.57	10.63
(2) Modernization : Excluding New Construction - Under 5000 sq. ft. Does not include modification, upgrades, energy management, or		

conservation improvements
of central heating and AC
equipment.....\$ 34.17 10.86

SHEE0105-003 01/01/2025

LOS ANGELES (South of a straight line drawn between Gorman and Big Pines)and Catalina Island, INYO, KERN (Northeast part, East of Hwy 395), MONO ORANGE, RIVERSIDE, AND SAN BERNARDINO COUNTIES

Rates Fringes

SHEET METAL WORKER

(1) Commercial - New
Construction and Remodel
work.....\$ 59.31 30.43
(2) Industrial work
including air pollution
control systems, noise
abatement, hand rails,
guard rails, excluding
aritechtrual sheet metal
work, excluding A-C,
heating, ventilating
systems for human comfort...\$ 56.95 30.04

SHEE0105-004 07/01/2023

KERN (Excluding portion East of Hwy 395) & LOS ANGELES (North of a straight line drawn between Gorman and Big Pines including Cities of Lancaster and Palmdale) COUNTIES

Rates Fringes

SHEET METAL WORKER.....\$ 45.98 29.24

TEAM0011-002 07/01/2025

Rates Fringes

TRUCK DRIVER

GROUP 1.....\$ 41.59 35.69
GROUP 2.....\$ 41.74 35.69
GROUP 3.....\$ 41.87 35.69
GROUP 4.....\$ 42.06 35.69
GROUP 5.....\$ 42.09 35.69
GROUP 6.....\$ 42.12 35.69
GROUP 7.....\$ 42.37 35.69
GROUP 8.....\$ 42.62 35.69
GROUP 9.....\$ 42.82 35.69
GROUP 10.....\$ 43.12 35.69
GROUP 11.....\$ 43.62 35.69
GROUP 12.....\$ 44.05 35.69

WORK ON ALL MILITARY BASES:

PREMIUM PAY: \$3.00 per hour additional.

[29 palms Marine Base, Camp Roberts, China Lake, Edwards AFB,
El Centro Naval Facility, Fort Irwin, Marine Corps

Logistics Base at Nebo & Yermo, Mountain Warfare Training Center, Bridgeport, Point Arguello, Point Conception, Vandenberg AFB]

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Truck driver

GROUP 2: Driver of vehicle or combination of vehicles - 2 axles; Traffic control pilot car excluding moving heavy equipment permit load; Truck mounted broom

GROUP 3: Driver of vehicle or combination of vehicles - 3 axles; Boot person; Cement mason distribution truck; Fuel truck driver; Water truck - 2 axle; Dump truck, less than 16 yds. water level; Erosion control driver

GROUP 4: Driver of transit mix truck, under 3 yds.; Dumpcrete truck, less than 6-1/2 yds. water level

GROUP 5: Water truck, 3 or more axles; Truck greaser and tire person (\$0.50 additional for tire person); Pipeline and utility working truck driver, including winch truck and plastic fusion, limited to pipeline and utility work; Slurry truck driver

GROUP 6: Transit mix truck, 3 yds. or more; Dumpcrete truck, 6-1/2 yds. water level and over; Vehicle or combination of vehicles - 4 or more axles; Oil spreader truck; Dump truck, 16 yds. to 25 yds. water level

GROUP 7: A Frame, Swedish crane or similar; Forklift driver; Ross carrier driver

GROUP 8: Dump truck, 25 yds. to 49 yds. water level; Truck repair person; Water pull - single engine; Welder

GROUP 9: Truck repair person/welder; Low bed driver, 9 axles or over

GROUP 10: Dump truck - 50 yds. or more water level; Water pull - single engine with attachment

GROUP 11: Water pull - twin engine; Water pull - twin engine with attachments; Winch truck driver - \$1.25 additional when operating winch or similar special attachments

GROUP 12: Boom Truck 17K and above

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the

Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a

weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

=====

END OF GENERAL DECISION"

**AGREEMENT
FOR PUBLIC WORKS SERVICES BETWEEN
THE CITY OF BELL AND _____**

THIS AGREEMENT FOR PUBLIC WORKS SERVICES (herein "Agreement") is made and entered into this _____ day of _____, 2025, by and between the City of Bell, a California charter city ("City") and _____ ("Contractor"). City and Contractor are sometimes hereinafter individually referred to as "Party" and hereinafter collectively referred to as the "Parties".

RECITALS

A. City has sought, by issuance of a Request for Proposals or Invitation for Bids, the performance of the services defined and described particularly in Article 1 of this Agreement.

B. Contractor, following submission of a proposal or bid for the performance of the services defined and described particularly in Article 1 of this Agreement, was selected by the City to perform those services.

C. Pursuant to the City of Bell Municipal Code, City has authority to enter into and execute this Agreement.

D. The Parties desire to formalize the selection of Contractor for performance of those services defined and described particularly in Article 1 of this Agreement and desire that the terms of that performance be as particularly defined and described herein.

OPERATIVE PROVISIONS

NOW, THEREFORE, in consideration of the mutual promises and covenants made by the Parties and contained herein and other consideration, the value and adequacy of which are hereby acknowledged, the parties agree as follows:

ARTICLE 1. WORK OF CONTRACTOR

1.1 Scope of Work.

In compliance with all terms and conditions of this Agreement, the Contractor shall provide those services specified in the "Scope of Work" attached hereto as Exhibit "A" and incorporated herein by this reference, which may be referred to herein as the "services" or "work" hereunder. As a material inducement to the City entering into this Agreement, Contractor represents and warrants that it has the qualifications, experience, and facilities necessary to properly perform the work required under this Agreement in a thorough, competent, and professional manner, and is experienced in performing the work and services contemplated herein. Contractor shall at all times faithfully, competently and to the best of its ability, experience and talent, perform all services described herein. Contractor covenants that it shall follow the highest professional standards in performing the work and services required hereunder and that all materials will be both of good quality as well as fit for the purpose intended. For purposes of this Agreement, the phrase

“highest professional standards” shall mean those standards of practice recognized by one or more first-class firms performing similar work under similar circumstances.

1.2 Bid Documents.

The Scope of Work shall include the Plans, Specifications, and Contract Documents for the project entitled PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2, FY 2025-2024, including any documents or exhibits referenced therein (collectively, “bid documents”), all of which are incorporated herein by this reference. In the event of any inconsistency between the terms of the bid documents and this Agreement, the terms of this Agreement shall govern.

1.3 Compliance with Law.

Contractor shall keep itself informed concerning, and shall render all services hereunder in accordance with, all ordinances, resolutions, statutes, rules, and regulations of the City and any Federal, State or local governmental entity having jurisdiction in effect at the time service is rendered.

1.4 Compliance with California Labor Law.

(a) Public Work. The Parties acknowledge that the work to be performed under this Agreement is a “public work” as defined in Labor Code Section 1720 and that this Agreement is therefore subject to the requirements of Division 2, Part 7, Chapter 1 (commencing with Section 1720) of the California Labor Code relating to public works contracts and the rules and regulations established by the Department of Industrial Relations (“DIR”) implementing such statutes. The work performed under this Agreement is subject to compliance monitoring and enforcement by the DIR. Contractor shall post job site notices, as prescribed by regulation.

(b) Prevailing Wages. Contractor shall pay prevailing wages to the extent required by Labor Code Section 1771. Pursuant to Labor Code Section 1773.2, copies of the prevailing rate of per diem wages are on file at City Hall and will be made available to any interested party on request. By initiating any work under this Agreement, Contractor acknowledges receipt of a copy of the Department of Industrial Relations (DIR) determination of the prevailing rate of per diem wages, and Contractor shall post a copy of the same at each job site where work is performed under this Agreement.

(c) Penalty for Failure to Pay Prevailing Wages. Contractor shall comply with and be bound by the provisions of Labor Code Sections 1774 and 1775 concerning the payment of prevailing rates of wages to workers and the penalties for failure to pay prevailing wages. The Contractor shall, as a penalty to the City, forfeit two hundred dollars (\$200) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates as determined by the DIR for the work or craft in which the worker is employed for any public work done pursuant to this Agreement by Contractor or by any subcontractor.

(d) Payroll Records. Contractor shall comply with and be bound by the provisions of Labor Code Section 1776, which requires Contractor and each subcontractor to: keep accurate payroll records and verify such records in writing under penalty of perjury, as specified in Section 1776; certify and make such payroll records

available for inspection as provided by Section 1776; and inform the City of the location of the records.

(e) Apprentices. Contractor shall comply with and be bound by the provisions of Labor Code Sections 1777.5, 1777.6, and 1777.7 and California Code of Regulations Title 8, Section 200 *et seq.* concerning the employment of apprentices on public works projects. Contractor shall be responsible for compliance with these aforementioned Sections for all apprenticeable occupations. Prior to commencing work under this Agreement, Contractor shall provide City with a copy of the information submitted to any applicable apprenticeship program. Within sixty (60) days after concluding work pursuant to this Agreement, Contractor and each of its subcontractors shall submit to the City a verified statement of the journeyman and apprentice hours performed under this Agreement.

(f) Eight-Hour Work Day. Contractor acknowledges that eight (8) hours labor constitutes a legal day's work. Contractor shall comply with and be bound by Labor Code Section 1810.

(g) Penalties for Excess Hours. Contractor shall comply with and be bound by the provisions of Labor Code Section 1813 concerning penalties for workers who work excess hours. The Contractor shall, as a penalty to the City, forfeit twenty-five dollars (\$25) for each worker employed in the performance of this Agreement by the Contractor or by any subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of Division 2, Part 7, Chapter 1, Article 3 of the Labor Code. Pursuant to Labor Code section 1815, work performed by employees of Contractor in excess of eight (8) hours per day, and forty (40) hours during any one week shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than one and one-half (1½) times the basic rate of pay.

(h) Workers' Compensation. California Labor Code Sections 1860 and 3700 provide that every employer will be required to secure the payment of compensation to its employees if it has employees. In accordance with the provisions of California Labor Code Section 1861, Contractor certifies as follows:

"I am aware of the provisions of Section 3700 of the Labor Code 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 of this contract."

Contractor's Authorized Initials _____

(i) Contractor's Responsibility for Subcontractors. For every subcontractor who will perform work under this Agreement, Contractor shall be responsible for such subcontractor's compliance with Division 2, Part 7, Chapter 1 (commencing with Section 1720) of the California Labor Code, and shall make such compliance a requirement in any contract with any subcontractor for work under this Agreement. Contractor shall be required to take all actions necessary to enforce such contractual provisions and ensure subcontractor's compliance, including

without limitation, conducting a review of the certified payroll records of the subcontractor on a periodic basis or upon becoming aware of the failure of the subcontractor to pay his or her workers the specified prevailing rate of wages. Contractor shall diligently take corrective action to halt or rectify any such failure by any subcontractor.

1.5 Licenses, Permits, Fees and Assessments.

Contractor shall obtain at its sole cost and expense such licenses, permits, registrations, and approvals as may be required by law for the performance of the services required by this Agreement. Contractor shall have the sole obligation to pay for any fees, assessments and taxes, plus applicable penalties and interest, which may be imposed by law and arise from or are necessary for the Contractor's performance of the services required by this Agreement, and shall indemnify, defend and hold harmless City, its officers, employees or agents of City, against any such fees, assessments, taxes, penalties or interest levied, assessed or imposed against City hereunder.

1.6 Familiarity with Work.

(a) By executing this Agreement, Contractor warrants that Contractor (i) has thoroughly investigated and considered the scope of work to be performed, (ii) has carefully considered how the services should be performed, and (iii) fully understands the facilities, difficulties and restrictions attending performance of the services under this Agreement. If the services involve work upon any site, Contractor warrants that Contractor has or will investigate the site and is or will be fully acquainted with the conditions there existing, prior to commencement of services hereunder.

(b) Contractor shall promptly, and before the following conditions are disturbed, notify the City, in writing, of any: (i) material Contractor believes may be hazardous waste as defined in Section 25117 of the Health & Safety Code required to be removed to a Class I, II, or III disposal site in accordance with existing law; (ii) subsurface, unknown or latent conditions, materially different from those indicated; or (iii) unknown physical conditions at the site of any unusual nature, different from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Agreement, and will materially affect the performance of the services hereunder.

(c) City shall promptly investigate the conditions, and if it finds that the conditions do materially differ, or do 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, shall issue a change order per Section 1.10 of this Agreement.

(d) In the event that a dispute arises between City and Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in Contractor's cost of, or time required for, performance of any part of the work, Contractor shall not be excused from any scheduled completion date set, but shall proceed with all work to be performed under the Agreement. Contractor shall retain any and all rights provided either by contract or by law, which pertain to the resolution of disputes and protests between the contracting parties.

(e) City will compensate Contractor to the extent required by Government Code Section 4215 by issuing a change order per Section 1.10 of this Agreement.

1.7 Protection and Care of Work and Materials.

The Contractor shall adopt reasonable methods, including providing and maintaining storage facilities, during the life of the Agreement to furnish continuous protection to the work, and the equipment, materials, papers, documents, plans, studies and/or other components thereof to prevent losses or damages, and shall be responsible for all such damages, to persons or property, until acceptance of the work by City, except such losses or damages as caused by City's own negligence. Stored materials shall be reasonably accessible for inspection. Contractor shall not, without City's consent, assign, sell, mortgage, hypothecate, or remove equipment or materials which have been installed or delivered and which may be necessary for the completion of the work.

1.8 Warranty.

Contractor warrants all work under the Agreement (which for purposes of this Section shall be deemed to include unauthorized work which has not been removed and any non-conforming materials incorporated into the work) to be of good quality and free from any defective or faulty material and workmanship. Contractor agrees that for a period of one year (or the period of time specified elsewhere in the Agreement or in any guarantee or warranty provided by any manufacturer or supplier of equipment or materials incorporated into the work, whichever is later) after the date of final acceptance, Contractor shall within ten (10) days after being notified in writing by the City of any defect in the work or non-conformance of the work to the Agreement, commence and prosecute with due diligence all work necessary to fulfill the terms of the warranty at its sole cost and expense. Contractor shall act as soon as requested by the City in response to an emergency. In addition, Contractor shall, at its sole cost and expense, repair, remove and replace any portions of the work (or work of other contractors) damaged by its defective work or which becomes damaged in the course of repairing or replacing defective work. For any work so corrected, Contractor's obligation hereunder to correct defective work shall be reinstated for an additional one-year period, commencing with the date of acceptance of such corrected work. Contractor shall perform such tests as the City may require verifying that any corrective actions, including, without limitation, redesign, repairs, and replacements comply with the requirements of the Agreement. All costs associated with such corrective actions and testing, including the removal, replacement, and reinstitution of equipment and materials necessary to gain access, shall be the sole responsibility of the Contractor. All warranties and guarantees of subcontractors, suppliers and manufacturers with respect to any portion of the work, whether express or implied, are deemed to be obtained by Contractor for the benefit of the City, regardless of whether or not such warranties and guarantees have been transferred or assigned to the City by separate agreement and Contractor agrees to enforce such warranties and guarantees, if necessary, on behalf of the City. In the event that Contractor fails to perform its obligations under this Section, or under any other warranty or guaranty under this Agreement, to the reasonable satisfaction of the City, the City shall have the right to correct and replace any defective or non-conforming work and any work damaged by such work or the replacement or correction thereof at Contractor's sole expense. Contractor shall be obligated to fully reimburse the City for any expenses incurred hereunder upon demand.

1.9 Further Responsibilities of Parties.

Both parties agree to use reasonable care and diligence to perform their respective obligations under this Agreement. Both parties agree to act in good faith to execute all instruments, prepare all documents and take all actions as may be reasonably necessary to carry out the purposes of this Agreement. Unless hereafter specified, neither party shall be responsible for the service of the other.

1.10 Additional Work and Change Orders.

(a) City shall have the right at any time during the performance of the services, without invalidating this Agreement, to order extra work beyond that specified in the Scope of Work or make changes by altering, adding to or deducting from said work. No such extra work may be undertaken unless a written change order is first given by the Contract Officer to the Contractor, incorporating therein any adjustment in (i) the Contract Sum, and/or (ii) the time to perform this Agreement, which said adjustments are subject to the written approval of the Contractor ("Change Order"). All Change Orders must be signed by the Contractor and Contract Officer prior to commencing the extra work thereunder.

(b) Any increase in compensation of up to ten percent (10%) of the Contract Sum or \$25,000, whichever is less; or any increase in the time to perform of up to one hundred eighty (180) days; and does not materially affect the Work and which are not detrimental to the Work or to the interest of the City, may be approved by the Contract Officer. Any greater increases, taken either separately or cumulatively, must be approved by the City Council.

(c) Any adjustment in the Contract Sum for a Change Order must be in accordance with the rates set forth in the Schedule of Compensation in Exhibit "C". If the rates in the Schedule of Compensation do not cover the type of work in the Change Order, the cost of such work shall not exceed an amount agreed upon in writing and signed by Contractor and Contract Officer. If the cost of the Change Order cannot be agreed upon, the City will pay for actual work of the Change Order completed, to the satisfaction of the City, as follows:

(i) Labor: the cost of labor shall be the actual cost for wages of workers and subcontractors performing the work for the Change Order at the time such work is done. The use of labor classifications that would increase the cost of such work shall not be permitted.

(ii) Materials and Equipment: the cost of materials and equipment shall be at cost to Contractor or lowest current price which such materials and equipment are reasonably available at the time the work is done, whichever is lower.

(iii) If the cost of the extra work cannot be agreed upon, the Contractor must provide a daily report that includes invoices for labor, materials and equipment costs for the work under the Change Order. The daily report must include: list of names of workers, classifications, and hours worked; description and list of quantities of materials used; type of equipment, size, identification number, and hours of operation, including loading and transportation, if applicable; description of other City authorized services and expenditures in such detail as the City may require. Failure to submit a daily

report by the close of the next working day may, at the City's sole and absolute discretion, waive the Contractor's rights for that day.

(d) It is expressly understood by Contractor that the provisions of this Section 1.10 shall not apply to services specifically set forth in the Scope of Work. Contractor hereby acknowledges that it accepts the risk that the services to be provided pursuant to the Scope of Work may be more costly or time consuming than Contractor anticipates and that Contractor shall not be entitled to additional compensation therefor. City may in its sole and absolute discretion have similar work done by other contractors.

(e) No claim for an increase in the Contract Sum or time for performance shall be valid unless the procedures established in this Section are followed.

1.11 Special Requirements.

Additional terms and conditions of this Agreement, if any, which are made a part hereof are set forth in the "Special Requirements" attached hereto as Exhibit "B" and incorporated herein by this reference. In the event of a conflict between the provisions of Exhibit "B" and any other provisions of this Agreement, the provisions of Exhibit "B" shall govern.

ARTICLE 2. COMPENSATION AND METHOD OF PAYMENT.

2.1 Contract Sum.

Subject to any limitations set forth in this Agreement, City agrees to pay Contractor the amounts specified in the "Schedule of Compensation" attached hereto as Exhibit "C" and incorporated herein by this reference. The total compensation, including reimbursement for actual expenses, shall not _____ Dollars (\$) (the "Contract Sum"), unless exceed _____ additional compensation is approved pursuant to Section 1.10.

2.2 Method of Compensation.

The method of compensation may include: (i) a lump sum payment upon completion; (ii) payment in accordance with specified tasks or the percentage of completion of the services less the contract retention; (iii) payment for time and materials based upon the Contractor's rates as specified in the Schedule of Compensation, provided that (a) time estimates are provided for the performance of sub tasks, (b) contract retention is maintained and (c) the Contract Sum is not exceeded; or (iv) such other methods as may be specified in the Schedule of Compensation.

2.3 Reimbursable Expenses.

Compensation may include reimbursement for actual and necessary expenditures for reproduction costs, telephone expenses, and travel expenses approved by the Contract Officer in advance, or actual subcontractor expenses of an approved subcontractor pursuant to Section 4.5, and only if specified in the Schedule of Compensation. The Contract Sum shall include the attendance of Contractor at all project meetings reasonably deemed necessary by the City. Coordination of the performance of the work with City is a critical component of the services. If Contractor is required to attend

additional meetings to facilitate such coordination, Contractor shall not be entitled to any additional compensation for attending said meetings.

2.4 Invoices.

Each month Contractor shall furnish to City an original invoice for all work performed and expenses incurred during the preceding month in a form approved by City's Director of Finance. By submitting an invoice for payment under this Agreement, Contractor is certifying compliance with all provisions of the Agreement. The invoice shall detail charges for all necessary and actual expenses by the following categories: labor (by sub-category), travel, materials, equipment, supplies, and sub-contractor contracts. Sub-contractor charges shall also be detailed by such categories. Contractor shall not invoice City for any duplicate services performed by more than one person.

City shall, as soon as practicable, independently review each invoice submitted by the Contractor to determine whether the work performed, and expenses incurred are in compliance with the provisions of this Agreement. Except as to any charges for work performed or expenses incurred by Contractor which are disputed by City, or as provided in Section 7.3, City will cause Contractor to be paid within thirty (30) days of receipt of Contractor's correct and undisputed invoice; however, Contractor acknowledges and agrees that due to City warrant run procedures, the City cannot guarantee that payment will occur within this time period. In the event that City does not cause Contractor to be paid within thirty (30) days of receipt of an undisputed and properly submitted invoice, Contractor shall be entitled to the payment of interest to the extent allowed under Public Contract Code Section 20104.50. In the event any charges or expenses are disputed by City, the original invoice shall be returned by City to Contractor, not later than seven (7) days after receipt by the City, for correction and resubmission. Returned invoices shall be accompanied by a document setting forth in writing the reasons why the payment request was rejected. Review and payment by the City of any invoice provided by the Contractor shall not constitute a waiver of any rights or remedies provided herein or any applicable law.

2.5 Waiver.

Payment to Contractor for work performed pursuant to this Agreement shall not be deemed to waive any defects in work performed by Contractor.

ARTICLE 3. PERFORMANCE SCHEDULE

3.1 Time of Essence.

Time is of the essence in the performance of this Agreement.

3.2 Schedule of Performance.

Contractor shall commence the services pursuant to this Agreement upon receipt of a written notice to proceed and shall perform all services within the time period(s) established in the "Schedule of Performance" attached hereto as Exhibit "D" and incorporated herein by this reference. When requested by the Contractor, extensions to the time period(s) specified in the Schedule of Performance may be approved in writing by the Contract Officer but not exceeding one hundred eighty (180) days cumulatively.

3.3 Force Majeure.

The time period(s) specified in the Schedule of Performance for performance of the services rendered pursuant to this Agreement shall be extended because of any delays due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, unusually severe weather, fires, earthquakes, floods, epidemics, quarantine restrictions, riots, strikes, freight embargoes, wars, litigation, and/or acts of any governmental agency, including the City, if the Contractor shall within ten (10) days of the commencement of such delay notify the Contract Officer in writing of the causes of the delay. The Contract Officer shall ascertain the facts and the extent of delay and extend the time for performing the services for the period of the enforced delay when and if in the judgment of the Contract Officer such delay is justified. The Contract Officer's determination shall be final and conclusive upon the parties to this Agreement. In no event shall Contractor be entitled to recover damages against the City for any delay in the performance of this Agreement, however caused, Contractor's sole remedy being extension of the Agreement pursuant to this Section.

3.4 Inspection and Final Acceptance.

City may inspect and accept or reject any of Contractor's work under this Agreement, either during performance or when completed. City shall reject or finally accept Contractor's work within forty-five (45) days after submitted to City. City shall accept work by a timely written acceptance, otherwise work shall be deemed to have been rejected. City's acceptance shall be conclusive as to such work except with respect to latent defects, fraud and such gross mistakes as to amount to fraud. Acceptance of any work by City shall not constitute a waiver of any of the provisions of this Agreement including, but not limited to, Articles 1 and 5, pertaining to warranty and indemnification and insurance, respectively.

3.5 Term.

Unless earlier terminated in accordance with Article 7 of this Agreement, this Agreement shall continue in full force and effect until completion of the services but not exceeding one (1) years from the date hereof, except as otherwise provided in the Schedule of Performance (Exhibit "D").

ARTICLE 4. COORDINATION OF WORK

4.1 Representatives and Personnel of Contractor.

The following principals of Contractor ("Principals") are hereby designated as being the principals and representatives of Contractor authorized to act in its behalf with respect to the work specified herein and make all decisions in connection therewith:

(Name)

(Title)

(Name)

(Title)

(Name) _____ (Title) _____

It is expressly understood that the experience, knowledge, capability and reputation of the foregoing Principals were a substantial inducement for City to enter into this Agreement. Therefore, the Principals shall be responsible during the term of this Agreement for directing all activities of Contractor and devoting sufficient time to personally supervise the services hereunder. All personnel of Contractor, and any authorized agents, shall at all times be under the exclusive direction and control of the principals. For purposes of this Agreement, the Principals may not be replaced, nor may their responsibilities be substantially reduced by Contractor without the express written approval of City. Additionally, Contractor shall make every reasonable effort to maintain the stability and continuity of Contractor's staff and subcontractors, if any, assigned to perform the services required under this Agreement. Contractor shall notify City of any changes in Contractor's staff and subcontractors, if any, assigned to perform the services required under this Agreement, prior to and during any such performance.

4.2 Status of Contractor.

Contractor shall have no authority to bind City in any manner, or to incur any obligation, debt or liability of any kind on behalf of or against City, whether by contract or otherwise, unless such authority is expressly conferred under this Agreement or is otherwise expressly conferred in writing by City. Contractor shall not at any time or in any manner represent that Contractor or any of Contractor's officers, employees, or agents are in any manner officials, officers, employees, or agents of City. Neither Contractor, nor any of Contractor's officers, employees, or agents, shall obtain any rights to retirement, health care or any other benefits which may otherwise accrue to City's employees. Contractor expressly waives any claim Contractor may have to any such rights.

4.3 Contract Officer.

The Contract Officer shall be [_____] or] such person as may be designated by the City Manager. It shall be the Contractor's responsibility to assure that the Contract Officer is kept informed of the progress of the performance of the services and the Contractor shall refer any decisions which must be made by City to the Contract Officer. Unless otherwise specified herein, any approval of City required hereunder shall mean the approval of the Contract Officer. The Contract Officer shall have authority, if specified in writing by the City Manager, to sign all documents on behalf of the City required hereunder to carry out the terms of this Agreement.

4.4 Independent Contractor.

Neither the City nor any of its employees shall have any control over the manner, mode or means by which Contractor, its agents or employees, perform the services required herein, except as otherwise set forth herein. City shall have no voice in the selection, discharge, supervision or control of Contractor's employees, servants, representatives, or agents, or in fixing their number, compensation or hours of service. Contractor shall perform all services required herein as an independent contractor of City and shall remain at all times as to City a wholly independent contractor with only such obligations as are consistent with that role. Contractor shall not at any time or in any

manner represent that it or any of its agents or employees are agents or employees of City. City shall not in any way or for any purpose become or be deemed to be a partner of Contractor in its business or otherwise or a joint venturer or a member of any joint enterprise with Contractor.

4.5 Prohibition Against Subcontracting or Assignment.

The experience, knowledge, capability and reputation of Contractor, its principals and employees were a substantial inducement for the City to enter into this Agreement. Therefore, Contractor shall not contract with any other entity to perform in whole or in part the services required hereunder without the express written approval of the City. All subcontractors shall obtain, at its or Contractor's expense, such licenses, permits, registrations and approvals (including from the City) as may be required by law for the performance of any services or work under this Agreement. In addition, neither this Agreement nor any interest herein may be transferred, assigned, conveyed, hypothecated, or encumbered voluntarily or by operation of law, whether for the benefit of creditors or otherwise, without the prior written approval of City. Transfers restricted hereunder shall include the transfer to any person or group of persons acting in concert of more than twenty five percent (25%) of the present ownership and/or control of Contractor, taking all transfers into account on a cumulative basis. In the event of any such unapproved transfer, including any bankruptcy proceeding, this Agreement shall be void. No approved transfer shall release the Contractor or any surety of Contractor of any liability hereunder without the express consent of City.

ARTICLE 5. INSURANCE, INDEMNIFICATION AND BONDS

5.1 Insurance Coverages.

The Contractor shall procure and maintain, at its sole cost and expense, in a form and content satisfactory to City, during the entire term of this Agreement including any extension thereof, the following policies of insurance which shall cover all elected and appointed officers, employees and agents of City:

(a) Commercial General Liability Insurance (Occurrence Form CG0001 or equivalent). A policy of comprehensive general liability insurance written on a per occurrence basis for bodily injury, personal injury and property damage. The policy of insurance shall be in an amount not less than \$1,000,000 per occurrence or if a general aggregate limit is used, then the general aggregate limit shall be twice the occurrence limit.

(b) Workers Compensation Insurance. A policy of workers compensation insurance in such amount as will fully comply with the laws of the State of California and which shall indemnify, insure and provide legal defense for the Contractor against any loss, claim or damage arising from any injuries or occupational diseases occurring to any worker employed by or any persons retained by the Contractor in the course of carrying out the work or services contemplated in this Agreement.

(c) Automotive Insurance (Form CA 0001 (Ed 1/87) including "any auto" and endorsement CA 0025 or equivalent). A policy of comprehensive automobile liability insurance written on a per occurrence for bodily injury and property damage in an amount not less than \$1,000,000. Said policy shall include coverage for owned, non-owned, leased, hired cars and any automobile.

(d) Professional Liability. Professional liability insurance appropriate to the Contractor's profession. This coverage may be written on a "claims made" basis, and must include coverage for contractual liability. The professional liability insurance required by this Agreement must be endorsed to be applicable to claims based upon, arising out of or related to services performed under this Agreement. The insurance must be maintained for at least 5 consecutive years following the completion of Contractor's services or the termination of this Agreement. During this additional 5-year period, Contractor shall annually and upon request of the City submit written evidence of this continuous coverage.

(e) Additional Insurance. Policies of such other insurance, as may be required in the Special Requirements in Exhibit "B".

(f) Subcontractors. Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and certified endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

5.2 General Insurance Requirements.

All of the above policies of insurance shall be primary insurance and shall name the City, its elected and appointed officers, employees and agents as additional insureds and any insurance maintained by City or its officers, employees or agents may apply in excess of, and not contribute with Contractor's insurance. The insurer is deemed hereof to waive all rights of subrogation and contribution it may have against the City, its officers, employees and agents and their respective insurers. Moreover, the insurance policy must specify that where the primary insured does not satisfy the self-insured retention, any additional insured may satisfy the self-insured retention.

All of said policies of insurance shall provide that said insurance may not be amended or cancelled by the insurer or any party hereto without providing thirty (30) days prior written notice by certified mail return receipt requested to the City. In the event any of said policies of insurance are cancelled, the Contractor shall, prior to the cancellation date, submit new evidence of insurance in conformance with Section 5.1 to the Contract Officer.

No work or services under this Agreement shall commence until the Contractor has provided the City with Certificates of Insurance, additional insured endorsement forms or appropriate insurance binders evidencing the above insurance coverages and said Certificates of Insurance or binders are approved by the City. City reserves the right to inspect complete, certified copies of and endorsements to all required insurance policies at any time. Any failure to comply with the reporting or other provisions of the policies including breaches or warranties shall not affect coverage provided to City.

All certificates shall name the City as additional insured (providing the appropriate endorsement) and shall conform to the following "cancellation" notice:

CANCELLATION:

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE
CANCELLED BEFORE THE EXPIRATION DATED
THEREOF, THE ISSUING COMPANY SHALL MAIL THIRTY**

(30)-DAY ADVANCE WRITTEN NOTICE TO CERTIFICATE
HOLDER NAMED HEREIN.

[to be initialed]

Agent's Initials

City, its respective elected and appointed officers, directors, officials, employees, agents and volunteers are to be covered as additional insureds as respects: liability arising out of activities Contractor performs; products and completed operations of Contractor; premises owned, occupied or used by Contractor; or any automobiles owned, leased, hired or borrowed by Contractor. The coverage shall contain no special limitations on the scope of protection afforded to City, and their respective elected and appointed officers, officials, employees or volunteers. Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

Any deductibles or self-insured retentions must be declared to and approved by City. At the option of City, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects City or its respective elected or appointed officers, officials, employees and volunteers or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration, defense expenses and claims. The Contractor agrees that the requirement to provide insurance shall not be construed as limiting in any way the extent to which the Contractor may be held responsible for the payment of damages to any persons or property resulting from the Contractor's activities or the activities of any person or persons for which the Contractor is otherwise responsible nor shall it limit the Contractor's indemnification liabilities as provided in Section 5.3.

In the event the Contractor subcontracts any portion of the work in compliance with Section 4.5 of this Agreement, the contract between the Contractor and such subcontractor shall require the subcontractor to maintain the same policies of insurance that the Contractor is required to maintain pursuant to Section 5.1, and such certificates and endorsements shall be provided to City.

5.3 Indemnification.

To the full extent permitted by law, Contractor agrees to indemnify, defend and hold harmless the City, its officers, employees and agents ("Indemnified Parties") against, and will hold and save them and each of them harmless from, any and all actions, either judicial, administrative, arbitration or regulatory claims, damages to persons or property, losses, costs, penalties, obligations, errors, omissions or liabilities whether actual or threatened (herein "claims or liabilities") that may be asserted or claimed by any person, firm or entity arising out of or in connection with the negligent performance of the work, operations or activities provided herein of Contractor, its officers, employees, agents, subcontractors, or invitees, or any individual or entity for which Contractor is legally liable ("indemnitors"), or arising from Contractor's or indemnitors' reckless or willful misconduct, or arising from Contractor's or indemnitors' negligent performance of or failure to perform any term, provision, covenant or condition of this Agreement, and in connection therewith:

(a) Contractor will defend any action or actions filed in connection with any of said claims or liabilities and will pay all costs and expenses, including legal costs and attorneys' fees incurred in connection therewith;

(b) Contractor will promptly pay any judgment rendered against the City, its officers, agents or employees for any such claims or liabilities arising out of or in connection with the negligent performance of or failure to perform such work, operations or activities of Contractor hereunder; and Contractor agrees to save and hold the City, its officers, agents, and employees harmless therefrom;

(c) In the event the City, its officers, agents or employees is made a party to any action or proceeding filed or prosecuted against Contractor for such damages or other claims arising out of or in connection with the negligent performance of or failure to perform the work, operation or activities of Contractor hereunder, Contractor agrees to pay to the City, its officers, agents or employees, any and all costs and expenses incurred by the City, its officers, agents or employees in such action or proceeding, including but not limited to, legal costs and attorneys' fees.

In addition, Contractor agrees to indemnify, defend and hold harmless the Indemnified Parties from, any and all claims and liabilities for any infringement of patent rights, copyrights or trademark on any person or persons in consequence of the use by the Indemnified Parties of articles to be supplied by Contractor under this Agreement, and of which the Contractor is not the patentee or assignee or has not the lawful right to sell the same.

Contractor shall incorporate similar indemnity agreements with its subcontractors and if it fails to do so Contractor shall be fully responsible to indemnify City hereunder therefore, and failure of City to monitor compliance with these provisions shall not be a waiver hereof. This indemnification includes claims or liabilities arising from any negligent or wrongful act, error or omission, or reckless or willful misconduct of Contractor in the performance of professional services and work hereunder. The provisions of this Section do not apply to claims or liabilities occurring as a result of City's sole negligence or willful acts or omissions, but, to the fullest extent permitted by law, shall apply to claims and liabilities resulting in part from City's negligence, except that design professionals' indemnity hereunder shall be limited to claims and liabilities arising out of the negligence, recklessness or willful misconduct of the design professional. The indemnity obligation shall be binding on successors and assigns of Contractor and shall survive termination of this Agreement.

5.4 Notification of Third-Party Claims.

City shall timely notify Contractor of the receipt of any third-party claim relating to the work under this Agreement. City shall be entitled to recover from Contractor its reasonable costs incurred in providing such notification.

5.5 Performance and Labor Bonds.

Concurrently with execution of this Agreement Contractor shall deliver to the City, the following:

(a) A performance bond in the amount of the Contract Sum of this Agreement, in the form provided by the City Clerk, which secures the faithful performance of this Agreement.

(b) A labor and materials bond in the amount of the Contract Sum of this Agreement, in the form provided by the City Clerk, which secures the payment of all persons furnishing labor and/or materials in connection with the work under this Agreement.

Both the performance and labors bonds required under this Section 5.5 shall contain the original notarized signature of an authorized officer of the surety and affixed thereto shall be a certified and current copy of his power of attorney. The bond shall be unconditional and remain in force during the entire term of the Agreement and shall be null and void only if the Contractor promptly and faithfully performs all terms and conditions of this Agreement and pays all labor and materials for work and services under this Agreement.

5.6 Sufficiency of Insurer or Surety.

Insurance and bonds required by this Agreement shall be satisfactory only if issued by companies qualified to do business in California, rated "A" or better in the most recent edition of Best's Rating Guide, The Key Rating Guide or in the Federal Register, and only if they are of a financial category Class VII or better, unless such requirements are waived by the Risk Manager of the City ("Risk Manager") due to unique circumstances. If this Agreement continues for more than 3 years duration, or in the event the Risk Manager determines that the work or services to be performed under this Agreement creates an increased or decreased risk of loss to the City, the Contractor agrees that the minimum limits of the insurance policies and the performance bond required by Section 5.5 may be changed accordingly upon receipt of written notice from the Risk Manager.

5.7 Substitution of Securities.

Pursuant to Public Contract Code Section 22300, substitution of eligible equivalent securities for any funds withheld to ensure performance under this Agreement may be permitted at the request and sole expense of the Contractor. Alternatively, the Contractor may, pursuant to an escrow agreement in a form prescribed by Public Contract Code Section 22300, request payment of retentions funds earned directly to the escrow agent at the sole expense of the Contractor.

5.8 Release of Securities.

City shall release the Performance and Labor Bonds when the following have occurred:

(a) Contractor has made a written request for release and provided evidence of satisfaction of all other requirements under Article 5 of this Agreement.

(b) the Work has been accepted; and

(c) after passage of the time within which lien claims are required to be made pursuant to applicable laws; if lien claims have been timely filed, City shall hold the Labor

Bond until such claims have been resolved, Contractor has provided statutory bond, or otherwise as required by applicable law.

ARTICLE 6. RECORDS, REPORTS, AND RELEASE OF INFORMATION

6.1 Records.

Contractor shall keep, and require subcontractors to keep, such ledgers, books of accounts, invoices, vouchers, canceled checks, reports, studies, certified and accurate copies of payroll records in compliance with all applicable laws, or other documents relating to the disbursements charged to City and services performed hereunder (the "books and records"), as shall be necessary to perform the services required by this Agreement and enable the Contract Officer to evaluate the performance of such services. Any and all such documents shall be maintained in accordance with generally accepted accounting principles and shall be complete and detailed. The Contract Officer shall have full and free access to such books and records at all times during normal business hours of City, including the right to inspect, copy, audit and make records and transcripts from such records. Such records shall be maintained for a period of 3 years following completion of the services hereunder, and the City shall have access to such records in the event any audit is required. In the event of dissolution of Contractor's business, custody of the books and records may be given to City, and access shall be provided by Contractor's successor in interest. Notwithstanding the above, the Contractor shall fully cooperate with the City in providing access to the books and records if a public records request is made and disclosure is required by law including but not limited to the California Public Records Act.

6.2 Reports.

Contractor shall periodically prepare and submit to the Contract Officer such reports concerning the performance of the services required by this Agreement as the Contract Officer shall require. Contractor hereby acknowledges that the City is greatly concerned about the cost of work and services to be performed pursuant to this Agreement. For this reason, Contractor agrees that if Contractor becomes aware of any facts, circumstances, techniques, or events that may or will materially increase or decrease the cost of the work or services contemplated herein or, if Contractor is providing design services, the cost of the project being designed, Contractor shall promptly notify the Contract Officer of said fact, circumstance, technique or event and the estimated increased or decreased cost related thereto and, if Contractor is providing design services, the estimated increased or decreased cost estimate for the project being designed.

6.3 Ownership of Documents.

All drawings, specifications, maps, designs, photographs, studies, surveys, data, notes, computer files, reports, records, documents and other materials (the "documents and materials") prepared by Contractor, its employees, subcontractors and agents in the performance of this Agreement shall be the property of City and shall be delivered to City upon request of the Contract Officer or upon the termination of this Agreement, and Contractor shall have no claim for further employment or additional compensation as a result of the exercise by City of its full rights of ownership use, reuse, or assignment of the documents and materials hereunder. Any use, reuse or assignment of

such completed documents for other projects and/or use of uncompleted documents without specific written authorization by the Contractor will be at the City's sole risk and without liability to Contractor, and Contractor's guarantee and warranties shall not extend to such use, reuse or assignment. Contractor may retain copies of such documents for its own use. Contractor shall have an unrestricted right to use the concepts embodied therein. All subcontractors shall provide for assignment to City of any documents or materials prepared by them, and in the event Contractor fails to secure such assignment, Contractor shall indemnify City for all damages resulting therefrom. Moreover, Contractor with respect to any documents and materials that may qualify as "works made for hire" as defined in 17 U.S.C. § 101, such documents and materials are hereby deemed "works made for hire" for the City.

6.4 Confidentiality and Release of Information.

(a) information gained or work product produced by Contractor in performance of this Agreement shall be considered confidential, unless such information is in the public domain or already known to Contractor. Contractor shall not release or disclose any such information or work product to persons or entities other than City without prior written authorization from the Contract Officer.

(b) Contractor, its officers, employees, agents or subcontractors, shall not, without prior written authorization from the Contract Officer or unless requested by the City Attorney, voluntarily provide documents, declarations, letters of support, testimony at depositions, response to interrogatories or other information concerning the work performed under this Agreement. Response to a subpoena or court order shall not be considered "voluntary" provided Contractor gives City notice of such court order or subpoena.

(c) If Contractor, or any officer, employee, agent or subcontractor of Contractor, provides any information or work product in violation of this Agreement, then City shall have the right to reimbursement and indemnity from Contractor for any damages, costs and fees, including attorneys' fees, caused by or incurred as a result of Contractor's conduct.

(d) Contractor shall promptly notify City should Contractor, its officers, employees, agents or subcontractors be served with any summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, request for admissions or other discovery request, court order or subpoena from any party regarding this Agreement and the work performed there under. City retains the right, but has no obligation, to represent Contractor or be present at any deposition, hearing or similar proceeding. Contractor agrees to cooperate fully with City and to provide City with the opportunity to review any response to discovery requests provided by Contractor. However, this right to review any such response does not imply or mean the right by City to control, direct, or rewrite said response.

ARTICLE 7. ENFORCEMENT OF AGREEMENT AND TERMINATION

7.1 California Law.

This Agreement shall be interpreted, construed and governed both as to validity and to performance of the parties in accordance with the laws of the State of California. Legal actions concerning any dispute, claim or matter arising out of or in

relation to this Agreement shall be instituted in the Superior Court of the County of Los Angeles, State of California, or any other appropriate court in such county, and Contractor covenants and agrees to submit to the personal jurisdiction of such court in the event of such action. In the event of litigation in a U.S. District Court, venue shall lie exclusively in the Central District of California, in the County of Los Angeles, State of California.

7.2 Disputes.

(a) Default; Cure. In the event that Contractor is in default under the terms of this Agreement, the City shall not have any obligation or duty to continue compensating Contractor for any work performed after the date of default. Instead, the City may give notice to Contractor of the default and the reasons for the default. The notice shall include the timeframe in which Contractor may cure the default. This timeframe is presumptively thirty (30) days, but may be extended, though not reduced, if circumstances warrant. During the period of time that Contractor is in default, the City shall hold all invoices and shall proceed with payment on the invoices only when the default is cured. In the alternative, the City may, in its sole discretion, elect to pay some or all of the outstanding invoices during the period of default. If Contractor does not cure the default, the City may take necessary steps to terminate this Agreement under this Article. Any failure on the part of the City to give notice of the Contractor's default shall not be deemed to result in a waiver of the City's legal rights or any rights arising out of any provision of this Agreement.

(b) Dispute Resolution. This contract is subject to the provisions of Article 1.5 (commencing at Section 20104) of Division 2, Part 3 of the California Public Contract Code regarding the resolution of public works claims of less than \$375,000. Article 1.5 mandates certain procedures for the filing of claims and supporting documentation by the Contractor, for the response to such claims by the City, for a mandatory meet and confer conference upon the request of the Contractor, for mandatory non-binding mediation in the event litigation is commenced, and for mandatory judicial arbitration upon the failure to resolve the dispute through mediation. This Agreement hereby incorporates the provisions of Article 1.5 as though fully set forth herein.

7.3 Retention of Funds.

Contractor hereby authorizes City to deduct from any amount payable to Contractor (whether or not arising out of this Agreement) (i) any amounts the payment of which may be in dispute hereunder or which are necessary to compensate City for any losses, costs, liabilities, or damages suffered by City, and (ii) all amounts for which City may be liable to third parties, by reason of Contractor's acts or omissions in performing or failing to perform Contractor's obligation under this Agreement. In the event that any claim is made by a third party, the amount or validity of which is disputed by Contractor, or any indebtedness shall exist which shall appear to be the basis for a claim of lien, City may withhold from any payment due, without liability for interest because of such withholding, an amount sufficient to cover such claim. The failure of City to exercise such right to deduct or to withhold shall not, however, affect the obligations of the Contractor to insure, indemnify, and protect City as elsewhere provided herein.

7.4 Waiver.

Waiver by any party to this Agreement of any term, condition, or covenant of this Agreement shall not constitute a waiver of any other term, condition, or covenant. Waiver by any party of any breach of the provisions of this Agreement shall not constitute a waiver of any other provision or a waiver of any subsequent breach or violation of any provision of this Agreement. Acceptance by City of any work or services by Contractor shall not constitute a waiver of any of the provisions of this Agreement. No delay or omission in the exercise of any right or remedy by a non- defaulting party on any default shall impair such right or remedy or be construed as a waiver. Any waiver by either party of any default must be in writing and shall not be a waiver of any other default concerning the same or any other provision of this Agreement.

7.5 Rights and Remedies are Cumulative.

Except with respect to rights and remedies expressly declared to be exclusive in this Agreement, the rights and remedies of the parties are cumulative and the exercise by either party of one or more of such rights or remedies shall not preclude the exercise by it, at the same or different times, of any other rights or remedies for the same default or any other default by the other party.

7.6 Legal Action.

In addition to any other rights or remedies, either party may take legal action, in law or in equity, to cure, correct or remedy any default, to recover damages for any default, to compel specific performance of this Agreement, to obtain declaratory or injunctive relief, or to obtain any other remedy consistent with the purposes of this Agreement. Notwithstanding any contrary provision herein, Contractor shall file a claim pursuant to Government Code Sections 905 et seq. and 910 et seq., in order to pursue a legal action under this Agreement.

7.7 Liquidated Damages.

Since the determination of actual damages for any delay in performance of this Agreement would be extremely difficult or impractical to determine in the event of a breach of this

Agreement, the Contractor and its sureties shall be liable for and shall pay to the City the sum of One Thousand Dollars (\$1,000.00) as liquidated damages for each working day of delay in the performance of any service required hereunder, as specified in the Schedule of Performance (Exhibit "D"), and per section 6-9 of the Special Provisions. The City may withhold from any monies payable on account of services performed by the Contractor any accrued liquidated damages. Pursuant to Government Code Section 4215, Contractor shall not be assessed liquidated damages for delay in completion of the project when such delay was caused by the failure of the public agency or owner of the utility to provide for removal or relocation of utility facilities.

7.8 Termination Prior to Expiration of Term.

This Section shall govern any termination of this Contract except as specifically provided in the following Section for termination for cause. The City reserves the right to terminate this Contract at any time, with or without cause, upon thirty (30) days' written notice to Contractor, except that where termination is due to the fault of the Contractor, the period of notice may be such shorter time as may be determined by the

Contract Officer. In addition, the Contractor reserves the right to terminate this Contract at any time, with or without cause, upon sixty (60) days' written notice to City, except that where termination is due to the fault of the City, the period of notice may be such shorter time as the Contractor may determine. Upon receipt of any notice of termination, Contractor shall immediately cease all services hereunder except such as may be specifically approved by the Contract Officer. Except where the Contractor has initiated termination, the Contractor shall be entitled to compensation for all services rendered prior to the effective date of the notice of termination and for any services authorized by the Contract Officer thereafter in accordance with the Schedule of Compensation or such as may be approved by the Contract Officer, except as provided in Section 7.3. In the event the Contractor has initiated termination, the Contractor shall be entitled to compensation only for the reasonable value of the work product actually produced hereunder. In the event of termination without cause pursuant to this Section, the terminating party need not provide the non-terminating party with the opportunity to cure pursuant to Section 7.2.

7.9 Termination for Default of Contractor.

If termination is due to the failure of the Contractor to fulfill its obligations under this Agreement, City may, after compliance with the provisions of Section 7.2, take over the work and prosecute the same to completion by contract or otherwise, and the Contractor shall be liable to the extent that the total cost for completion of the services required hereunder exceeds the compensation herein stipulated (provided that the City shall use reasonable efforts to mitigate such damages), and City may withhold any payments to the Contractor for the purpose of set-off or partial payment of the amounts owed the City as previously stated.

7.10 Attorneys' Fees.

If either party to this Agreement is required to initiate or defend or made a party to any action or proceeding in any way connected with this Agreement, the prevailing party in such action or proceeding, in addition to any other relief which may be granted, whether legal or equitable, shall be entitled to reasonable attorney's fees. Attorney's fees shall include attorney's fees on any appeal, and in addition a party entitled to attorney's fees shall be entitled to all other reasonable costs for investigating such action, taking depositions and discovery and all other necessary costs the court allows which are incurred in such litigation. All such fees shall be deemed to have accrued on commencement of such action and shall be enforceable whether or not such action is prosecuted to judgment.

7.11 Unfair Business Practices Claims.

In entering into this Agreement, Contractor offers and agrees to assign to the 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 Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services or materials related to this Agreement. This assignment shall be made and become effective at the time the City renders final payment to the Contractor without further acknowledgment of the Parties.

ARTICLE 8. CITY OFFICERS AND EMPLOYEES: NON-DISCRIMINATION

8.1 Non-liability of City Officers and Employees.

No officer or employee of the City shall be personally liable to the Contractor, or any successor in interest, in the event of any default or breach by the City or for any amount which may become due to the Contractor or to its successor, or for breach of any obligation of the terms of this Agreement.

8.2 Conflict of Interest.

Contractor covenants that neither it, nor any officer or principal of its firm, has or shall acquire any interest, directly or indirectly, which would conflict in any manner with the interests of City or which would in any way hinder Contractor's performance of services under this Agreement. Contractor further covenants that in the performance of this Agreement, no person having any such interest shall be employed by it as an officer, employee, agent or subcontractor without the express written consent of the Contract Officer. Contractor agrees to at all times avoid conflicts of interest or the appearance of any conflicts of interest with the interests of City in the performance of this Agreement.

No officer or employee of the City shall have any financial interest, direct or indirect, in this Agreement nor shall any such officer or employee participate in any decision relating to the Agreement which effects his financial interest or the financial interest of any corporation, partnership or association in which he is, directly or indirectly, interested, in violation of any State statute or regulation. The Contractor warrants that it has not paid or given and will not pay or give any third party any money or other consideration for obtaining this Agreement.

8.3 Covenant Against Discrimination.

Contractor covenants that, by and for itself, its heirs, executors, assigns, and all persons claiming under or through them, there shall be no discrimination against or segregation of, any person or group of persons on account of race, color, creed, religion, sex, gender, sexual orientation, marital status, national origin, ancestry, or other protected class in the performance of this Agreement. Contractor shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, creed, religion, sex, gender, sexual orientation, marital status, national origin, ancestry, or other protected class.

8.4 Unauthorized Aliens.

Contractor hereby promises and agrees to comply with all of the provisions of the Federal Immigration and Nationality Act, 8 U.S.C. § 1101 *et seq.*, as amended, and in connection therewith, shall not employ unauthorized aliens as defined therein. Should Contractor so employ such unauthorized aliens for the performance of work and/or services covered by this Agreement, and should any liability or sanctions be imposed against City for such use of unauthorized aliens, Contractor hereby agrees to and shall reimburse City for the cost of all such liabilities or sanctions imposed, together with any and all costs, including attorneys' fees, incurred by City.

ARTICLE 9. MISCELLANEOUS PROVISIONS

9.1 Notices.

Any notice, demand, request, document, consent, approval, or communication either party desires or is required to give to the other party or any other person shall be in writing and either served personally or sent by prepaid, first-class mail, in the case of the City, to the City Manager and to the attention of the Contract Officer (with her/his name and City title), City Of Bell, 6330 Pine Avenue, Bell, CA 90201 and in the case of the Contractor, to the person at the address designated on the execution page of this Agreement. Either party may change its address by notifying the other party of the change of address in writing. Notice shall be deemed communicated at the time personally delivered or in seventy-two (72) hours from the time of mailing if mailed as provided in this Section. All correspondence relating to this Agreement shall be serialized consecutively.

9.2 Interpretation.

The terms of this Agreement shall be construed in accordance with the meaning of the language used and shall not be construed for or against either party by reason of the authorship of this Agreement or any other rule of construction which might otherwise apply.

9.3 Counterparts.

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, and such counterparts shall constitute one and the same instrument.

9.4 Integration; Amendment.

This Agreement including the attachments hereto is the entire, complete and exclusive expression of the understanding of the parties. It is understood that there are no oral agreements between the parties hereto affecting this Agreement and this Agreement supersedes and cancels any and all previous negotiations, arrangements, agreements and understandings, if any, between the parties, and none shall be used to interpret this Agreement. No amendment to or modification of this Agreement shall be valid unless made in writing and approved by the Contractor and by the City Council. The parties agree that this requirement for written modifications cannot be waived and that any attempted waiver shall be void.

9.5 Severability.

In the event that any one or more of the phrases, sentences, clauses, paragraphs, or sections contained in this Agreement shall be declared invalid or unenforceable by a valid judgment or decree of a court of competent jurisdiction, such invalidity or unenforceability shall not affect any of the remaining phrases, sentences, clauses, paragraphs, or sections of this Agreement which are hereby declared as severable and shall be interpreted to carry out the intent of the parties hereunder unless the invalid provision is so material that its invalidity deprives either party of the basic benefit of their bargain or renders this Agreement meaningless.

9.6 Warranty & Representation of Non-Collusion.

No official, officer, or employee of City has any financial interest, direct or indirect, in this Agreement, nor shall any official, officer, or employee of City participate in any decision relating to this Agreement which may affect his/her financial interest or the financial interest of any corporation, partnership, or association in which (s)he is directly or indirectly interested, or in violation of any corporation, partnership, or association in which (s)he is directly or indirectly interested, or in violation of any State or municipal statute or regulation. The determination of "financial interest" shall be consistent with State law and shall not include interests found to be "remote" or "noninterests" pursuant to Government Code Sections 1091 or 1091.5. Contractor warrants and represents that it has not paid or given, and will not pay or give, to any third party including, but not limited to, any City official, officer, or employee, any money, consideration, or other thing of value as a result or consequence of obtaining or being awarded any agreement. Contractor further warrants and represents that (s)he/it has not engaged in any act(s), omission(s), or other conduct or collusion that would result in the payment of any money, consideration, or other thing of value to any third party including, but not limited to, any City official, officer, or employee, as a result of consequence of obtaining or being awarded any agreement. Contractor is aware of and understands that any such act(s), omission(s) or other conduct resulting in such payment of money, consideration, or other thing of value will render this Agreement void and of no force or effect.

Contractor's Authorized Initials _____

9.7 Corporate Authority.

The persons executing this Agreement on behalf of the parties hereto warrant that (i) such party is duly organized and existing, (ii) they are duly authorized to execute and deliver this Agreement on behalf of said party, (iii) by so executing this Agreement, such party is formally bound to the provisions of this Agreement, and (iv) the entering into this Agreement does not violate any provision of any other Agreement to which said party is bound. This Agreement shall be binding upon the heirs, executors, administrators, successors and assigns of the parties.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the date and year first-above written.

CITY:

CITY OF BELL

Ali Saleh
Mayor

ATTEST:

Angela Bustamante
City Clerk

APPROVED AS TO FORM:
ALESHIRE & WYNDER, LLP

David J. Aleshire
City Attorney

CONTRACTOR:

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

Address: _____

Two corporate officer signatures required when Contractor is a corporation, with one signature required from each of the following groups: 1) Chairman of the Board, President or any Vice President; and 2) Secretary, any Assistant Secretary, Chief Financial Officer or any Assistant Treasurer. CONTRACTOR'S SIGNATURES SHALL BE DULY NOTARIZED, AND APPROPRIATE ATTESTATIONS SHALL BE INCLUDED AS MAY BE REQUIRED BY THE BYLAWS, ARTICLES OF INCORPORATION, OR OTHER RULES OR REGULATIONS APPLICABLE TO CONTRACTOR'S BUSINESS ENTITY.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

STATE OF CALIFORNIA

COUNTY OF LOS ANGELES

On _____, 2025 before _____, personally _____, proved to me on the me, appeared

basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature:

OPTIONAL

Though the data below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent reattachment of this form

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

☐

INDIVIDUAL

☐

CORPORATE
OFFICER

TITLE OR TYPE OF DOCUMENT

TITLE(S)

☐

PARTNER(S)

☐

LIMITED

☐

GENERAL

NUMBER OF PAGES

☐

ATTORNEY-IN-FACT

☐

TRUSTEE(S)

☐

GUARDIAN/CONSERVATOR

☐

OTHER _____

DATE OF DOCUMENT

SIGNER IS REPRESENTING:

(NAME OF PERSON(S) OR
ENTITY(IES)) _____

SIGNER(S) OTHER THAN NAMED ABOVE

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

STATE OF CALIFORNIA

COUNTY OF LOS ANGELES

On _____, 2025 before _____, personally _____, proved to me on the
me, _____ appeared

_____ basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

OPTIONAL

Though the data below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent reattachment of this form

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

☐
☐

INDIVIDUAL
CORPORATE
OFFICER

TITLE OR TYPE OF DOCUMENT

TITLE(S)

☐

PARTNER(S) ☐ LIMITED
☐ GENERAL

NUMBER OF PAGES

☐
☐
☐
☐

ATTORNEY-IN-FACT
TRUSTEE(S)
GUARDIAN/CONSERVATOR
OTHER _____

DATE OF DOCUMENT

SIGNER IS REPRESENTING:
(NAME OF PERSON(S) OR ENTITY(IES))

EXHIBIT “A”

SCOPE OF WORK

- I. Contractor shall perform all of the work and comply with all of the specifications and requirements in the Plans, Specifications, and Contract Documents for the project entitled **PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2, FY 2025 – 2026 IN THE CITY OF BELL** including any documents or exhibits referenced therein.
- II. Brief description of the work to be performed:

The project generally consists of construction of permeable asphaltic concrete pavement, construction of concrete curb and gutter and required adjacent pavement, sidewalk, driveway approach, construction of concrete curb and walkways, installation of synthetic turf and stabilized decomposed granite, install concrete pavers, furnish and install picnic shelters, light poles and fixtures, lighting and electrical system, park furniture including benches, picnic tables, litter receptacles, drinking fountain, adjustment of existing catch basins and installing dry wells, furnish and install perimeter fence with single and double gates, construction of concrete perimeter wall with integrated lighting, furnish and install perimeter fence panels, furnish and install vehicular gate, install new irrigation system, install landscaping, install mulch in landscape areas, furnish and install trees, furnish and install decorative boulders, install pavement markings and striping, install parking signs, furnish and install concrete wheel stops, furnish and install an informational kiosk, install city- furnished entry monument , provide 90 day maintenance for installed landscape and irrigation system; and other incidentals and appurtenant work necessary for construction of the project per the plans and specifications.
- III. In addition to the requirements of Section 6.2, during performance of the work, Contractor will keep the City apprised of the status of performance by delivering the following status reports:
 - A.
 - B.
 - C.
- IV. All work is subject to review and acceptance by the City and must be revised by the Contractor without additional charge to the City until found satisfactory and accepted by City.
- V. Contractor shall provide safe and continuous passage for pedestrian and vehicular traffic in accordance with the Work Area Traffic Control Handbook (WATCH), latest edition.

EXHIBIT “B”

SPECIAL REQUIREMENTS

(Superseding Contract Boilerplate)

- ☐ In accordance with Section 5.4, upon execution of this Agreement and prior to commencement of work, Contractor shall provide a performance bond securing Contractor’s faithful performance of this Agreement in the amount equal to or greater than the Contract Sum. In addition, prior to commencement of work, Contractor shall provide a payment bond in the amount of the Contract Sum securing payment for all persons furnishing labor and materials in connection with the work under this Agreement in a form acceptable to the City. If the Contract Sum is increased, Contractor shall increase the amounts of the performance bond and payment bond in the same or greater amount as the increase in the Contract Sum.
- ☐ The following documents on pages CA-29 thru CA-43, inclusive, shall be required to be completed and executed by Contractor and are hereby made a part of this Agreement:
 - o Faithful Performance Bond
 - o Payment Bond
 - o Worker’s Compensation Insurance Certificate
 - o Declaration of Sufficiency of Funds
 - o Guaranty
 - o Final Closeout Agreement and Release of All Claims

**PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2
7006 WALKER AVE, BELL, CA 90201
FY 2025-2026**

IN THE CITY OF BELL

FAITHFUL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that, _____ as Contractor, and Surety, are held and firmly bound unto **THE CITY OF BELL**, a public body, corporate and politic ("Agency") in the penal sum _____ dollars of _____

(\$ _____), which is one hundred percent (100%) of the total contract amount for the above stated project, for the payment of which sums, Contractor and Surety agree to be bound, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that, whereas Contractor has been awarded and is about to enter into the annexed Agreement with Agency for the above stated project, if Contractor faithfully performs and fulfills all obligations under the Agreement (including but not limited to the obligations of the Contract Documents incorporated therein) in the manner and time specified therein, then this obligation shall be null and void at the end of all warranty periods set forth in the Agreement, otherwise it shall remain in full force and effect in favor of Agency; provided that any alterations in the obligations or time for completion made pursuant to the terms of the Agreement shall not in any way release either Contractor or Surety, and notice of such alterations is hereby waived by Surety.

WITNESS our hands this ____ day of _____, ____.

Subscribed and sworn to before me

this ____ day of _____, _____. (Print Name of Contractor, Company or Corporation)

(Signature of Notary Public)

By: _____

(President)

By: _____

(Secretary/Treasurer)

(SEAL)

(SEAL)

FAITHFUL PERFORMANCE BOND

Subscribed and sworn to before me

this _____ day of _____, ____.

(Print Surety's Name)

(Signature of Notary Public)

(Surety's Mailing Address)

(SEAL)

By: _____

(Name)

(Title)

NOTE: SIGNATURES OF CORPORATE OFFICIALS AND SURETY MUST BE NOTARIZED, ATTACH JURAT.

**PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2
7006 WALKER AVE, BELL, CA 90201
FY 2025-2026**

IN THE CITY OF BELL

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that _____
as Contractor, and _____, as Surety, are held and firmly bound
unto **THE CITY OF BELL**, a public body, corporate and politic
("Agency") in the penal sum of _____
dollars (\$ _____), which is one hundred percent (100%) of the total contract amount for
the
above stated project, for the payment of which sum, Contractor and Surety agree to be
bound, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that, whereas Contractor has
been awarded and is about to enter into the annexed Agreement with Agency for the above
stated project, if Contractor or any subcontractor fails to pay for any labor or material of
any kind used in the performance of the work to be done under said Agreement, or fails to
submit amounts due under the State Unemployment Insurance Act with respect to said
labor, Surety will pay for the same in an amount not exceeding the sum set forth above,
which amount shall insure to be the benefit of all persons entitled to file claims under the
State Civil Code; provided that any alterations in the work to be done, materials to be
furnished, or time for completion made pursuant to the terms of the Agreement shall not
in any way release either Contractor or Surety, and notice of said alterations is hereby
waived by Surety.

WITNESS our hands this ____ day of _____, ____.

Subscribed and sworn to before me

this ____ day of _____, _____. (Print Name of Contractor, Company or Corporation)

(Signature of Notary Public)

By: _____
(President)

By: _____
(Secretary/Treasurer)

(SEAL)

(SEAL)

PAYMENT BOND

Subscribed and sworn to before me

this _____ day of _____, ____.

(Print Surety's Name)

(Signature of Notary Public)

(Surety's Mailing Address)

(SEAL)

By: _____

(Name)

(Title)

**NOTE: SIGNATURES OF CORPORATE OFFICIALS AND SURETY MUST BE
NOTARIZED, ATTACH JURAT.**

WORKER'S COMPENSATION INSURANCE CERTIFICATE

Pursuant to Section 1861 of the State Labor Code Amended by Stats. 1979, (C.373, p1343), each Contractor to whom a public works contract has been awarded shall sign the following certificate and shall submit same to City of Bell prior to performing any work on the contract:

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

(Contractor)

By: _____
(Print Name)

(Signature)

(Title)

(Date)

Section 3700 of the State Labor Code reads in pertinent part as follows:

"Every employer except the state shall secure the payment of compensation in one or more of the following ways:

(a) By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this state.

(b) By securing from the Director of Industrial Relations a certificate of consent to self-insure either as an individual employer, or as one employer in a group of employers, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees."

DECLARATION OF SUFFICIENCY OF FUNDS
(California Labor Code Section 2810)

I, the undersigned, an authorized representative of _____ (insert name of Bidder) ("Bidder") with authority to make the statements contained in this Declaration on behalf of Bidder, hereby declare the following:

1. The Bidder's employer identification number for state tax purposes is _____ (insert identification number).
2. The Bidder's workers' compensation insurance policy number is _____ (insert policy number) and the name, address, and telephone number of the insurance carrier providing said insurance is: _____ (insert information requested).
3. The following information is provided concerning any and all vehicles that are owned by the Bidder and that will be used for transportation in connection with any service provided for the performance of the Work that is subject of the Bidder's Bid to the District (insert information requested. Attach addition sheets, if needed):

Vehicle	Vehicle ID No.	Vehicle Liability Insurance Policy No. (of Policy covering vehicle)	Name, Address and Telephone No. of Vehicle Liability Insurance Carrier (issuing Policy covering vehicle)

4. The following is the address of any real property that will be used to house workers in connection with the performance of the Work that is subject of the Bidder's Bid to the District (insert information requested. If no such housing will be provided, enter "none"). _____
5. The actual or estimated number of workers that will be employed to perform the Work of the Project that is the subject of the Bidder's Bid, the total amount of wages to be paid to said workers, and the date on which said wages will be paid are as follows (attach additional sheets, if needed):

Total Number of Workers	Total Amount of Wages	Dates for Payment of Wages

6. Check only one of the following boxes, as applicable:

- ☐ The statement of number of workers declared in Paragraph 5, above, is a statement of the actual number of workers that will be employed; or
- ☐ The actual number of workers requested in Paragraph 5, above, is unknown and therefore the statement of number of workers declared therein is based on the Bidder's best estimate available at the time of Bid, rather than the actual number of workers that will be employed.

7. The actual or estimated total number of persons and entities who will be utilized as independent contractors to perform the Work of the Project that is the subject of the Bidder's Bid (together with their known, current local, state, and federal contractor license identification numbers that each is required to have under local, state or federal laws or regulations are as follows (attach additional sheets, if needed):

List of Independent Contractors	Current, Local, State and Federal Contractor License Identification Number

8. Check only one of the following boxes, as applicable:

- ☐ The statement of number of independent contractors declared in Paragraph 7, above, is a statement of the actual number of independent contractors that will be utilized; or,
- ☐ The actual number of independent contractors requested in Paragraph 7, above, is unknown and therefore the statement of number of independent contractors declared therein is based on the Bidder's best estimate available at the time of Bid, rather than the actual number of independent contractors that will be utilized.

I, the undersigned, declare under penalty of perjury that the foregoing statements are within my personal knowledge and are true and correct. Executed on this _____ day of _____, in the year _____.

Signature

Print Name

PUBLIC WORKS DEPARTMENT OF THE CITY OF BELL

PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2 7006 WALKER AVE, BELL, CA 90201 FY 2025-2026

GUARANTY

In accordance with the terms of the contract for the _____

_____ in the City of Bell, California
_____ approved between
THE CITY OF BELL, a

public body, corporate and politic ("Agency") and the undersigned, under which contract the undersigned shall complete work as described in the contract documents, the following guarantee of said work is hereby made.

Should any of the items installed pursuant to said contract, prove defective or should the item as a whole prove defective, due to faulty workmanship, material furnished or methods of installation, or should the said item or any part thereof fail to operate properly, as planned, due to any of the above causes, all within one (1) year after date on which the work is accepted by the City Council, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within 10 days after the receipt of demand from the Agency. In the event repairs are not made within 10 days, the Agency shall have the unqualified option to make any needed repairs or replacements itself or by any other Contractor. The undersigned agrees to reimburse the Agency, upon demand, of its expenses incurred in restoring said items to the condition contemplated in said contract, including the cost of any equipment or materials replaced, or upon demand by the Agency, to replace any such equipment and repair said items completely without cost to the Agency so that they will operate successfully as originally contemplated.

Emergency repairs must necessarily be made by the Agency the Agency; therefore, when defective material or workmanship results in emergency repairs, the undersigned agrees to reimburse the Agency, upon demand, expenses incurred.

Said items will be deemed defective within the meaning of this guaranty in the event that they fail to operate as originally intended thereof and in accordance with the plans and specifications included in said contract. The Faithful Performance Bond for this project shall remain in full force and effect for the entire guarantee period as required in the specifications and contract documents.

Date

2.0 GENERAL SPECIFICATIONS
FOR
PRITCHARD FIELD IMPROVEMENT PROJECT PHASE 2
7006 WALKER AVE, BELL, CA 90201
FY 2025-2026
IN THE CITY OF BELL

STANDARD SPECIFICATIONS

The Standard Specifications of the AGENCY are contained in the 2021 Edition of the Standard Specifications for Public Works Construction, including all supplements, as written and promulgated by the Joint Cooperative Committee of the Southern California Chapter of the American Public Works Association and the Southern California District of the Associated General Contractors of California. Copies of these Standard Specifications are available from the publisher, Building News, Incorporated, 990 Park Center Drive, Suite E, Vista, California 92081, Telephone (760) 734-1113.

The Standard Specifications set forth above will control the General Provisions, Construction Materials, and Construction Methods for this Contract, except as amended by the Plans, Special Provisions, or other contract documents. The following Special Provisions are supplementary and in addition to the provisions of the Standard Specifications unless otherwise noted and the section numbers of the Special Provisions coincide with those of the said Standard Specifications. Only those sections requiring elaborations, amendments, specifying of options, or additions are called out.

SCOPE OF WORK

The project generally consists of construction of permeable asphaltic concrete pavement, construction of concrete curb and gutter and required adjacent pavement, sidewalk, driveway approach, construction of concrete curb and walkways, installation of synthetic turf and stabilized decomposed granite, install concrete pavers, furnish and install picnic shelters, light poles and fixtures, lighting and electrical system, park furniture including benches, picnic tables, litter receptacles, drinking fountain, adjustment of existing catch basins and installing dry wells, furnish and install perimeter fence with single and double gates, construction of concrete perimeter wall with integrated lighting, furnish and install perimeter fence panels, furnish and install vehicular gate, install new irrigation system, install landscaping, install mulch in landscape areas, furnish and install trees, furnish and install decorative boulders, install pavement markings and striping, install parking signs, furnish and install concrete wheel stops, furnish and install an informational kiosk, install city- furnished entry monument, provide 90 day maintenance for installed landscape and irrigation system; and other incidentals and appurtenant work necessary for construction of the project per the plans and specifications.

LOCATION OF WORK

The project site is located on Walker Avenue, northeast of Florence Avenue in the City of Bell.

TIME FOR COMPLETION

The Contractor shall complete all work in every detail within **60** working days after the date in the Notice to Proceed, exclusive of maintenance periods.

NOTIFICATION

The Contractor shall notify the City and the owners of all utilities and substructures not less than 48 hours prior to starting construction. The following list of names and telephone numbers is intended for the convenience of the Contractor and is not guaranteed to be complete or correct:

CITY OF BELL - OFFICE OF CITY ENGINEER

Attention: Mr. Rey Alfonso (323) 923-2626

AIRTOUCH CELLULAR

Attention: John Crosse (818) 923-9298

AT&T

Attention: Mr. Carl Randolph (310) 515-4029

CALIFORNIA WATER

Attention: Phillip Delgado (323) 263-4145

CENTRAL BASIN

Attention: Andres Media (323) 587-5969

CENTURY LINK

Attention: Caleb King (918) 547-0007

CHARTER-SPECTRUM COMMUNICATIONS

Attention: David Scharrer (626) 430-3522

CHEVRON

Attention: Dave Zerler (310) 669-4014

CROWN CASTLE

Attention: Rebecca Caldwell (724) 416-2193

FRONTIER

Attention: Ms. Ray Roundtree (714) 837-7851

GOLDEN STATE WATER Attention: Melinda Holm	(562) 907-9200
MATRIX OIL CORP Attention: Emilio Rodriguez	(562) 665-9255
MAYWOOD MUTUAL WATER NO. 1 Attention: Sergio Palos	(323) 560-2439
MAYWOOD MUTUAL WATER NO. 2 Attention: Steven Rojo	(323) 581-5816
MCI – VERIZON BUSINESS Attention: Fiber Security Dept.	(800) 624-9675
PARK WATER COMPANY Attention: Mr. Paul Kim	(562) 923-0711 Ext. 250
PLAINS ALL AMERICAN PIPELINE Attention: Paula Bawden	(562) 728-2371
REDFLEX TRAFFIC SYSTEMS Attention: Jeffrey Frey	(623) 207-2538
SOUTHERN CALIFORNIA EDISON COMPANY Attention: Southern California Edison Personnel	(800) 611-1911
SOUTHERN CALIFORNIA GAS COMPANY (Distribution) Attention: Gentlemen/Madam	(818) 701-4546
TESORO REFINING Attention: Steve Gonzales	(562) 843-4314
TRACT 349 MUTUAL WATER COMPANY Attention: Ryan Rosche	(323) 560-1601
TORRANCE LOGISTICS-PBF ENERGY Attention: Dino Alvarado	(310) 212-1842
TRI-CITY MUTUAL WATER DIST. NO. 3 Attention: Robert Rohlf	(323-560-3657
THE GAS COMPANY (Transmission) Attention: Mr. Ryan Lopez Attention: Gamaliel Vasquez	(562) 806-4206 (310) 605-2116
UNDERGROUND SERVICE ALERT	(800) 422-4133

ZAYO – ABOVENET

Attention: David Mosier

(801) 364-1063

EMERGENCY INFORMATION

The names, addresses, and telephone numbers of the Contractor and subcontractors, or their representatives, shall be filed with the Engineer and the County Sheriff's Department or the City Police Department prior to beginning work.

ENVIRONMENTAL PROVISIONS

The Contractor shall, as appropriate, comply with all provisions of Public Contracts Code Section 7104 (SB1470). The requirements of this code are summarized as follows:

In the event Contractor is required to dig any trench or excavation that extends deeper than 4 feet below the surface in order to perform the work authorized under this contract, Contractor agrees to promptly notify AGENCY in writing and before further disturbing the site if any of the conditions set forth below are discovered:

1. Materials that the Contractor believes may be material that is hazardous waste, as defined in Section 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 law.
2. Subsurface or latent physical conditions at the site differing from those indicated.
3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in the work of the character provided for in this Contract.
 - a. AGENCY agrees to promptly investigate the conditions, and if AGENCY finds that the conditions do materially differ, or do 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, shall issue a change order under the procedures described in this Contract.
 - b. That, in the event a dispute arises between AGENCY and Contractor as to whether the conditions materially increase in Contractor's cost of, or time required for, performance of any part of the Work, Contractor shall not be excused from any scheduled completion date provided for in this Contract but shall proceed with all Work to be performed under the Contract. Contractor shall retain any and all rights provided either by this Contract or by law, which pertain to the resolution of disputes and protests between contracting parties.

SPECIAL PROVISIONS

PART 1

GENERAL PROVISIONS

SECTION 1 – GENERAL

1-2 TERMS AND DEFINITIONS

Agency: City of Bell

Board: City Council of the City of Bell

Caltrans: State of California, Department of Transportation

County: Los Angeles

Engineer: City Engineer of the City of Bell or his authorized representative

Federal: United States of America

Contractor: The word Contractor is supplemented by adding thereto the following:

The term Contractor means the Contractor as defined herein or his authorized representative.

1-6 BIDDING AND SUBMISSION OF THE BID

1-6.2 Subcontractor Listing

Add the following:

The Contractor shall perform or provide, with its own organization, contract labor, materials, and equipment amounting to at least 50 percent of the Contract Price. The contract labor performed or provided by the Contractor shall amount to at least 25 percent of the total contract labor for the Contract. Contract labor shall exclude superintendence. Any designated "Specialty Items" may be performed by subcontract and the amount of any such "Specialty Items" so performed may be deducted from the Contract Price before computing the amount of contract labor, materials, and equipment required to be performed or provided by the Contractor with its

own organization. Where an entire item is subcontracted, the value of contract labor, materials, and equipment subcontracted will be based on the Contract Unit or Lump-Sum Price. When a portion of an item is subcontracted, the value of contract labor, materials, and equipment subcontracted will be based on the estimated percentage of the Contract Unit or Lump-Sum Price, determined from information submitted by the Contractor, subject to approval by the Engineer.

Prior to award of the contract, the otherwise qualifying low bidder shall submit a list of all subcontractors intended to perform work on the project. This list shall include the name and location of the place of business of each subcontractor who will perform work or labor or render service to the prime contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the Plans and Specifications, in an amount in excess of one-half of 1 percent of the prime contractors total bid. The prime contractor shall provide a description by bid item number or otherwise fully designate the portion of work to be performed by each subcontractor.

1-7 AWARD AND EXECUTION OF CONTRACT

1-7.2 Contract Bonds

Add the following:

Within 10-working days after the date of the AGENCY'S notice of award, the Contractor shall execute and return the following contract documents to the AGENCY:

Contract Agreement

Faithful Performance Bond

Material and Labor Bond

Public Liability and Property Damage Insurance Certificate

Worker's Compensation Insurance Certificate

Failure to comply with the above will result in annulment of the award and forfeiture of the Proposal Guarantee.

The Contract Agreement shall not be considered binding upon the AGENCY until executed by the authorized AGENCY officials.

A corporation to which an award is made may be required, before the Contract Agreement is executed by the AGENCY, to furnish evidence of its corporate existence, of its right to enter into contracts in the State of California, and that the officers signing the contract and bonds for the corporation have the authority to do so.

The Faithful Performance Bond shall remain in force for a period of one (1) year after the date of recordation of the Notice of Completion and until the end of all warranty periods set forth in the Contract Documents. The Material and Labor Bond shall remain in force until 45 days after the date of recordation of the Notice of Completion.

The Contractor shall provide the following supplemental information for each bond as required herein:

- a. Surety company or agency name providing bond.
- b. Name of the agent.
- c. The business address of the surety company and/or agency and agent.
- d. The business telephone number of the surety company and/or agency and agent.

SECTION 2 – SCOPE OF THE WORK

2-1 WORK TO BE DONE. Add the following:

Any plan or method of work suggested by the Agency or the Engineer to the Contractor but not specified or required, if adopted or followed by the Contractor in whole or in part, shall be used at the risk and responsibility of the Contractor; and the Agency and the Engineer shall assume no responsibility therefore and in no way be held liable for any defects in the work which may result from or be caused by use of such plan or method of work.

The work includes, but is not necessarily limited to, the following items as shown on the plans and specified in these Special Provisions:

The City of Bell proposes to construct new park facility including installation of playground equipment with rubberized safety surfacing, outdoor fitness equipment, shade structures, prefabricated restroom/office building, picnic tables, benches, trash receptacles, park lighting, construction of asphalt parking lot, concrete and decomposed granite walkways, signage and

striping and other incidental and appurtenant work necessary for the proper completion of the Project.

The estimated quantities of work and materials to be performed, constructed, or furnished by the Contractor under this Contract are as shown on the Bid Schedule.

2-2 PERMITS

Replace first paragraph with the following:

Prior to the start of any work, the Contractor shall apply for and receive any applicable City, County, State, and Federal permits.

2-5 THE CONTRACTOR'S EQUIPMENT AND FACILITIES

Add the following paragraph to Section 2-5.1 General:

A noise level limit of 86 dbA at a distance of 50 feet shall apply to all construction equipment on or related to the job whether owned by the Contractor or not. The use of excessively loud warning signals shall be avoided, except in those cases required for the protection of personnel.

2-7 CHANGES INITIATED BY THE AGENCY

Add the following paragraph to Section 2-7.1 General:

The AGENCY reserves the right to increase or decrease the amount of any quantity shown and to delete any item from the Contract.

:

All final locations determined in the field, and any deviations from the Plans and Specification, shall be marked in red on the documents to show the as-built conditions. Contractor shall maintain a complete and accurate record of all changes of construction from that shown in these plans and specifications for the purpose of providing a basis for construction record drawings. No changes shall be made without prior written approval of the Engineer. Upon completion of the Project, Contractor shall deliver this record of all construction changes to the Engineer along with a letter which declares that other than these noted changes "the Project was constructed in conformance with the Contract Documents". Final payment will not be made until this requirement is met.

As the figured dimensions shown on the drawings and in the specifications of the Contract may not in every case agree with scaled dimensions, the

figured dimensions shall be followed in preference to the scaled dimensions, and drawings to a large scale shall be followed in preference to the drawings to a small scale. Should it appear that the work to be performed, or any related matter, are not sufficiently detailed or explained in the Contract documents, the Contractor shall apply to the Engineer for such further explanations as necessary and shall conform to such further explanations provided by the Engineer as part of the Contract to the extent that it is consistent with the terms of the Contract.

Caution: The engineer preparing these plans will not be responsible or liable for unauthorized changes to or uses of these plans. All changes to the plans must be approved in writing by the Engineer.

2-10 DISPUTED WORK

Section 2, Scope of the Work, is amended by adding thereto the following new Subsection 2-10.1 Claims and Disputes During Performance:

2-10.1 Claims and Disputes During Performance.

The following procedures and requirements shall apply and be fully complied with for any claim or dispute to be considered for payment as extra work:

Procedure:

- A. The Contractor and the AGENCY shall make good-faith attempts to resolve any and all claims and disputes that may from time to time arise during the performance of the Work of this Contract. If the Contractor considers any Work required of them to be outside the requirements of the Contract, or if they consider any instruction, meaning, requirement, ruling or decision of the AGENCY or its representative to be unauthorized, they shall, within seven (7) calendar days after such demand is made, or instruction is given, file a written protest (dispute) with the AGENCY stating clearly and in detail their objection and reason therefore. The Contractor shall promptly comply with the Work required of them even though a written protest has been filed. If a written protest is not issued within seven (7) calendar days, the Contractor shall waive their right to further claim on the specific issue.
- B. The AGENCY will review the Contractor's written protest and provide a decision, if the Contractor still considers the Work required of them to be outside of the requirements of the Contract, they shall so notify the AGENCY, in writing, within seven (7) calendar days after receiving the decision that a formal claim will be issued. Within thirty

(30) calendar days of receiving the decision, the Contractor shall submit their claim and all arguments, justification, cost or estimate, schedule analysis, and detailed documentation supporting their position. Failure to furnish notification within seven (7) calendar days and all justifying documentation within thirty (30) calendar days will result in the Contractor waiving their right to the subject claim.

- C. Upon receipt of the Contractor's formal claim including all arguments, justification, cost or estimates, schedule analysis, and documentation supporting their position as previously stipulated, the AGENCY or its representative will review the issue and within thirty (30) calendar days from receipt of the Contractor's claim render a final determination.

Certification:

- A. The Contractor shall submit with the claim their and Subcontractors' certifications under penalty of perjury that:
 - 1. The claim is made in good faith.
 - 2. Supporting data are accurate and complete to the best of the Contractor's knowledge and belief.
 - 3. The amount requested accurately reflects the Contract adjustment for which the Contractor believes the AGENCY is liable.
 - 4. If the Contractor is an individual, the certification shall be executed by that individual.
 - 5. If the Contractor is not an individual, the certification shall be executed by an officer or general partner of the Contractor having overall responsibility for the conduct of the Contractor's affairs.
 - 6. If a false claim is submitted, it will be considered fraud and the Contractor may be subject to criminal prosecution.
- B. In regard to any claim or portion of a claim for subcontractor work, the Contractor shall fully review said claim and certify said claim, under penalty of perjury, to have been made in good faith.
- C. Failure to furnish certification as required hereinbefore will result in the Contractor waiving their right to the subject claim.

Claim Format

- A. The Contractor shall submit the claim justification in the following format:
1. Summary of claim merit and quantum plus clause under which the claim is made.
 2. List of documents relating to claim:
 - a. Specifications.
 - b. Drawings.
 - c. Clarifications/Requests for information.
 - d. Schedules.
 - e. Other.
 3. Chronology of events and correspondence.
 4. Analysis of claim merit.
 5. Analysis of claim cost.

2-11 NOTICE OF SURETIES

Section 2, Scope of the Work, is amended by adding thereto the following new Subsection 2-11.1 General:

2-11.1 General. The Contractor shall notify his sureties and the carriers of the insurance furnished and maintained by him of any changes affecting the general scope of the work or change in the contract price, or time, or a combination thereof, and the amount of the applicable bonds and the coverage of the insurance shall be adjusted accordingly. The Contractor shall furnish proof of such adjustments to the owner.

SECTION 3 – CONTROL OF THE WORK

3-5 INSPECTION

Add the following:

The Agency shall inspect for compliance with requirements for 8-hour days and 40-hour weeks on normal working days. The Contractor shall reimburse the Agency, at rates established by the Agency, for any additional inspection, including inspection on legal holidays.

3-7 CONTRACT DOCUMENTS

Subsection 3-7.1 is amended by adding thereto the following paragraphs to Subsection 3-7.1 General:

The Contractor shall maintain a control set of Plans and Specifications on the project site at all times. All final locations determined in the field, and any deviations from the Plans and Specifications, shall be marked in red on this control set to show the as-built conditions. Upon completion of all work, the Contractor shall return the control set to the Engineer. Final payment will not be made until this requirement is met.

3-7.1.1 Plans.

Included as part of the Contract Documents are the following which show the location, character, dimensions, or details of the Work:

Standard Plans and Details (Included in Appendix A):

Standard Plans for Public Works Construction promulgated by Public Works Standards, Inc.:

Section 3-7 is amended by adding thereto the following new Subsections 3-7.3 Examination of Contract Documents and 3-7.4 Record Drawings:

3-7.3 Examination of Contract Documents. The bidder shall examine carefully the entire site of the work, including but not restricted to the conditions and encumbrances related thereto, the Plans and Specifications, and the proposal and contract forms therefore. The submission of a bid shall be conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of the work to be performed, the quantities of material to be furnished and as to the requirements of the proposal, Plans, Specifications, and the contract.

3-7.4 Record Drawings. All corrections on record drawings shall be done in red ink. Record drawings shall be a control set of the construction plans kept on the site for daily recording of "as built"

conditions. Show dimensioned location of all buried facilities, such as drains, sumps, pipe, valves, electrical conduit, and irrigation wire.

Dimensions must be taken from above ground permanent, architectural objects, not plants or irrigation heads. All dimensions, notes, etc., shall be eligible.

Record drawing shall be reviewed prior to all progress payment requests and submitted prior to final inspection.

3-8 SUBMITTALS

3-8.1 General. (Additions and Amendments). Add the following:

Submittals shall be submitted to:

Mr. German Alvarez
City of Bell (City's Construction Manager)
E: galvarez@cityofbell.gov

All submittals shall be submitted prior to the start of the work unless otherwise approved by the Engineer. No work shall begin until the construction schedule has been approved by the Engineer.

No work shall begin on the respective items of work which require a submittal until the submittals for those items of work have been approved in writing by the AGENCY.

Submittals are required for all materials as noted within these specifications and as noted on the plans.

The Contractor shall examine the Plans and Specifications to verify requirements for submittals of manufacturers data, catalog cuts, shop drawings, test data, samples, etc.

Within 35 days after the Award of Contract, the Contractor shall submit to the Engineer five (5) copies of a complete list of all products that are proposed for installation. The list shall be tabulated by specification section and shall reference critical dates for material deliveries to the site; which dates shall also be shown on the construction schedule.

All submittals shall be made in ample time to allow for review and approval prior to the date needed. Fifteen working days shall be considered an absolute minimum; requests for substitution, incomplete or improper submittals will require a greater length of time. No time extensions will be granted for the Contractor's failure to allow sufficient time for review.

3-10 SURVEYING

Add the following:

The Contractor shall be responsible for all survey and layout of work.

The line and grades for construction will be parallel to and offset from the position of the work. From the established lines and grades, the Contractor shall extend the necessary lines and grades for construction of the work and shall be responsible for the correctness of same.

Subsection 3-10.2 Line and Grade is amended by adding thereto the following:

The line and grades for construction will be parallel to and offset from the position of the work. From the established lines and grades, the Contractor shall extend the necessary lines and grades for construction of the work and shall be responsible for the correctness of same.

Section 3-10 is amended by adding thereto the following new Subsection 3-10.3 Survey Service.

3-10.3 Survey Service. For this improvement work, the Contractor shall furnish all labor, equipment, and (Private Engineer) services, and be responsible for all surveying, staking, and layout necessary for the improvements. In the event of a substantial discrepancy between information shown on the Plans and actual field conditions, the Contractor shall cease any affected work and notify the City Engineer. The City Engineer will provide direction and authority to proceed. Surveying by Private Engineers on the Work shall conform to the quality and practice required by the City Engineer. Consequently, any reference to the Engineer providing such services in Subsection 3-10 shall be disregarded.

Survey monuments shall be furnished, installed and in compliance to Section 309 Monuments.

Payment for surveying service and replacement of monuments and centerline ties shall be considered as included in the various items of work and no additional compensation will be allowed therefore.

3-12 WORK SITE MAINTENANCE

Subsection 3-12.1 General is amended by adding thereto the following paragraphs:

The Contractor shall provide and operate a self-loading motor sweeper with spray nozzles every day for the purpose of keeping the entire project site clean as acceptable to the City Engineer.

The Contractor shall keep adjacent properties clean and free of rubbish and debris in a timely manner as necessary and as directed by the Engineer.

Payment for the cleanup and dust control shall be included in the price paid for other items of work. No additional payment will be made for project site maintenance.

3-12.6 Water Pollution Control

3-12.6.2 Best Management Practices (BMPs). Add the following:

a) General.

This Project lies within the boundaries of the Los Angeles Region of the Regional Water Quality Control Board and shall conform to the following requirements:

- Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach (Order No. 01-182, NPDES No. CAS004001).

In order to ensure a minimum level of water quality control, the Contractor shall effectively implement and maintain appropriate Construction Site BMPs and shall comply with the following requirements:

- 1) Sediments shall not be discharged to the storm drain system or receiving waters.
- 2) Sediments generated on the Project site shall be contained within the Project site using appropriate BMPs.
- 3) No construction-related materials: waste, spills, or residue shall be discharged from the Project site to streets, drainage facilities, receiving waters, or adjacent property by wind or runoff.

- 4) Non-storm water runoff from equipment, vehicle washing, or any other activity shall be contained within the Project site using appropriate BMPs.
- 5) Erosion from exposed topsoil slopes and channels shall be prevented.
- 6) Minimize grading during the wet season. All erosion susceptible slopes shall be covered, planted, or protected in any way that prevents sediment discharge from the Project site.

Table 3-12.6.2(A)
Construction Site BMPs (1)

ID	BMP Name	Minimum Requirement
Temporary Soil Stabilization		
SS-1	Scheduling (2)	X
SS-2	Preservation of Existing Vegetation (2)	X
SS-3	Hydraulic Mulch	
SS-4	Hydroseeding	
SS-5	Soil Binders	
SS-6	Straw Mulch	
SS-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats	
SS-8	Wood Mulching	
SS-9	Earth Dikes/Drainage Swales & Ditches	
SS-10	Outlet Protection/Velocity Dissipation Devices	
SS-11	Slope Drains	
1. Temporary Sediment Control		
SC-1	Silt Fence	
SC-2	Desilting Basin	
SC-3	Sediment Trap	
SC-4	Check Dam	
SC-5	Fiber Rolls	
SC-6	Gravel Bag Berm	
SC-7	Street Sweeping and Vacuuming (2)	X
SC-8	Sandbag Barrier (2)	X
SC-9	Straw Bale Barrier	
SC-10	Storm Drain Protection (2)	X
Wind Erosion Control		
WE-1	Wind Erosion Control	
2. Tracking Control		
TC-1	Stabilized Construction Entrance/Exit (2)	X
TC-2	Stabilized Construction Roadway	
TC-3	Entrance-Outlet Tire Wash	
Non-Storm Water Management		
NS-1	Water Conservation Practices	
NS-2	Dewatering Operations	
NS-3	Paving and Grinding Operations (2)	X
NS-4	Temporary Stream Crossing	
NS-5	Clear Water Diversion	
NS-6	Illicit Connection/Illegal Discharge Detection and Reporting (2)	X
NS-7	Potable Water/Irrigation	
NS-8	Vehicle Equipment Cleaning (2)	X
NS-9	Vehicle Equipment Fueling (2)	X

ID	BMP Name	Minimum Requirement
NS-10	Vehicle Equipment Maintenance (2)	X
Waste Management and Material Pollution Control		
WM-1	Material Delivery (2)	X
WM-2	Material Use (2)	X
WM-3	Stockpile Management (2)	X
WM-4	Spill Prevention and Control (2)	X
WM-5	Solid Waste Management (2)	X
WM-6	Hazardous Waste Management	
WM-7	Contaminated Soil Management	
WM-8	Concrete Waste Management (2)	X
WM-9	Sanitary/Septic Waste Management (2)	X
WM-10	Liquid Waste Management	

- (1) Additional BMPs may be required as a result of actual field conditions, Contractor activities, or construction operations.
- (2) As required on all projects as determined by the AGENCY.

Subsection 3-12.6.3 Storm Water Pollution Prevention Plan (SWPPP) is amended by adding thereto the following paragraph:

Storm Water Pollution Prevention Measures, All storm water pollution measures shall be in accordance with the submitted SWPPP. In the event circumstances during the course of construction require changes to the original SWPPP, the QSP shall direct the revisions to the SWPPP, if that authority is rated within the SWPPP Table 1.1, or shall notify the QSD of the Change that requires to SWPPP to be amended. No responsibility shall accrue to the Agency as a result of the plan or as a result of knowledge of the plan. All work installed by the Contractor in connection with the SWPPP but not specified to become a permanent part of the project shall be removed and the site restored in so far as practical to its original condition prior to completion of construction or when directed by the Agency's representative.

SECTION 4 - CONTROL OF MATERIALS

Section 4 CONTROL OF MATERIALS is amended by adding thereto the following paragraphs to Subsections 4-1 General, 4-4 Testing, 4-5 Certificate of Compliance and 4-6 Trade Names:

4-1 General. The Contractor and all subcontractors, suppliers, and vendors, shall guarantee that the entire work will meet all requirements of this contract as to the quality of materials, equipment, and workmanship. The Contractor, at no cost to the AGENCY, shall make any repairs or replacements made necessary by defects in materials, equipment, or

workmanship that become evident within 1 year after the date of recordation of the Notice of Completion. Within this 1-year period, the Contractor shall also restore to full compliance with requirements of this contract any portion of the work which is found to not meet those requirements. The Contractor shall hold the AGENCY harmless from claims of any kind arising from damages due to said defects or noncompliance. The Contractor shall make all repairs, replacements, and restorations within 30 days after the date of the Engineer's written notice.

4-4 Testing. Except as elsewhere specified, the AGENCY will bear the cost of testing material and/or workmanship which exceed the requirements indicated in the Standard Specifications and the Special Provisions. The cost of all other tests, including the retesting of material or workmanship that fails to pass the first test, shall be borne by the Contractor.

4-5 Certificate of Compliance. A Certificate of Compliance shall be furnished prior to the use of any materials for which these specifications or the special provisions require that such a certificate be furnished. In addition, when so authorized in these specifications or in the special provisions, the Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the specifications. A Certificate of Compliance shall be furnished with each lot of material delivered to the work and the lot so certified shall be clearly identified in the certificate.

4-6 Trade Names. Approval of equipment and materials offered as equivalents to those specified must be obtained prior to the opening of bids as set forth in the Instructions to Bidders.

SECTION 5 – LEGAL RELATIONS AND RESPONSIBILITIES

5-1 LAWS AND REGULATIONS

Subsection 5-1 LAWS AND REGULATIONS is amended by adding thereto the following paragraphs:

Prior to the start of any work, the Contractor shall take out the applicable AGENCY permits and make arrangements for AGENCY inspections. The AGENCY will issue the permits at no charge to the Contractor. The Contractor and all subcontractors shall each obtain an AGENCY business license, and shall be licensed in accordance with State Business and Professions Code. The Contractor shall also obtain any and all other permits, licenses, inspections, certificates, or authorizations required by any governing body or entity.

The Contractor shall pay all cost incurred by the permit and license requirements.

Pursuant to State Bill 854, the following new requirements apply to all public works projects:

A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded. The website for contractor registration with the Department of Industrial Relations (DIR) is <https://efiling.dir.ca.gov/PWCR>; the annual non-refundable fee, valid July 1 through June 30 (state fiscal year), is \$300.

Contractors who are awarded a public works project must submit electronic payroll records to the DIR's Compliance Monitoring Unit (CMU) in addition to providing wet-ink original copies to the City or its designated labor compliance enforcement officer.

5-3 LABOR

Subsection 5-3.1 General is amended by adding thereto the following paragraphs:

The Contractor, and all subcontractors, suppliers and vendors, shall comply with all AGENCY, State and Federal orders regarding affirmative action to ensure equal employment opportunities and fair employment practices. Failure to file any report due under said orders will result in suspension of periodic progress payments.

The Contractor shall ensure unlimited access to the job site for all equal employment opportunity compliance officers.

5-4. INSURANCE

The first paragraph of Section 5-4.1 General is amended to read as follows:

The Contractor shall provide and maintain insurance naming the Agency and all of its officers, consultants and agents are named insured or are named as an additionally insured with the Contractor regardless of any inconsistent statement in the policy or any subsequent endorsement whether liability is attributable to the Contractor or the Agency and all of its officers, consultants and agents. The insurance provisions shall not be construed to limit the Contractor's indemnity obligations contained in the Contract. Except as otherwise specified in 6-5, the Contractor shall save, keep and hold harmless the Agency, its officers, employees, consultants and agents, from all damages, costs or expenses in law or equity that may at any time arise to a person or property by reason of or in the course of performing the Work, or which may be caused by a negligent act or omission by the Contractor, the Contractor's employees, or a Subcontractor. The Agency will not be liable for any accident, loss, or damage to the Work prior to completion, except as otherwise specified in 6-5.

The first paragraphs of Section 5-4.2 General Liability Insurance is amended to read as follows:

The policy shall insure the Agency, and all of its officers, employees, consultants and agents, while acting within the scope of their duties on the Work, against all claims arising out of or in connection with the Work, except as otherwise specified in 6-5. This policy shall provide coverage for on-going and completed operations. The certificate of insurance submitted to the Agency shall state that the Contractor's insurance is primary and that any other insurance held by the Agency is non-contributory.

5-7 SAFETY

5-7.1 Work Site Safety

Subsection 5-7.1.1 General is amended by adding thereto the following paragraphs:

It is part of the service required of the Contractor to make whatever provisions are necessary to protect the public. The Contractor shall use foresight and shall take such steps and precautions as his operations warrant to protect the public from danger, loss of life or

loss of property, which would result from interruption or contamination of public water supply, interruption of other public service, or from the failure of partly completed work or partially removed facilities. Unusual conditions may arise on the work which will require that immediate and unusual provisions be made to protect the public from danger or loss, or damage to life and property, due directly or indirectly to prosecution of work under this contract.

Whenever, in the opinion of the Engineer, an emergency exists against which the Contractor has not taken sufficient precaution for the public safety, protection of utilities and protection of adjacent structures or property, which may be damaged by the Contractor's operations and when, in the opinion of the Engineer, immediate action shall be considered necessary in order to protect the public or property due to the Contractor's operations under this contract, the Engineer will order the Contractor to provide a remedy for the unsafe condition. If the Contractor fails to act on the situation within a reasonable time period, the Engineer may provide suitable protection to said interests by causing such work to be done and material to be furnished as, in the opinion of the Engineer, may seem reasonable and necessary.

The cost and expense of said labor and material, together with the cost and expense of such repairs as are deemed necessary, shall be borne by the Contractor. All expenses incurred by the AGENCY for emergency repairs will be deducted from the progress payments and the final payment due to the Contractor. However, if the AGENCY does not take such remedial measures, the Contractor is not relieved of the full responsibility for public safety.

SECTION 6 – PROSECUTION AND PROGRESS OF THE WORK

6-1 CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK

Subsection 6-1.1 Construction Schedule is amended by adding thereto the following paragraphs:

The Contractor's proposed construction schedule shall be submitted to the Engineer within 10-working days after the date of the AGENCY'S execution of the Contract Agreement. The schedule shall be supported by written statements from each supplier of materials or equipment indicating that all orders have been placed and acknowledged, and setting forth the dates that each item will be delivered.

Prior to issuing the Notice to Proceed With the Work, the Engineer will schedule a preconstruction meeting with the Contractor to review the

proposed construction schedule and delivery dates, arrange utility coordination, discuss construction methods, and clarify inspection procedures.

The Contractor shall submit progress reports to the Engineer by the 10th day of each month. The report shall include an updated Construction Schedule. Any deviations from the original schedule shall be explained. Progress payments will be withheld pending receipt of any outstanding reports.

6-2 PROSECUTION OF WORK

The following sentence is hereby added to Section 6-2:

The Contractor shall provide the following:

- (1) The Contractor must place concrete within 3 working days after the removal of existing concrete. Asphalt Concrete pavement replacement at driveways shall be installed within 3 calendar days of pouring concrete.
- (2) AC pavement replacement shall be installed the same day as removals are performed.
- (3) The Contractor shall clean up all rubble/debris piles daily.
- (4) The Contractor shall not commence any cold milling operation more than 3 calendar days ahead of paving.
- (5) Cat track striping shall be performed within 24 hours of paving on all streets. Permanent striping shall be performed within 72 hours of cat tracking
- (6) Manhole frames and covers to be raised shall be raised and patched with ARHM within 3 calendar days of final day of ARHM overlay paving.
- (7) Speed humps shall be installed within 5 calendar days of final day of ARHM overlay paving.

FAILURE OF THE CONTRACTOR TO COMPLY WITH THE AFOREMENTIONED WORK SCHEDULING REQUIREMENTS, (1)-(6), DUE TO CONDITIONS UNDER HIS CONTROL WILL RESULT IN DAMAGES BEING SUSTAINED BY THE AGENCY. SUCH DAMAGES ARE, AND WILL CONTINUE TO BE, IMPRACTICAL AND EXTREMELY DIFFICULT TO DETERMINE. FOR EACH DAY THE CONTRACTOR FAILS TO CONFORM TO THESE REQUIREMENTS, THE CONTRACTOR

SHALL PAY TO THE AGENCY, OR HAVE WITHHELD MONIES DUE TO HIM THE SUM OF ONE THOUSAND DOLLARS (\$1,000.00), AS LIQUIDATED DAMAGES FOR EACH CALENDAR DAY.

6-3 TIME OF COMPLETION

Subsection 6-3 TIME OF COMPLETION is amended by adding thereto the following paragraphs:

6-3.1 General. The time for completion shall be as noted in the General Specifications.

6-3.1.1 Working Day. The Contractor's activities shall be confined to the hours between 8:00 a.m. and 4:00 p.m., Monday through Friday, excluding holidays. Deviation from these hours will not be permitted without the prior consent of the Engineer, except in emergencies involving immediate hazard to persons or property. In the event of either a requested or emergency deviation, inspection service fees will be charged against the Contractor. The service fees will be calculated at overtime rates, including benefits, overhead, and travel time. The service fees will be deducted from any amounts due the Contractor.

6-4 DELAYS AND EXTENSIONS OF TIME

Subsection 6-4.4 Written Notice and Report the first sentence is hereby deleted and amended as follows:

6-4.4 Written Notice and Report. If the Contractor desires payment for a delay as specified in Subsection 6-4 of the Standard Specifications, it shall notify the Engineer in writing within 3 days of beginning of the delay. If the Contractor desires an extension of time as specified in Subsection 6-4.2 of the Standards Specifications, it shall notify the Engineer in writing within 3 days of beginning of the delay. Such notice shall specify the nature of the delay, cause, and the conditions which set the beginning time for the delay.

6-9 LIQUIDATED DAMAGES

The liquidated damages value is hereby amended to one thousand dollars (\$1,000) per day.

SECTION 7 – MEASUREMENT AND PAYMENT

7-3 PAYMENT

7-3.2 Partial and Final Payment. The text of Subsection 7-3.2 of the Standard Specifications is hereby deleted and replaced with the following:

The closure date for the purpose of making partial progress payments will be the last day of each month. The Contractor shall prepare the approximate measurement of the work performed through the closure date and submit it to the AGENCY for approval by the 10th day of the following month.

When the work is complete, the Engineer will determine the final quantities of the work performed and prepare the final progress payment report.

Payments are commonly authorized and made within 30 days following the 10th day of the month submitted. However, payments will be withheld pending receipt of any outstanding reports required by the contract documents. In addition, the final progress payment will not be released until the Contractor returns the control set of Plans and Specifications showing the as-built conditions.

A full 5-percent retention will be deducted from all progress payments. The final retention will be authorized for final payment 35 days after the date of recordation of the Notice of Completion.

The Contractor, however, may receive interest on the retained amount, or receive the retained amount itself so long as the securities equivalent to the retained amounts are substituted with escrow holder approved by the AGENCY.

At the request and expense of the Contractor, retained amounts or securities equivalent to the retained amounts may be deposited with the State Treasurer or a State or Federally chartered bank approved by the Agency as the escrow agent, who shall return such monies or securities to the Contractor upon satisfactory completion of the contract.

Securities eligible for investment shall include those listed in Section 16430 of the State Government Code or bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, and standby letters of credit.

Any escrow agreement entered into and shall be substantially similar to the form "Escrow Agreement for Security Deposits" in lieu of retention as contained in Section 4590 of Chapter 13 of Division 5 Title 1 of the Government Code.

The following Subsection is hereby added to Subsection 7-3.2 of the Standard Specifications:

7-3.2.1 Final Pay Quantities. When the estimated quantities for a specific portion of the work are designed in the bid schedule by the letter (F) as final payment quantities, said estimated quantities shall be the final quantities for which payment for such specific portion of the work will be made unless the dimensions of said portions of the work shown on the Plans are revised by the Engineer. If such dimensions are revised and such revisions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the changes in the dimensions. The estimated quantities for such specified portion of the work shall be considered as approximate only, and no guarantee is made that the quantities which can be determined by computations is made based on the details and dimensions shown on the Plans will equal the estimated quantities. No allowance will be made in the event that the quantities based on computations do not equal the estimated quantities.

The following Subsection is hereby added to Subsection 7-3.2 of the Standard Specifications

7-3.2.2 Alternative Dispute Resolution. After submittal of the proposed final estimate to the Contractor, a meeting shall be held promptly between Contractor and Agency, attended by the individuals with decision-making authority regarding the dispute, to attempt in good faith to negotiate a resolution of claims arising under or related to performance of the contract.

If, within 30 days after such meeting, the parties have not succeeded in negotiating a resolution of the claims, they will jointly appoint a mutually acceptable neutral person not affiliated with either of the parties (the "neutral"). If they have been unable to agree upon such appointment within 40 days from the initial meeting, the parties shall seek assistance in finding a mutually acceptable neutral. **If the parties are unable to agree on a neutral, either party may request that the presiding judge of the Superior Court which would have jurisdiction of the matter if a suit were filed, to appoint the neutral.** The fees of the neutral shall be shared equally by the parties.

In consultation with the neutral, the parties will select or devise an alternative dispute resolution procedure ("ADR") by which they will attempt to resolve the dispute, and, if the parties are unable to agree on such matters within 20 days after the initial consultation with neutral, the procedure, time, and place for the ADR to be held will be

decided by the neutral. Unless circumstances require otherwise, the ADR shall be held not later than 60 days after selection of the neutral.

The parties agree to participate in good faith in the ADR to its conclusion as designated by the neutral. If the parties are not successful in resolving the dispute through the ADR, then the parties may agree to submit the matter to binding arbitration, or a private adjudicator, or either party may seek an adjudicated resolution through the appropriate court.

Subsection 7-3.3 Delivered Materials is hereby deleted and amended as follows

7-3.3 Delivered Materials. Materials and equipment delivered but not incorporated into the work will not be included in the estimate for progress partial payment.

7-3.5 Contract Unit Prices. The first two paragraphs of Subsection 7-3.5.1 are hereby deleted and replaced with the following:

The AGENCY reserves the right to increase or decrease the amount of any quantity shown and to delete any item from the Contract.

7-4 PAYMENT FOR EXTRA WORK

Subsection 7-4.1 General is hereby deleted and replaced with the following:

7-4.1 General. When the cost for Extra Work cannot be agreed upon, payment for Extra Work by cost plus a differential for labor, materials and equipment shall be considered payment under force account basis. The labor, materials and equipment provided shall be subject to the approval of the Engineer and compensation will be determined as provided herein.

7-4.2 Basis of Establishing Costs.

Subsection 7-4.2.1 is hereby deleted and replaced with the following:

7-4.2.1 Labor. The Contractor will be paid the cost of labor for the workmen (including foremen when authorized by the Engineer), used in the actual and direct performance of the work. The cost of labor, whether the employer is the Contractor, subcontractor or other forces will be the sum of the following:

7-4.2.1.1 Actual Wages. The actual wages paid shall include any employer payments to or on behalf of the workmen for health and welfare, pension, vacation and similar purposes.

7-4.2.1.2 Labor Surcharge. To the actual wages, as defined in Section 7-4.2.1.1, will be added a labor surcharge set forth in the Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rates," which is in effect on the date upon which the work is accomplished and which is a part of the contract. Said labor surcharge shall constitute full compensation for all payments imposed by State and Federal laws and for all other payments made to, or on behalf of, the workmen, other than actual wages as defined in Section 7-4.2.1.1 and subsistence and travel allowance as specified in Section 7-4.2.1.3.

7-4.2.1.3 Subsistence and Travel Allowance. The actual subsistence and travel allowance paid to such workmen.

Subsection 7-4.2.3 is hereby deleted and replaced with the following:

7-4.2.3 Tool and Equipment Rental.

The Contractor will be paid for the use of equipment at the rental rates listed for such equipment in the Department of Transportation Publication entitled "Labor Surcharge and Equipment Rental Rates," which is in effect on the date upon which the work is accomplished and which is a part of the contract, regardless of ownership and any rental or other agreement, if such may exist, for the use of such equipment entered into by the Contractor. If it is deemed necessary by the Engineer to use equipment not listed in the said publication, a suitable rental rate for such equipment will be established by the Engineer. The Contractor may furnish any cost data which might assist the Engineer in the establishment of such rental rate. When the tools and equipment are not in use, the Contractor may elect to keep tools and equipment that are intermittently used on site at no expense to the Agency.

The rental rates paid as provided above shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals.

Operators of rented equipment will be paid for as provided in Section 7-4.2.1, "Labor."

All equipment shall, in the opinion of the Engineer, be in good working condition and suitable for the purpose for which the equipment is to be used.

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

Individual pieces of equipment or tools not listed in said publication and having a replacement value of \$200 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore.

Rental time will not be allowed when equipment is inoperative due to breakdowns.

7-4.2.3.1 Equipment on the Work. The rental time to be paid for equipment on the work shall be the time the equipment is in operation on the extra work being performed, and in addition, shall include the time required to move the equipment to the location of the extra work and return it to the original location or to another location requiring no more time than that required to return it to its original location, except that moving time will not be paid for if the equipment is used at the site of the extra work on other than such extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own powers, except that no payment will be made if the equipment is used at the site of the extra work on other than such extra work.

The following shall be used in computing the rental time of equipment on the work:

1. When hourly rates are listed, less than 30 minutes of operation shall be considered to be 2 hour of operation.
2. When daily rates are listed, less than 4 hours of operation shall be considered to be 2 day of operation.

7-4.2.3.2 Equipment not on the Work. For the use of equipment moved in on the work and used exclusively for extra work paid for on a force account basis, the Contractor will be paid the rental rates listed in the Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rates," which is in effect on the date upon which the work is accomplished and which is a part of the contract, or determined as provided in Section 7-4.2.3 and for the cost of transporting the equipment to the location of the work and its return to its original location, all in accordance with the following provisions:

1. The original location of the equipment to be hauled to the location of the work shall be agreed to by the Engineer in advance.
2. The Agency will pay the costs of loading and unloading such equipment.
3. The cost of transporting equipment in low-bed trailers shall not exceed the hourly rates charged by established haulers.
4. The cost of transporting equipment shall not exceed the applicable minimum established rates of the Public Utilities Commission.
5. The rental period shall begin at the time the equipment is unloaded at the site of the extra work, shall include each day that the equipment is at the site of the extra work, excluding Saturdays, Sundays, and legal holidays unless the equipment is used to perform the extra work on such days, and shall terminate at the end of the day on which the Engineer directs the Contractor to discontinue the use of such equipment. The rental time to be paid per day will be in accordance with the following:

<u>Hours Equipment is in Operation</u>	<u>Hours to be paid</u>
0.0	4.00
0.5	4.25
1.0	4.50
1.5	4.75

<u>Hours Equipment is in Operation</u>	<u>Hours to be paid</u>
2.0	5.00
2.5	5.25
3.0	5.50
3.5	5.75
4.0	6.00
4.5	6.25
5.0	6.50
5.5	6.75
6.0	7.00
6.5	7.25
7.0	7.50
7.5	7.75
8.0	8.00
Over 8 Hours in Operation	

The hours to be paid for equipment which is operated less than 8 hours due to breakdowns shall not exceed 8 less the number of hours the equipment is inoperative due to breakdowns.

When hourly rates are listed, less than 30 minutes of operation shall be considered to be 2 hour of operation.

When daily rates are listed, payment for 2 day will be made if the equipment is not used. If the equipment is used, payment will be made for 1 day.

The minimum rental time to be paid for the entire rental period on an hourly basis shall not be less than 8 hours or if on a daily basis shall not be less than 1 day.

6. Should the Contractor desire the return of the equipment to a location other than its original location, the Agency will pay the cost of transportation in accordance with the above provisions, provided such payment shall not exceed the cost of moving the equipment to the work.

7. Payment for transporting, loading and unloading equipment, as provided above, will not be made if the equipment is used on the work in any other way than upon extra work paid for on a force-account basis.

When extra work, other than work specifically designated as extra work in the Plans and Specifications, is to be paid for on a force-account basis and the Engineer determines that such extra work requires the Contractor to move on to the work equipment which could not reasonably have been expected to be needed in the performance of the contract, the Engineer may authorize payment for the use of such equipment at equipment rental rates in excess of those listed as applicable for the use of such equipment subject to the following additional conditions:

1. The Engineer shall specifically approve the necessity for the use of particular equipment on such work.
2. The Contractor shall establish, to the satisfaction of the Engineer, that such equipment cannot be obtained from his normal equipment source or sources and those of his subcontractors.
3. The Contractor shall establish to the satisfaction of the Engineer that the proposed equipment rental rate for such equipment from his proposed source is reasonable and appropriate for the expected period of use.
4. The Engineer shall approve the equipment source and the equipment rental rate to be paid by the Agency before the Contractor begins work involving the use of said equipment.

7-4.2.3.3 Owner-Operated Equipment. When owner-operated equipment is used to perform extra work to be paid for on a force account basis, the Contractor will be paid for the equipment and operator, as follows:

Payment for the equipment will be made in accordance with the provisions in Section 7-4.2.3, "Equipment Rental."

Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the Contractor to other workmen operating similar equipment already on the project or, in the absence of such other workmen, at the rates for such labor established by collective bargaining agreements for the type of workman and location of the work, whether or not the owner-operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein, in accordance with the provisions in Section 7-4.2.1, "Labor."

To the direct cost of equipment rental and labor, computed as provided herein, will be added the markups for the equipment rental and labor as provided in Section 7-4.3.1 "Work by Contractor."

7-4.3 Markup.

The text of Subsection 7-4.3 is hereby deleted and replaced with the following:

- (a) Work by Contractor. The following percentages shall be added to the Contractor's costs and shall constitute the mark-up for all overhead and profits, which shall be deemed to include all items of expense not specifically designated as cost or equipment rental in Sections 7-4.2.1.1 and 7-4.2.1.2, "Materials," and 7-4.2.1.3, "Equipment Rental."

Labor	20
Materials	15
Equipment Rental	15
Other Items and Expenditures	15

To the sum of the costs and mark-ups provided for in this subsection, 1 percent shall be added as compensation for bonding.

- (b) Work by Subcontractor. When all or any part of the extra work is performed by a subcontractor, the mark-up established in Subsection 7-4.3(a) shall be applied to the subcontractor's actual cost of such work, to which a mark-up of 10 percent on the first \$2,000 of the subcontracted portion of the extra work and a mark-up of 5 percent on work added in excess of \$2,000 of the subcontracted portion of the extra work may be added by the Contractor.

SECTION 8 - FACILITIES FOR AGENCY PERSONNEL

No field offices for AGENCY personnel shall be required, however, the AGENCY personnel shall have the right to enter upon the project at all times and shall be admitted to the offices of the Contractor if so provided by the Contractor for his own personnel.

APPENDIX A - SPECIFICATIONS

TECHNICAL SPECIFICATIONS SECTIONS INDEX:

ELECTRICAL

26 05 00 - BASIC ELECTRICAL REQUIREMENTS
26 05 13 - WIRE AND CABLE
26 05 26 - GROUNDING AND BONDING
26 05 33 - CONDUIT AND BOXES
26 05 48 - SEISMIC REQUIREMENTS FOR EQUIPMENT AND SUPPORTS
26 05 53 - ELECTRICAL IDENTIFICATION
26 09 33 - LIGHTING CONTROL SYSTEMS
26 27 26 - WIRING DEVICES
26 43 00 - SURGE PROTECTION DEVICES
26 51 19 - LED LIGHTING

EARTHWORK

31 10 00 - SITE CLEARING
31 22 00 - GRADING
31 23 13 - SUBGRADE PREPARATION
31 23 23 - EXCAVATION, BACKFILL AND COMPACTION FOR UTILITIES
31 25 00 - EROSION AND SEDIMENTATION CONTROLS

EXTERIOR IMPROVEMENTS

32 11 23 - AGGREGATE BASE COURSE
32 12 13 - PREPARATORY COATS
32 12 16 - ASPHALT PAVING
32 12 36 - SEAL COATS
32 16 13 - CURB AND GUTTER
32 16 23 - SIDEWALKS
32 16 33 - DRIVEWAYS
32 17 23 - PAVEMENT MARKINGS

UTILITIES

33 31 00 - SANITARY SEWERAGE PIPING
33 42 11 - STORMWATER GRAVITY PIPING

SECTION 26 05 00 - BASIC ELECTRICAL REQUIREMENTS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Requirements applicable to all Division 26 Sections. Also refer to Division 1 - General Requirements.
- B. All materials and installation methods shall conform to the applicable standards, guidelines and codes referenced herein and within each specification section.

1.2 SCOPE OF WORK

- A. This specification and the associated drawings govern furnishing, installing, testing and placing the electrical systems into satisfactory operation.
- B. The contractor shall furnish and install all new materials as indicated on the drawings, and/or in these specifications, and all items required to make the portion of the electrical work a finished and working system.
- C. Separate contracts will be awarded for the following work.
- D. All work will be awarded under a single general contract. The division of work listed below is for the contractor's convenience and lists normal breakdown of the work.
- E. Separate contracts will be awarded for the following work. The division of work listed below is for the contractors' convenience and lists a normal breakdown of the work. Please refer to the construction manager's scope statements for the complete scope of work description.
- F. Description of systems shall be as follows:
 - 1. Electrical power system to luminaires, equipment, motors, devices, etc.
 - 2. Electrical power service system from the utility company to and including service entrance equipment, distribution and metering.
 - 3. Grounding system.
 - 4. Wiring system for temperature control systems as shown in the drawings.
 - 5. Wiring of equipment furnished by others.

1.3 WORK SEQUENCE

- A. All work that will produce excessive noise or interference with normal building operations, as determined by the owner, shall be scheduled with the owner. It may be necessary to schedule such work during unoccupied hours. The owner reserves the right to determine when restricted construction hours are required.
- B. Itemize all work and list associated hours and pay scale for each item.

1.4 DIVISION OF WORK BETWEEN MECHANICAL, ELECTRICAL, AND CONTROL.

CONTRACTORS

- A. Division of work is the responsibility of the prime contractor. Any scope of work described at any location on the contract document shall be sufficient for including said requirement in the project. The prime contractor shall be solely responsible for determining the appropriate subcontractor for the scope described. In no case shall the project be assessed an additional cost for scope that is described in the contract documents on bid day. The following division of responsibility is a guideline based on typical industry practice.
- B. Definitions:
 - 1. "mechanical contractors" refers to the contractors listed in Division 21/22/23 of this specification.
 - 2. Motor power wiring: the single phase or 3 phase wiring extending from the power source (transformer, panelboard, feeder circuits, etc.) Through disconnect switches and motor controllers to and including the connections to the terminals of the motor.
 - 3. Motor control wiring: the wiring associated with the remote operation of the magnetic coils of magnetic motor starters or relays, or the wiring that permits direct cycling of motors by means of devices in series with the motor power wiring. In the latter case, the devices are usually single phase, have "manual-off-auto" provisions, and are usually connected into the motor power wiring through a manual motor starter.
 - 4. Control devices such as start-stop push buttons, thermostats, pressure switches, flow switches, relays, etc., generally represent the types of equipment associated with motor control wiring.
 - 5. Motor control wiring is a single phase and usually 120 volts. In some instances, the voltage will be the same as motor power wiring. When the motor power wiring exceeds 120 volts, a control transformer is usually used to give a control voltage of 120 volts.
 - 6. Control motor: an electric device used to operate dampers, valves, etc. It may be two-position or modulating. Conventional characteristics of such a motor are 24 volts, 60 cycles, 1 phase, although other voltages may be encountered.
- C. General:
 - 1. The purpose of these specifications is to outline the electrical and mechanical contractors' responsibilities related to electrical work required for items such as temperature controls, mechanical equipment, fans, chillers, compressors, etc. The exact wiring requirements for much of the equipment cannot be determined until the systems have been selected and submittals approved. Therefore, the electrical drawings show only known wiring related to such items. All wiring not shown on the electrical

drawings, but required for mechanical systems, is the responsibility of the mechanical contractor.

2. Where the drawings require the electrical contractor to wire between equipment furnished by the mechanical contractor, such wiring shall terminate at the terminals provided in the equipment. The mechanical contractor shall furnish complete wiring diagrams and supervision to the electrical contractor and designate the terminal numbers for correct wiring.
3. Control low (24v) and control line (120v) voltage wiring, conduit, and related switches and relays required for the automatic control and/or interlock of motors and equipment, including final connection, are to be furnished and installed under divisions 21, 22 and 23. Materials and installation to conform to class 1 or 2 requirements, California Electrical Code Article 725.
4. The electrical contractor shall establish electrical utility elevations prior to fabrication and installation. The electrical contractor shall coordinate utility elevations with other trades. When a conflict arises, priority shall be as follows:
 - a. Luminaires.
 - b. Gravity flow piping, including steam and condensate.
 - c. Sheet metal.
 - d. Other piping.
 - e. Conduits and wireway.

D. Mechanical contractor's responsibility:

1. Assumes responsibility for internal wiring of all equipment furnished by the mechanical contractor.
2. Assumes all responsibility for miscellaneous items furnished by the mechanical contractor that require wiring but are not shown on the electrical drawings or specified in the electrical specification. If items such as relays, flow switches, or interlocks are required to make the mechanical system function correctly or are required by the manufacturer, they are the responsibility of the mechanical contractor.
3. Assumes all responsibility for temperature control wiring, if the temperature control contractor is a subcontractor to the mechanical contractor.
4. This contractor is responsible for coordination of utilities with all other contractors. If any field coordination conflicts are found, the contractor shall coordinate with other contractors to determine a viable layout.

1.6 COORDINATION DRAWINGS

A. Definitions:

1. Coordination drawings: a compilation of the pertinent layout and system drawings that show the sizes and locations, including elevations, of system components and required access areas to ensure that no two objects will occupy the same space.

- a. Mechanical trades shall include, but are not limited to, mechanical equipment, ductwork, fire protection systems, plumbing piping, medical gas systems, hydronic piping, steam and steam condensate piping, and any item that may impact coordination with other disciplines.
 - b. Electrical trades shall include, but are not limited to, electrical equipment, conduit 1.5" and larger, conduit racks, cable trays, pull boxes, transformers, raceway, busway, lighting, ceiling-mounted devices, and any item that may impact coordination with other disciplines.
 - c. Technology trades shall include, but are not limited to, technology equipment, racks, conduit 1.5" and larger, conduit racks, cable trays, ladder rack, pull boxes, raceway, ceiling-mounted devices, and any item that may impact coordination with other disciplines.
 - d. Maintenance clearances and code-required dedicated space shall be included.
 - e. The coordination drawings shall include all underground, underfloor, in-floor, in-floor, in chase, and vertical trade items.
 2. Spaces with open/cloud ceiling architecture shall indicate the overhead utilities and locate equipment as required to maintain clearance above lights. The intent for the installation is to maintain a maximum allowable vertical clearance and an organized/clean manner in the horizontal. Notify architect/engineer of the maximum clearance which can be maintained. Failure to comply will result in modifications with no cost to owner.
 - a. In cloud ceiling architecture, when open cabling/wire and/or cable tray crosses gaps between ceiling clouds and/or walls, cabling is to transition to conduits to span the gaps in order to conceal cabling from below.
 3. The contractors shall use the coordination process to identify the proper sequence of installation of all utilities above ceilings and in other congested areas, to ensure an orderly and coordinated end result, and to provide adequate access for service and maintenance.
- B. Participation:
1. The contractors and subcontractors responsible for work defined above shall participate in the coordination drawing process.
 2. One contractor shall be designated as the coordinating contractor for purposes of preparing a complete set of composite electronic cad coordination drawings that include all applicable trades, and for coordinating the activities related to this process. The coordinating contractor for this project shall be the mechanical contractor.
 - a. The coordinating contractor shall utilize personnel familiar with requirements of this project and skilled as draftspersons/cad

operators, competent to prepare the required coordination drawings.

3. Electronic cad drawings shall be submitted to the coordinating contractor for addition of work by other trades. The City will provide electronic file copies of ventilation drawings for contractor's use if the contractor signs and returns an "electronic file transfer" waiver provided by the City. The City will not consider blatant reproductions of original file copies an acceptable alternative for coordination drawings.

C. Drawing requirements:

1. The file format and file naming convention shall be coordinated with and agreed to by all contractors participating in the coordination process and the owner.
 - a. Scale of drawings:
 - 1) General plans: 1/4 inch = 1'-0" (minimum).
 - 2) Mechanical, electrical, communication rooms, and including the surrounding areas within 10 feet: 1/2 inch = 1'-0" (minimum).
 - 3) Shafts and risers: 1/2 inch = 1'-0" (minimum).
 - 4) Sections of shafts and mechanical and electrical equipment rooms: 1/4 inch = 1'-0" (minimum).
 - 5) Sections of congested areas: 1/2 inch = 1'-0" (minimum).
2. Ductwork layout drawings shall be the baseline system for other components. Ductwork layout drawings shall be modified to accommodate other components as the coordination process progresses.
3. There may be more drawings required for risers, top and bottom levels of mechanical rooms, and shafts.
4. The minimum quantity of drawings will be established at the first coordination meeting and sent to the a/e for review. Additional drawings may be required if other areas of congestion are discovered during the coordination process.

D. General:

1. Coordination drawing files shall be made available to the a/e and owner's representative. The A/E will only review identified conflicts and give an opinion but will not perform as a coordinator.
2. A plotted set of coordination drawings shall be available at the project site.
3. Coordination drawings are not shop drawings and shall not be submitted as such.
4. The contract drawings are schematic in nature and do not show every fitting and appurtenance for each utility. Each contractor is expected to have included in the bid sufficient fittings, material, and labor to allow for adjustments in the routing of utilities made necessary by the coordination process and to provide a complete and functional system.

5. The contractors will not be allowed additional costs or time extensions due to participation in the coordination process.
6. The contractors will not be allowed additional costs or time extensions for additional fittings, re-routings or changes of duct size, that are essentially equivalent sizes to those shown on the drawings and determined necessary through the coordination process.
7. The a/e reserves the right to determine space priority of equipment in the event of spatial conflicts or interference between equipment, piping, conduit, ducts, and equipment provided by the trades.
8. Changes to the contract documents that are necessary for systems installation and coordination shall be brought to the attention of the A/E.
9. Access panels shall preferably occur only in gypsum board walls or plaster ceilings were indicated on the drawings.
 - a. Access to mechanical, electrical, technology, and other items located above the ceiling shall be through accessible lay-in ceiling tile areas.
 - b. Potential layout changes shall be made to avoid additional access panels.
 - c. Additional access panels shall not be allowed without written approval from the A/E at the coordination drawing stage.
 - d. Providing additional access panels shall be considered after other alternatives are reviewed and discarded by the a/e and the owner's representative.
 - e. When additional access panels are required, they shall be provided without additional cost to the owner.
10. Complete the coordination drawing process and obtain sign-off of the drawings by all contractors prior to installing any of the components.
11. Conflicts that result after the coordination drawings are signed off shall be the responsibility of the contractor or subcontractor who did not properly identify their work requirements or installed their work without proper coordination.
12. Updated coordination drawings that reflect as-built conditions may be used as record documents.

1.7 QUALITY ASSURANCE

- A. Contractor's responsibility prior to submitting pricing/bid data:
 1. The contractor is responsible for constructing complete and operating systems. The Contractor acknowledges and understands that the contract documents are a two-dimensional representation of a three-dimensional object, subject to human interpretation. This representation may include imperfect data, interpreted codes, utility guides, three-dimensional conflicts, and required field coordination items. Such deficiencies can be corrected when identified prior to ordering material and starting installation. The Contractor agrees to carefully study and compare the individual contract documents and report at once in writing to the

architect/engineer any deficiencies the contractor may discover. The contractor further agrees to require each subcontractor to likewise study the documents and report at once any deficiencies discovered.

2. The contractor shall resolve all reported deficiencies with the architect/engineer prior to Awarding any subcontracts, ordering material, or starting any work with the contractor's own employees. Any work performed prior to receipt of instructions from the Architect/engineer will be done at the contractor's risk.

B. Qualifications:

1. Only products of reputable manufacturers as determined by the architect/engineer are acceptable.
2. All contractors and subcontractors shall employ only workmen who are skilled in their trades. At all times, the number of apprentices at the job site shall be less than or equal to the number of journeymen at the job site.

C. Compliance with codes, laws, ordinances:

1. Conform to all requirements of the City codes, laws, ordinances and other regulations having jurisdiction.
2. If there is a discrepancy between the codes and regulations and these specifications, the City shall determine the method or equipment used.
3. If the contractor notes, at the time of bidding, that any parts of the drawings or Specifications do not comply with the codes or regulations, Contractor shall inform the City in writing, requesting a clarification. If there is insufficient time for This procedure, contractor shall submit with the proposal a separate price to make the system comply with the codes and regulations.
4. All changes to the system made after the letting of the contract to comply with codes or the requirements of the inspector, shall be made by the contractor without cost to the City.
5. If there is a discrepancy between manufacturers' recommendations and these specifications, the manufacturer's recommendations shall govern.
6. If there are no local codes having jurisdiction, the current issue of the national electrical code shall be followed.

D. Permits, fees, taxes, inspections:

1. Procure all applicable permits and licenses.
2. Abide by all laws, regulations, ordinances, and other rules of the state or political subdivision where the work is done, or as required by any duly constituted public authority.
3. Pay all charges for permits or licenses.
4. Pay all fees and taxes imposed by state, municipal, and other regulatory bodies.
5. Pay all charges arising out of required inspections by an authorized body.

6. Pay all charges arising out of required contract document reviews associated with the project and as initiated by the owner or authorized agency/consultant.
 7. Where applicable, all fixtures, equipment and materials shall be listed by underwriter's laboratories, inc. Or a nationally recognized testing organization.
 8. Pay all telephone company charges related to the service or change in service.
- E. Utility company requirements:
1. Secure from the private or public utility company all applicable requirements.
 2. Comply with all utility company requirements.
 3. The owner shall make application for and pay for new electrical service equipment and Installation. The contractor shall coordinate schedule and requirements with the owner and utility company.
 4. The contractor is responsible for completing utility requested forms and sharing utility requested load data from the construction documents.
 5. Furnish the meter socket metering compartment with CT space within the main switchboard. Verify approved manufacturers and equipment with the utility company.
 6. The owner shall apply and pay for any changes for removal of existing electrical service by the utility company. The contractor shall verify approved manufacturers and equipment with the utility company.
- F. Examination of drawings:
1. The drawings for the electrical work are completely diagrammatic, intended to convey the scope of the work and to indicate the general arrangements and locations of equipment, outlets, etc., and the approximate sizes of equipment.
 2. Contractor shall determine the exact locations of equipment and rough-ins, and the exact routing of raceways to best fit the layout of the job. Conduit entry points for electrical equipment including, but not limited to, panelboards, switchboards, switchgear and unit substations, shall be determined by the contractor unless noted in the contract documents.
 3. Contractor shall determine the exact locations of equipment and rough-ins, and the exact routing of raceways to best fit the layout of the job. Conduit entry points for electrical equipment including, but not limited to, panelboards, switchboards, switchgear and unit substations, shall be determined by the contractor unless noted in the contract documents. If the contractor notes, at the time of bidding, that any parts of the drawings or specifications do not comply with the codes or regulations, contractor shall inform the City in writing, requesting clarification. If there is insufficient time for this procedure, contractor shall submit with the proposal a separate price to make the system comply with the codes and regulations.

3. All changes to the system made after the letting of the contract to comply with codes or the requirements of the inspector, shall be made by the contractor without cost to the owner.
 4. If there is a discrepancy between manufacturer's recommendations and these specifications, the manufacturer's recommendations shall govern.
 5. If there are no local codes having jurisdiction, the current issue of the national electrical code shall be followed.
- G. Permits, fees, taxes, inspections:
1. Procure all applicable permits and licenses.
 2. Abide by all laws, regulations, ordinances, and other rules of the state or political Subdivision where the work is done, or as required by any duly constituted public authority.
 3. Pay all charges for permits or licenses.
 4. Pay all fees and taxes imposed by state, municipal, and other regulatory bodies.
 5. Pay all charges arising out of required inspections by an authorized body.
 6. Pay all charges arising out of required contract document reviews associated with the Project and as initiated by the owner or authorized agency/consultant.
 7. Where applicable, all fixtures, equipment and materials shall be listed by underwriter's Laboratories, inc. Or a nationally recognized testing organization.
 8. Pay all telephone company charges related to the service or change in service.
- H. Utility company requirements:
1. Secure from the private or public utility company all applicable requirements.
 2. Comply with all utility company requirements.
 3. The owner shall make application for and pay for new electrical service equipment and installation. The contractor shall coordinate schedule and requirements with the owner and utility company.
 4. The contractor is responsible for completing utility requested forms and sharing utility requested load data from the construction documents.
 5. Furnish the meter socket metering compartment with CT space within the main switchboard. Verify approved manufacturers and equipment with the utility company.
 6. The owner shall apply and pay for any changes for removal of existing electrical service by the utility company. The contractor shall verify approved manufacturers and equipment with the utility company.
- I. Examination of drawings:
1. The drawings for the electrical work are completely diagrammatic, intended to convey the scope of the work and to indicate the general

arrangements and locations of equipment, outlets, etc., and the approximate sizes of equipment.

2. Contractor shall determine the exact locations of equipment and rough-ins, and the exact routing of raceways to best fit the layout of the job. Conduit entry points for electrical equipment including, but not limited to, panelboards, switchboards, switchgear and unit substations, shall be determined by the contractor unless noted in the contract documents.
3. Scaling of the drawings will not be sufficient or accurate for determining these locations.
4. Where job conditions require reasonable changes in arrangements and locations, such changes shall be made by the contractor at no additional cost to the owner.
5. Because of the scale of the drawings, certain basic items, such as junction boxes, pull boxes, conduit fittings, etc., may not be shown, but where required by other sections of the specifications or required for proper installation of the work, such items shall be furnished and installed.
6. If an item is either shown on the drawings or called for in the specifications, it shall be included in this contract.
7. The contractor shall determine quantities and quality of material and equipment required from the documents. Where discrepancies arise between drawings, schedules and/or specifications, the greater and better-quality number shall govern.
8. Where used in electrical documents the word "furnish" shall mean supply for use, the word "install" shall mean connect up complete and ready for operation, and the word "provide" shall mean to supply for use and connect up complete and ready for operation.
9. Any item listed as furnished shall also be installed unless otherwise noted.

J. Electronic media/files:

1. Construction drawings for this project have been prepared utilizing Revit.
2. Contractors and subcontractors may request electronic media files of the contract drawings and/or copies of the specifications. Specifications will be provided in pdf format.
3. Upon request for electronic media, the contractor shall complete and return a signed "electronic file transmittal" form provided by the City.
4. If the information requested includes floor plans prepared by others, the contractor will be responsible for obtaining approval from the appropriate design professional for use of that part of the document.
5. The electronic contract documents can be used for preparation of shop drawings and as-built drawings only. The information may not be used in whole or in part for any other project.
6. The drawings prepared by the City for bidding purposes may not be used directly for ductwork layout drawings or coordination drawings.
7. The use of these cad documents by the contractor does not relieve them from their responsibility for coordination of work with other trades and verification of space available for the installation.

8. The information is provided to expedite the project and assist the contractor with no guarantee by the City as to the accuracy or correctness of the information provided. The City accepts no responsibility or liability for the contractor's use of these documents.

K. Field measurements:

1. Verify all pertinent dimensions at the job site before ordering any conduit, conductors, wireways, bus duct, fittings, etc.

Section	Submittal Item	Coordination Drawing
26 05 13	Wire and Cable	
26 05 26	Grounding and Bonding	+> 1.5"
26 05 33	Conduit and Boxes	
26 05 48	Seismic Requirements for Equipment and Supports	
26 05 53	Electrical Identifications	
26 09 33	Lighting Control System	
26 20 00	Service Entrance	
26 24 16	Panelboards	Yes
26 27 26	Wiring Devices Ceiling Mount	
26 28 16	Disconnect Switches	Yes
26 43 00	Surge Protection Devices	
26 51 19	Led Lighting	Yes

1.8 SCHEDULE OF VALUES

- A. The requirements herein are in addition to the provisions of division 1.

B. Format:

1. Use AIA document continuation sheets g703 or another similar form approved by the City.
2. Submit in excel format.
3. Support values given with substantiating data.

C. Preparation:

1. Itemize work required by each specification section and list all providers. All work provided by subcontractors and major suppliers shall be listed on the schedule of values. List each subcontractor and supplier by company name.
2. Break down all costs into:
 - a. Material: delivered cost of product with taxes paid.
 - b. Labor: labor cost, excluding overhead and profit.
 3. Itemize the cost for each of the following:
 - a. Overhead and profit.
 - b. Bonds.
 - c. Insurance.
 - d. General requirements: itemize all requirements.

3. For each line item having an installed cost of more than \$5,000, break down costs to list major products or operations under each item. At a minimum, provide material and labor cost line items for the following:
 - a. Each piece of equipment requiring shop drawings. Use the equipment nomenclature (sb-1, panel p-1, etc.) On the schedule of values.
 - b. Each type of small unitary equipment (e.g., fds, fcs, cs, etc.). Multiple units of the same type can be listed together provided quantities are also listed so unit costs can be determined.
 - c. Each conduit system (medium voltage, normal, emergency, low voltage systems, etc.). In addition, for larger projects breakdown the material and labor for each conduit system based on geography (building, floor, and/or wing).
 - d. Site utilities (5' beyond building)
 - e. Seismic design
 - f. Testing
 - g. Commissioning
 - h. Record drawings
 - i. Punchlist and closeout
 - j. Update schedule of values when:
 1. Indicated by architect/engineer.
 2. Change of subcontractor or supplier occurs.
 3. Change of product or equipment occurs.

1.9 CHANGE ORDERS

- A. A detailed material and labor takeoff shall be prepared for each change order, along with labor rates and markup percentages. Change orders shall be broken down by sheet or associated individual line item indicated in the change associated narrative, whichever provides the most detailed breakdown. Change orders with inadequate breakdown will be rejected.
- B. Itemized pricing with unit cost shall be provided from all distributors and associated subcontractors.
- C. Change order work shall not proceed until authorized.

1.10 PRODUCT DELIVERY, STORAGE, HANDLING AND MAINTENANCE

- A. Exercise care in transporting and handling to avoid damage to materials. Store materials on the site to prevent damage.
- B. Keep all materials clean, dry and free from damaging environments.
- C. Coordinate the installation of heavy and large equipment with the general contractor and/or owner. If the electrical contractor does not have prior documented experience in rigging and lifting similar equipment, he/she shall contract with a qualified lifting and rigging service that has similar documented

experience. Follow all equipment lifting and support guidelines for handling and moving.

- D. Contractor is responsible for moving equipment into the building and/or site. Contractor shall review site prior to bid for path locations and any required building modifications to allow movement of equipment. Contractor shall coordinate the work with other trades.

1.12 WARRANTY

- A. Provide one-year warranty for all fixtures, equipment, materials, and workmanship.
- B. The warranty period for all work in this specification division shall commence on the date of substantial completion or successful system performance whichever occurs later. The warranty's may also commence if a whole or partial system or any separate piece of equipment or component is put into use for the benefit of any party other than the installing contractor with prior written authorization of the owner. In this instance, the warranty period shall commence on the date when such whole system, partial system or separate piece of equipment or component is placed in operation and accepted in writing by the owner.
- C. Warranty requirements extend to correction, without cost to the owner, of all work found to be defective or nonconforming to the contract documents. The contractor shall bear the cost of correcting all damage due to defects or nonconformance with contract documents excluding repairs required as a result of improper maintenance or operation, or of normal wear as determined by the architect/engineer.

1.13 INSURANCE

- A. This contractor shall maintain insurance coverage as set forth in division 1 of these specifications.

1.14 MATERIAL SUBSTITUTION

- A. Where several manufacturers' names are given, the manufacturer for which a catalog number is given is the basis for job design and establishes the quality.
- B. Equivalent equipment manufactured by the other listed manufacturers may be used. Contractor shall ensure that all items submitted by these other manufacturers meet all requirements of the drawings and specifications and fits in the allocated space. When using other listed manufacturers, the contractor shall assume responsibility for any and all modifications necessary (including, but not limited to structural supports, electrical connections and rough-in, and regulatory agency approval, etc.) And coordinate such with other contractors. The City shall make the final determination of whether a product is equivalent.

- C. Any material, article or equipment of other unnamed manufacturers which will adequately perform the services and duties imposed by the design and is of a quality equal to or better than the material, article or equipment identified by the drawings and specifications may be used if approval is secured in writing from the architect/engineer via addendum. The contractor assumes all costs incurred as a result of using the offered material, article or equipment, on the contractors part or on the part of other contractors whose work is affected.
- D. Voluntary add or deduct prices for alternate materials may be listed on the bid form. These items will not be used in determining the low bidder. This contractor assumes all costs incurred as a result of using the offered material or equipment on the contractors part or on the part of other contractors whose work is affected.
- E. All material substitutions requested after the final addendum must be listed as voluntary changes on the bid form.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All items of material having a similar function (e.g., safety switches, panelboards, switchboards, contactors, motor starters, dry type transformers) shall be of the same manufacturer unless specifically stated otherwise on drawings or elsewhere in specifications.

PART 3 - EXECUTION

3.1 JOBSITE SAFETY

- A. The presence of the City at a construction site, shall not relieve the Contractor and any other entity of their obligations, duties and responsibilities including, but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending or coordinating all portions of the work of construction in accordance with the contract documents and any health or safety precautions required by any regulatory agencies. The architect/engineer and personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions. The contractor is solely responsible for jobsite safety. The architect/engineer and the architect/engineer's consultants shall be indemnified and shall be made additional insureds under the contractor's general liability insurance policy.

3.2 EXCAVATION, FILL, BACKFILL, COMPACTION

- A. GENERAL:
 - 1. Prior to the commencement of any excavation or digging, the contractor shall verify all underground utilities with the regional utility locator. Provide prior notice to the locator before excavations. Contact information for most regional utility locaters can be found by calling 811.

2. The contractor shall do all excavating, filling, backfilling, compacting, and restoration in connection with the work.

B. EXCAVATION:

1. Make all excavations to accurate, solid, undisturbed earth, and to proper dimensions.
2. If excavations are carried in error below indicated levels, concrete of same strength as specified for the foundations or thoroughly compacted sand-gravel fill, as determined by the City shall be placed in such excess excavations under the foundation. Place thoroughly compacted, clean, stable fill in excess excavations under slabs on grade, at the contractor's expense.
3. Trim bottom and sides of excavations to grades required for foundations.
4. Protect excavations against frost and freezing.
5. Take care in excavating not to damage surrounding structures, equipment or buried pipe. Do not undermine footing or foundation.
6. Perform all trenching in a manner to prevent cave-ins and risk to workmen.
7. If satisfactory bearing soil is not found at the indicated levels, immediately notify the City or their representative, and do no further work until the City or their representative gives further instructions.
8. Excavation shall be performed in all ground conditions, including rock, if encountered. Bidders shall visit the premises and determine the soil conditions by actual observations, borings, or other means. The cost of all such inspections, borings, etc., shall be borne by the bidder.
9. If a trench is excavated in rock, a compacted bed with a depth of 3" (minimum) of sand and gravel shall be used to support the conduit unless masonry cradles or encasements are used.
10. Mechanical excavation of the trench to line and grade of the conduit or to the bottom level of masonry cradles or encasements is permitted, unless otherwise indicated on the electrical drawings.
11. Mechanical excavation of the trench to line and grade where direct burial cables are to be installed is permitted provided the excavation is made to a depth to permit installation of the cable on a fine sand bed at least 3 inches deep.

D. UNDERGROUND OBSTRUCTIONS:

1. Known underground piping, conduit, feeders, foundations, and other obstructions in the vicinity of construction are shown on the drawings. Review all bid documents for all trades on the project to determine obstructions indicated. Take great care in making installations near underground obstructions.
2. If objects not shown on the drawings are encountered, remove, relocate, or perform extra work as directed by the architect/engineer.

E. FILL AND BACKFILLING:

1. Provide all necessary sand and/or ca6 for backfilling.
2. Native soil materials may be used as backfill if approved by the geotechnical engineer.
3. Dispose of the excess excavated earth as directed.
4. Backfill materials (native soil material, sand, and/or ca6) shall be suitable for required compaction, clean and free of perishable materials, frozen earth, debris, earth with a high void content, and stones greater than 4 inches in diameter. Water is not permitted to rise in un-backfilled trenches.
5. Backfill all trenches and excavations immediately after installing of conduit, or removing forms, unless other protection is directed.
6. Around piers and isolated foundations and structures, backfill and fill shall be placed and consolidated simultaneously on all sides to prevent wedge action and displacement. Spread fill and backfill materials in 6" uniform horizontal layers with each layer compacted separately to required density.
7. For conduits that are not concrete encased, lay all conduits on a compacted bed of sand at least 3" deep. Backfill around conduits with sand, in 6" layers and compact each layer.
8. Conduits that are concrete encased or in a ductbank, conduit spacers, and cradles shall be installed on a bed of compacted ca-6 gravel. Refer to conduit section for backfilling and ductbank requirements.
9. Backfill with native soil material (if approved) or sand up to grade for all conduits under slabs or paved areas. All other conduits shall have sand backfill to 6" above the top of the conduit.
10. Place all backfill above the sand in uniform layers not exceeding 6" deep. Place then carefully and uniformly tamp each layer to eliminate lateral or vertical displacement.
11. Where the fill and backfill will ultimately be under a building, floor or paving, each layer of fill shall be compacted to 95% of the maximum density as determined by AASHTO designation t-99 or ASTM designation D-698. Moisture content of soil at time of compaction shall not exceed plus or minus 2% of optimum moisture content as determined by AASHTO T-99 or ASTM D-698 test.
12. After backfilling of trenches, no superficial loads shall be placed on the exposed surface of the backfill until a period of 48 hours has elapsed.

F. SURFACE RESTORATION:

1. Where trenches are cut through graded, planted or landscaped areas, the areas shall be restored to the original condition. Replace all planting and landscaping features removed or damaged to its original condition. At least 6" of topsoil shall be applied where disturbed areas are to be seeded or sodded. All lawn areas shall be sodded unless seeding is called out in the drawings or specifications.
2. Concrete or asphalt type pavement, seal coat, rock, gravel or earth surfaces removed or damaged shall be replaced with comparable materials and

restored to original condition. Broken edges shall be saw cut and repaired as directed by architect/engineer.

3.3 ARCHITECT/ENGINEER OBSERVATION OF WORK

- A. The contractor shall provide seven (7) calendar days' notice to the architect/engineer prior to:
 - 1. Placing fill over underground and underslab utilities.
 - 2. Covering exterior walls, interior partitions and chases.
 - 3. Installing hard or suspended ceilings and soffits.
- B. The architect/engineer will review the installation and provide a written report noting Deficiencies requiring correction. The contractor's schedule shall account for these reviews and show them as line items in the approved schedule.
- C. Above-ceiling final observation:
 - 1. All work above the ceilings must be complete prior to the architect/engineer's review. This includes, but is not limited to:
 - a. All junction boxes are closed and identified in accordance with section 26 05 53 Electrical Identification.
 - b. Luminaires, including ceiling-mounted exit and emergency lights, are installed and operational.
 - c. Luminaire whips are supported above the ceiling.
 - d. Conduit identification is installed in accordance with section 26 05 53 electrical identification.
 - e. Luminaires are suspended independently of the ceiling system when required by these contract documents.
 - f. All wall penetrations have been sealed.
 - 2. To prevent the above-ceiling final observation from occurring too early, the contractor shall review the status of the work and certify, in writing, that the work is ready for the above-ceiling final observation.
 - 3. It is understood that if the architect/engineer finds the ceilings have been installed prior to this review and prior to seven days elapsing, the architect/engineer may not recommend further payments to the contractor until full access has been provided.

3.4 PROJECT CLOSEOUT

- A. The following paragraphs supplement the requirements of division 1.
- B. IDPH pre-occupancy requirements:
 - 1. Each contractor must submit all forms and certifications required by IDPH relating to their work at 85% completion of the project or when directed by the City.

- C. Final jobsite observation:
 - 1. To prevent the final jobsite observation from occurring too early, the contractor shall review the completion status of the project and certify that the job is ready for the final jobsite observation.
 - 2. Attached to the end of this section is a typical list of items that represent the degree of job completeness expected prior to requesting a review. The contractor shall sign the attached certification and return it to the architect/engineer so that the final observation can be scheduled.
 - 3. It is understood that if the architect/engineer finds the job not ready for the final observation and additional trips and observations are required to bring the project to completion, the cost of the additional time and expenses incurred by the City will be deducted from the contractor's final payment.
 - 4. Contractor shall notify architect/engineer 48 hours prior to installation of ceilings or lay-in ceiling tiles.

- D. The following must be submitted before architect/engineer recommends final payment:
 - 1. Operation and maintenance manuals with copies of approved shop drawings.
 - 2. Record documents including marked-up drawings and specifications.
 - 3. A report documenting the instructions given to the owner's representatives complete with the number of hours spent in the instruction. The report shall bear the signature of an authorized agent of this contractor and shall be signed by the owner's representatives.
 - 4. Provide spare parts, maintenance, and extra materials in quantities specified in individual specification sections. Deliver to project site and submit receipt to architect/engineer.
 - 5. Inspection and testing report by the fire alarm system manufacturer.
 - 6. Start-up reports on all equipment requiring a factory installation or start-up.

- E. Circuit directories:
 - 1. Provide custom typed circuit directory for each branch circuit panelboard. Provide updated custom typed circuit directory for each existing branch circuit panelboard with new or revised circuits per the scope of work. Label shall include equipment name or final approved room name, room number, and load type for each circuit (examples: Sump SP-1 or room 101 receipt). Revise directory to reflect circuit changes required to balance phase loads. Printed copies of the bid document panel schedules are not acceptable as circuit directories.

3.5 OPERATION AND MAINTENANCE MANUALS

- A. General:
 - 1. Provide an electronic copy of the O&M manuals as described below for City's review and approval. The electronic copy shall be corrected as

required to address the City's comments. Once corrected, electronic copies and paper copies shall be distributed as directed by the architect/engineer.

2. Approved O&M manuals shall be completed and in the owner's possession prior to the City's acceptance and at least 10 days prior to instruction of operating personnel.

B. Operation and maintenance instructions shall include:

1. Title page: include title page with project title, architect, engineer, contractor, all subcontractors, and major equipment suppliers, with addresses, telephone numbers, website addresses, email addresses and point of contacts. Website URLs and email addresses shall be active links in the electronic submittal.
2. Table of contents: include a table of contents describing specification section, systems, major equipment, and individual items.
3. Copies of all final approved shop drawings and submittals. Include architect's/engineer's shop drawing review comments. Insert the individual shop drawing directly after the operation and maintenance information for the item(s) in the review form.
4. Copies of all factory inspections and/or equipment startup reports.
5. Copies of warranties.
6. Schematic wiring diagrams of the equipment that have been updated for field conditions. Field wiring shall have label numbers to match drawings.
7. Dimensional drawings of equipment.
8. Detailed parts lists with lists of suppliers.
9. Operating procedures for each system.
10. Maintenance schedule and procedures. Include a chart listing maintenance requirements and frequency.
11. Repair procedures for major components.
12. Replacement parts and service material requirements for each system and the frequency of service required.
13. Instruction books, cards, and manuals furnished with the equipment.
14. Include record drawings of the one-line diagrams for each major system. The graphic for each piece of equipment shown on the one-line diagram shall be an active link to its associated operation & maintenance data.
15. Copies of all panel schedules in electronic Microsoft Excel spreadsheet (.xlsx) file. Each panelboard shall be a separate tab in the workbook.

3.6 INSTRUCTING THE OWNER'S REPRESENTATIVE

- A. Adequately instruct the owner's designated representatives in the maintenance, care, and operation of the complete systems installed under this contract.
- B. Contractor shall make a DVD video recording of instructions to the owner while explaining the system so additional personnel may view the instructions at a later date. The video recording shall be the property of the owner.

- C. The owner has the option to make a video recording of all instructions. Coordinate schedule of instructions to facilitate this recording.
- D. The instructions shall include:
 - 1. Maintenance of equipment.
 - 2. Start-up procedures for all major equipment.
 - 3. Description of emergency system operation.
- E. Notify the architect/engineer of the time and place for the verbal instructions to be given to the owner's representative so a representative can be present if desired.
- F. Minimum hours of instruction time for each item and/or system shall be as indicated in each individual specification section.
- G. Operating instructions:
 - 1. Contractor is responsible for all instructions to the owner's representatives for the electrical and specialized systems.
 - 2. If the contractor does not have staff that can adequately provide the required instructions, the contractor shall include in the bid an adequate amount to reimburse the owner for the City to perform these services.

3.7 RECORD DOCUMENTS

- A. The following paragraphs supplement division 1 requirements.
- B. Maintain at the job site a separate and complete set of electrical drawings and specifications with all changes made to the systems clearly and permanently marked in complete detail.
- C. Mark drawings and specifications to indicate approved substitutions; change orders, and actual equipment and materials used. All change orders, RFI responses, clarifications and other supplemental instructions shall be marked on the documents. Record documents that merely reference the existence of the above items are not acceptable. Should this contractor fail to complete record documents as required by this contract, this contractor shall reimburse the City for all costs to develop record documents that comply with this requirement. Reimbursement shall be made at the City's hourly rates in effect at the time of work.
- D. Record changes daily and keep the marked drawings available for the City's examination at any normal work time.
- E. Upon completing the job, and before final payment is made, give the marked-up drawings to the City.
- F. Record actual routing of conduits exceeding 2 inches.

3.8 ADJUST AND CLEAN

- A. Thoroughly clean all equipment and systems prior to the owner's final acceptance of the project.
- B. Clean all foreign paint, grease, oil, dirt, labels, stickers, etc. From all equipment.
- C. Remove all rubbish, debris, etc., accumulated during construction from the premises.

3.9 SPECIAL REQUIREMENTS

- A. Coordinate the installation of all equipment, controls, devices, etc., with other trades to maintain clear access area for servicing.
- B. Install all equipment to maximize access to parts needing service or maintenance. Review the final location, placement, and orientation of equipment with the owner's representative prior to setting equipment.
- C. Installation of equipment or devices without regard to coordination of access requirements and confirmation with the owner's representative will result in removal and reinstallation of the equipment at the contractor's expense.
- D. Raceway and cable routing restrictions: raceways and cable are restricted from being routed In the following locations, unless serving the space or permitted by the authority having jurisdiction.
 - 1. Exit enclosures.
 - 2. Other areas restricted by code.
 - 3. Normal power in emergency power equipment rooms: limited to feeders and branch circuits serving the emergency power equipment located in the room.
 - 4. Emergency power in normal power equipment rooms: limited to feeders and branch circuits serving the normal power equipment located in the room.
- E. Adhesives and sealants: all sealers, adhesives, and sealants shall comply with the low emitting material limits of the following standards:
 - 1. Cdph standard method v1.1-2010 - standard method for the testing and evaluation of volatile organic chemical emissions VOC from indoor sources using environmental chambers version 1.1.
 - 2. South coast air quality management district rule 1168 - adhesive and sealant applications. All adhesives and sealants wet-applied on site shall comply with the applicable chemical content requirements of SCAQMD rule 1168.
 - 3. South coast air quality management district rule SCAQMD 1113 - wet applied paints and coatings. All paints and coatings wet-applied on site must meet the applicable VOC limits of SCAQMD rule 1113.

3.10 SYSTEM STARTING AND ADJUSTING

- A. The electrical systems shall be complete and operating. System startup, testing, adjusting, and balancing to obtain satisfactory system performance is the responsibility of the contractor. This includes all calibration and adjustment of electrical controls, balancing of loads, troubleshooting and verification of software, and final adjustments that may be needed.
- B. Complete all manufacturer-recommended startup procedures and checklists to verify proper equipment operation and does not pose a danger to personnel or property.
- C. All operating conditions and control sequences shall be tested during the start-up period. Testing all interlocks, safety shut-downs, controls, and alarms.
- D. The contractor, subcontractors, and equipment suppliers shall have skilled technicians to ensure that all systems perform properly. If the architect/engineer is requested to visit the job site for trouble shooting, assisting in start-up, obtaining satisfactory equipment operation, resolving installation and/or workmanship problems, equipment substitution issues or unsatisfactory system performance, including call backs during the warranty period, through no fault of the design; the contractor shall reimburse the owner on a time and materials basis for services rendered at the architect/engineer's standard hourly rates in effect when the services are requested. The contractor shall pay the owner for services required that are product, installation or workmanship related. Payment is due within 30 days after services are rendered.

3.11 FIELD QUALITY CONTROL

- A. General:
 - 1. Conduct all tests required during and after construction. Submit test results in NETA format, or equivalent form, that shows the test equipment used, calibration date, tester's name, ambient test conditions, humidity, conductor length, and results corrected to 40°C.
 - 2. Supply necessary instruments, meters, etc., for the tests. Supply competent technicians with training in the proper testing techniques.
 - 3. All cables and wires shall be tested for shorts and grounds following installation and connection to devices. Replace shorted or grounded wires and cables.
 - 4. Any wiring device, electrical apparatus or luminaire, if grounded or shorted on any integral "live" part, shall have all defective parts or materials replaced.
 - 5. Test cable insulation of service and panel feeder conductors for proper insulation values. Tests shall include the cable, all splices, and all terminations. Each conductor shall be tested and shall test free of short circuits and grounds and have an insulation value not less than electrical code standards. Take readings between conductors, and between conductors and ground.

6. If the results obtained in the tests are not satisfactory, make adjustments, replacements, and changes as needed. Then repeat the tests, and make additional tests, as the City deems necessary.
-
- B. Ground resistance:
 1. Conduct service ground resistance tests using an approved manufactured ground resistance meter. Submit to the architect/engineer a proposed test procedure including type of equipment to be used. (the conventional ohmmeter is not an acceptable device.)
 2. Make ground resistance measurements during normal dry weather and not less than 48 hours after a rain. Ground resistance values shall be verified by the architect/engineer at the time the readings are taken.
 3. If the ground resistance value obtained is more than the value set forth in section 26 05 26, the following shall be done to obtain the value given:
 - A. Verify that all connections in the service ground system are secure.
 - B. Increase the depth to which ground rods are driven by adding section lengths to the rods and retest. If the resistance is still excessive increase the depth by adding an additional rod section and retest.
 - C. If the resistance is still excessive, furnish and install additional ground rods, spaced not less than 20 feet from other ground rods unless otherwise noted on plans, and connect into the ground electrode system. Retest.
 - D. Review results with the architect/engineer.
 1. Before final payment is made to the contractor submit a written report to the City including the following:
 - a. Date of test.
 - b. Number of hours since the last rain.
 - c. Soil condition at the time of the test in the ground electrode location. That is: dry, wet, moist, sand, clay, etc.
 - d. Diagram of the test set-up showing distances between test equipment, ground electrode, auxiliary electrodes, etc.
 - E. Make, model, and calibration date of test equipment.
 - F. Tabulation of measurements taken and calculations made.
 - G. Other equipment:
 1. Give other equipment furnished and installed by the contractor all standard tests normally made to assure that the equipment is electrically sound, all connections properly made, phase rotation correct, fuses and thermal elements suitable for protection against overloads, voltage complies with

equipment nameplate rating, and full load amperes are within equipment rating.

- H. If any test results are not satisfactory, make adjustments, replacements and changes as needed and repeat the tests and make additional tests as the architect/engineer or authority having jurisdiction deem necessary.
- I. Contractor shall thermographic study all electrical gear, switchboard, panelboards, etc. At the end of construction to identify any unusual conditions/heating within the equipment. Coordinate with owner/architect/engineer to have the City or their representative present during testing.
- J. Report shall include color printouts, in binder, of pictures taken to use as a baseline reading after building is occupied.
- K. Upon completion of the project, the contractor shall provide amperage readings for all panelboards and switchboards and turn the results over to the owner for "benchmark" amperages.

3.12 UTILITY REBATE

- A. Submit utility rebate forms, where offered at project location, with rebate items completed. Rebate may include lighting, lighting controls, variable speed drives, heat pumps, package terminal a/c, air conditioners, chillers, water heaters, programmable thermostats, and motors.
- B. Contractor must submit notification of any value engineering or product substitution that will affect the utility rebate amount prior to approval. Readiness certification prior to final jobsite observation to prevent the final job observation from occurring too early, we require that the contractor review the completion status of the project and, by copy of this document, certify that the job is indeed ready for the final job observation. The following is a typical list of items that represent the degree of job completeness expected prior to your requesting a final job observation.
 - 1. Electrical panels have typed circuit identification.
 - 2. Per section 26 05 00, cable insulation test results have been submitted.
 - 3. Per section 26 05 00, ground resistance test results have been submitted.
 - 4. Operation and maintenance manuals have been submitted as per section 26 05 00.
 - 5. Bound copies of approved shop drawings have been submitted as per section 26 05 00.
 - 6. Report of instruction of owner's representative has been submitted as per section 26 05 00.
 - 7. Start-up reports from factory representative have been submitted as per section 26 05 00.

Accepted by:

Prime contractor _____

By _____ date _____

Upon contractor certification that the project is complete and ready for a final job observation, we require the contractor to sign this agreement and return it to the architect/engineer so that the final observation can be scheduled. It is understood that if the architect/engineer finds the job not ready for the final observation and that additional trips and observations are required to bring the project to completion, the costs incurred by the City for additional time and expenses will be deducted from the contractor's contract retainage prior to final payment at the completion of the job.

END OF SECTION

SECTION 26 05 13 - WIRE AND CABLE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Building wire

1.2 RELATED WORK

- A. Section 26 05 53 - electrical identification: refer to electrical identification for color and identification labeling requirements.

1.3 REFERENCES

- A. ASTM B800-05 - standard specification for 8000 series aluminum alloy wire electrical Purposes-annealed and intermediate tempered.
- B. ASTM B801-07 - standard specification for concentric-lay-stranded conductors of 8000 series aluminum alloy for subsequent covering or insulation
- C. NEMA WC 70 - power cables rated at 2,000v or less for the distribution of electrical energy
- D. NFPA 70 - national electrical code (nec)
- E. UI 44 - thermoset-insulated wires and cables
- F. UI 83 - thermoplastic-insulated wires and cables
- G. UI 854 - service-entrance cables
- H. UI 1581 - standard for electrical wires, cables, and flexible cords
- I. UI 2196 - fire resistive, fire resistant and circuit integrity cables

PART 2 - PRODUCTS

2.1 BUILDING WIRE

- A. Feeders and branch circuits 8 AWG and larger: copper, stranded conductor, 600-volt insulation, thhn/thwn or xhhw-2.
- B. Feeders and branch circuits 8 AWG and larger in underground conduit: copper, stranded conductor, 600-volt insulation, thwn or xhhw-2.
- C. Feeders and branch circuits 10 AWG and smaller: copper, solid or stranded conductor, 600-volt insulation, thhn/thwn, unless otherwise noted on the

drawings. Aluminum, compact stranded conductor is not acceptable for feeder and branch circuits 6 AWG and smaller.

- D. Control circuits: copper, stranded conductor 600-volt insulation, thhn/thwn.
- E. Each 120 and 277-volt branch circuit shall have a dedicated neutral conductor. Neutral conductors shall be considered current-carrying conductors for wire derating.

PART 3 - EXECUTION

3.1 WIRE AND CABLE INSTALLATION SCHEDULE

- A. Above accessible ceilings:
 - 1. Building wire shall be installed in raceway.
 - 2. Metal clad cable, type mc, 1/2" size with minimum #12 conductors and ground, shall be allowed for flexible whips to individual luminaires on non-essential circuits. The flexible whips shall be between 18" to 72" in length per electrical code.
- B. All other locations: building wire in raceway.
- C. Above grade: all conductors installed above grade shall be type "thhn".
- D. Underground or in slab: all conductors shall be type "thwn".

3.2 CONTRACTOR CHANGES

- A. The basis of design is copper conductors installed in raceway based on ambient temperature of 30°C,. Service entrance conductors are based on copper conductor installed in underground electrical ducts,.
- B. The contractor shall be responsible for derating and sizing conductors and conduits to equal or exceed the ampacity of the basis of design circuits, if he/she chooses to use methods or materials other than the basis of design.
- C. Underground electrical duct ampacity rating shall be in accordance with NEC table 310.16 (2020) or calculated in accordance with annex b application information for ampacity calculation. The calculations and a sketch of the proposed installation shall be submitted prior to any conduit being installed.
- D. Conductor length(s) listed on plans and schedules. The drawings are diagrammatic with intent to convey the components of the electrical distribution system. Conductor length(s) when listed on plans and schedules are for engineering calculation purposes. Conductor length(s) shall not be used for bidding purposes.

- E. Record drawing shall include the calculations and sketches. 3.3 general wiring methods
- F. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 14 AWG for control wiring.
- G. Use no wire smaller than 18 AWG for low voltage control wiring below 100 volts.
- H. Use 10 AWG conductor for 20 ampere, 120-volt branch circuit home runs longer than 75 feet, and for 20 ampere, 277-volt branch circuit home runs longer than 200 feet.
- I. Use no wire smaller than 8 AWG for outdoor lighting circuits.
- J. The ampacity of multiple conductors in one conduit shall be derated per the electrical code. In no case shall more than 4 conductors be installed in one conduit to such loads as motors larger than 1/4 hp, panelboards, motor control centers, etc.
- K. Where installing parallel feeders, place an equal number of conductors for each phase of a circuit in same raceway or cable.
- L. Splice only in junction or outlet boxes.
- M. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- N. Make conductor lengths for parallel circuits equal.
- O. All conductors shall be continuous in conduit from last outlet to their termination.
- P. Terminate all spare conductors on terminal blocks, and label the spare conductors.
- Q. Cables or wires shall not be laid out on the ground before pulling.
- R. Cables or wires shall not be dragged over earth or paving.
- S. Care shall be taken so as not to subject the cable or wire to high mechanical stresses that would cause damage to the wire and cable.
- T. At least six (6)-inch loops or ends shall be left at each outlet for installation connection of luminaires or other devices.
- U. All wires in outlet boxes not connected to fixtures or other devices shall be rolled up, spliced if continuity of circuit is required, and insulated.

3.4 WIRING INSTALLATION IN RACEWAYS

- A. Pull all conductors into a raceway at the same time. Use ul listed wire pulling lubricant for pulling 4 AWG and larger wires. Do not use wire pulling lubricant for isolated (ungrounded) power system wiring.
- B. Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.
- C. Pulling shall be continuous without unnecessary stops and starts with wire or cable only partially through raceway.
- D. Where reels of cable or wire are used, they shall be set up on jacks close to the point where the wire or cable enters the conduit or duct so that the cable or wire may be unreeled and run into the conduit or duct with a minimum of change in the direction of the bend.
- E. Conductors shall not be pulled through conduits until plastering or masonry work is completed, and conduits are free from moisture. Care shall be taken so that long pulls of wire or pulls around several bends are not made where the wire may be permanently stretched and the insulation damaged.
- F. Only nylon rope shall be permitted to pull cables into conduit and ducts.
- G. Completely and thoroughly swab raceway system before installing conductors.
- H. Conductor supports in vertical raceways:
 - 1. Support conductors in vertical raceways in accordance with the electrical code spacing of conductors supports.
 - 2. Supports shall be of insulated wedge type (oz gedney type s, or equal) and installed in a tapered insulated bushing fitting or a metal woven mesh with a support ring that fits inside conduit fitting installed in an accessible junction box (Hubbell Kellems support grip or equal).

3.5 CABLE INSTALLATION

- A. Provide protection for exposed cables where subject to damage.
- B. Use suitable cable fittings and connectors.
- C. Run all open cable parallel or perpendicular to walls, ceilings, and exposed structural members. Follow the routing as illustrated on the drawings as closely as possible. Cable routing on drawings scaled 1/4"=1'-0" or less shall be considered diagrammatical, unless noted otherwise. The correct routing, when shown diagrammatically, shall be chosen by the contractor based on information in the contract documents; in accordance with the manufacturer's written instructions, applicable codes, the NECA's "standard of installation", recognized industry standards; and coordinated with other contractors.

- D. Open cable shall be supported by the appropriate size j-hooks or other means if called for on the drawings. Wire and cable from different systems shall not be installed in the same j-hook. J-hooks shall be sized with 20% spare capacity. J-hooks shall provide proper bend radius support for data cable and fiber cables.
- E. Open cable installed above suspended ceilings shall not rest on the suspended ceiling construction, nor utilize the ceiling support system for wire and cable support.
- F. J-hook support spans shall be based on the smaller of the manufacturer's load ratings and code requirements. In no case shall horizontal spans exceed 5 feet, and vertical spans exceed 4 feet. All j-hooks shall be installed where completely accessible and not blocked by piping, ductwork, inaccessible ceilings, etc. J-hooks shall be independently rigidly attached to a structural element. J-hooks shall be installed to provide 2" horizontal separation and 6" vertical separation between systems.
- G. Open cables shall only be installed where specifically shown on the drawings or permitted in these specifications.

3.6 WIRING CONNECTIONS AND TERMINATIONS

- A. Splice and tap only in accessible junction boxes.
- B. Use solderless, tin-plated copper, compression terminals (lugs) applied with circumferential crimp for conductor terminations, 8 AWG and larger.
- C. Use solderless, tin-plated, compression terminals (lugs) applied with indenter crimp for copper conductor terminations, 10 AWG and smaller.
- D. Use solderless pressure connectors with insulating covers for copper wire splices and taps, 8 AWG and smaller. For 10 AWG and smaller, use insulated spring wire connectors with plastic caps.
- E. Use compression connectors applied with circumferential crimp for conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connectors with electrical tape to 150 percent of the insulation value of conductor. Cold shrink connector insulator with 1kv rating shall be used in damp and wet locations.
- F. Thoroughly clean wires before installing lugs and connectors.
- G. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

- H. Phase sequence: all apparatus shall be connected to operate in the phase sequence A-B-C representing the time sequence in which the phase conductors so identified reach positive maximum voltage.
- I. As a general rule, applicable to switches, circuit breakers, starters, panelboards, switchgear and the like, the connections to phase conductors are intended thus:
 - 1. Facing the front and operating side of the equipment, the phase identification shall be:
 - a. Left to right - A-B-C
 - b. Top to bottom - A-B-C
- J. Connection revisions as required to achieve correct rotation of motors shall be made at the load terminals of the starters or disconnect switches.
- K. Use antioxidant joint compound on all aluminum conductor terminations. Apply antioxidant joint compound per manufacturer's recommendations.

3.7 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of division 1.
- B. Building wire and power cable testing: perform an insulation-resistance test on each conductor with respect to ground and adjacent conductors. Tests shall be made by means of a low-resistance ohmmeter, such as a "megger". The applied potential shall be 500 volts dc for 300 volt rated cable and 1000 volts dc for 600 volt rated cable. The test duration shall be one minute. Insulation resistance must be greater than 100 MEGA-OHM for 600 volt and 25 MEGA-OHM for 300 volt rated cables per NETA acceptance testing standard. Verify uniform resistance of parallel conductors.
- C. Inspect wire and cable for physical damage and proper connection.
- D. Torque test conductor connections and terminations to manufacturer's recommended values.
- E. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.
- F. Protection of wire and cable from foreign materials:
 - 1. It is the contractor's responsibility to provide adequate physical protection to prevent foreign material application or contact with any wire or cable type. Foreign material is defined as any material that would negatively impact the validity of the manufacturer's performance warranty. This includes, but is not limited to, overspray of paint (accidental or otherwise), drywall compound, or any other surface chemical, liquid, or compound that could come in contact with the cable, cable jacket, or cable termination components.

- G. Overspray of paint on any wire or cable will not be accepted. It shall be the contractor's responsibility to replace any component containing overspray, in its entirety, at no additional cost to the project. Cleaning of cables with harsh chemicals is not allowed.

END OF SECTION

SECTION 26 05 26 - GROUNDING AND BONDING

PART 1 - GENERAL

1.1 Section Includes

- A. Equipment grounding system
- B. Grounding electrode system

1.2 QUALITY ASSURANCE

- A. Testing agency qualifications: testing agency as defined by OSHA in 29 CFR 1910.7 or a member company of the international electrical testing association and that is acceptable to authorities having jurisdiction.
- B. Testing agency's field supervisor: person currently certified by the international electrical testing association to supervise on-site testing specified in part 3.
- C. Electrical components, devices, and accessories: listed and labeled as defined in electrical code, article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Comply with ul 467 grounding and bonding equipment.
- E. Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system.
- F. Comply with electrical code; for overhead-line construction and medium-voltage underground construction, comply with IEEE/ANSI C2 national electrical safety code (NESC).

1.3 REFERENCES

- A. NFPA 70 - national electrical code (NEC)
- B. CEC California electrical code

1.4 SUMMARY

- A. This section includes grounding of electrical systems and equipment. Grounding requirements specified in this section may be supplemented by special requirements of systems described in other sections.

PART 2 - PRODUCTS

2.1 GROUNDING CONDUCTORS

- A. For insulated conductors, comply with division 26 section 26 05 13 "wire and cable".
- B. Material: copper.
- C. Equipment grounding conductors: insulated. Refer to section 26 05 53 for insulation color.
- D. Grounding electrode conductors: stranded cable.
- E. Underground conductors: bare, tinned, stranded, unless otherwise indicated.

2.2 Grounding Electrodes

- A. Concrete-encased grounding electrode (UFER): fabricate according to electrical code, using a minimum of 20 feet of bare copper conductor not smaller than no. 4 AWG or 20 feet of 1/2" steel reinforcing bar.

PART 3 - EXECUTION

3.1 CONNECTIONS

- A. General: make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
 - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
 - 2. Make connections with clean, bare metal at points of contact.
 - 3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
 - 4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.
 - 5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- B. Equipment grounding conductor terminations: for no. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
- C. Noncontact metal raceway terminations: if metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically non-continuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.
- D. Underground connections: exothermic-welded connections use for underground connections, except those at test wells.

- E. Connections at back boxes, junction boxes, pull boxes, and equipment terminations: the equipment grounding conductor(s) associated with all circuits in the box shall be connected together and to the box using a suitable grounding screw. The removal of the respective receptacle, luminaire, or other device served by the box shall not interrupt the grounding continuity. The connection to the non-metallic boxes shall be made to any metallic fitting or device requiring grounding.
- F. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified IN UL 486A and UL 486B.
- G. Moisture protection: if insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

3.2 INSTALLATION

- A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.
- B. Grounding conductors: route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage. Each grounding conductor that passes through a below grade wall must be provided with a water stop.
- C. Grounding electrode conductor (GEC) shall be protected from physical damage by rigid polyvinyl chloride conduit (PVC) in exposed locations.
- D. In raceways, use insulated equipment grounding conductors.
- E. Underground grounding conductors: use tinned copper conductor, no. 2/0 AWG minimum. Bury at least 24 inches below grade or bury 12 inches above duct bank when installed as part of the duct bank.

3.3 EQUIPMENT GROUNDING SYSTEM

- A. Comply with electrical code, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by electrical code are indicated.
- B. Install equipment grounding conductors in all feeders and circuits. Terminate each end on a grounding lug or bus.
- C. Install insulated equipment grounding conductor with circuit conductors for the following items, in addition to those required by electrical code:
 - 1. Lighting and receptacle circuits. Terminate each end on a grounding lug or bus.

2. Single-phase and three-phase motor and appliance branch circuits.
3. Flexible raceway runs, including FMC and LFMC.
4. Armored and metal-clad cable runs.

- D. Nonmetallic raceways: install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables.

3.4 BONDING SYSTEM

- A. Exterior metallic pull and junction box covers, metallic handrails: bond to grounding system using flexible grounding conductors.
- B. Equipment circuits: install a bonding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, dampers, and heaters. Bond conductor to each unit and to air duct. Bond interior metal piping systems and metal air ducts to equipment grounding conductors of associated pumps, fans, blowers, electric heaters, and air cleaners. Use braided-type bonding straps or copper conductor sized equal to the equipment grounding conductor.
- C. Bond metal ducts of dust collectors, particulate conveying, fume hoods, and other hazardous materials to the equipment grounding conductors of associated pumps, fans, or blowers. Use braided-type bonding straps. Provide braided bare copper bonding conductor in nonmetallic dust collector ductwork to each equipment inlet location and bond to equipment.
- D. Industrial control panels, terminal cabinets, and similar installation: terminate bonding conductor on cabinet grounding terminal. Provide an equipment grounding conductor and bond adjacent and associated control panels together.
- E. Equipment ground conductor continuity: all spliced equipment grounding conductors in junction boxes, cabinets, and distribution equipment shall be connected together and bonded to the metal enclosure.

3.5 GROUNDING ELECTRODE SYSTEM

- A. Install one test well for each service at the ground rod electrically closest to the service entrance. Set top of well flush with finished grade or floor.
- B. Concrete-encased grounding electrode (UFER): install concrete-encased grounding electrode encased in at least 2 inches of concrete horizontally within the foundation that is in contact with the earth. If concrete foundation is less than 20 feet long, coil excess conductor within the base of the foundation. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building grounding grid or to a grounding electrode external to concrete.

3.6 GRADING AND PLANTING

- A. Restore surface features, including vegetation, at areas disturbed by work of this section. Reestablish original grades, unless otherwise indicated. If sod has been removed, replace it as soon as possible after backfilling is completed. Restore areas disturbed by trenching, storing of dirt, cable laying, and other activities to their original condition. Include application of topsoil, fertilizer, lime, seed, sod, sprig, and mulch. Comply with division 1. Maintain restored surfaces. Restore disturbed paving.

END OF SECTION

SECTION 26 05 33 - CONDUIT AND BOXES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Rigid metallic conduit and fittings (RMC)
- B. Intermediate metallic conduit and fittings (IMC)
- C. Electrical metallic tubing and fittings (EMT)
- D. Liquidtight flexible metallic conduit and fittings (LFMC)
- E. Wall and ceiling outlet boxes
- F. Electrical connection
- G. Pull and junction boxes
- H. Rough-ins
- I. Handholes

1.2 RELATED WORK

- A. Section 26 05 53 - electrical identification: refer to electrical identification for color and identification labeling requirements.

1.3 References

- A. American national standards institute (ANSI):
 - 1. ANSI C80.1 - Rigid steel conduit, zinc-coated
 - 2. ANSI C80.3 - Electrical metallic tubing, zinc-coated and fittings
 - 3. ANSI C80.4 - Fittings for rigid metal conduit and electrical metallic tubing
 - 4. ANSI C80.6 - Intermediate metal conduit, zinc coated
 - 5. ANSI/NEMA OS 1 - Sheet-steel outlet boxes, device boxes, covers and box supports
 - 6. ANSI/NEMA OS 2 - Nonmetallic outlet boxes, device boxes, covers and box supports
- B. NECA "standards of installation"
- C. National electrical manufacturers association (NEMA):
 - 1. ANSI/NEMA FB 1 - fittings, cast metal boxes, and conduit bodies for conduit, electrical metallic tubing and cable

2. RN 1 - polyvinyl chloride (PVC) externally coated galvanized rigid steel conduit, rigid aluminum conduit, and intermediate metal conduit
 3. TC 2 - electrical polyvinyl chloride (PVC) conduit
 4. TC 9 - fittings for PVC plastic utilities duct for underground installation
- D. NFPA 70 - National Electrical Code (NEC)
- E. CEC California Electrical Code
- F. Underwriters laboratories (UL): applicable listings
1. UL 1 - Flexible metal conduit
 2. UL 6 - Rigid metal conduit
 3. UL 360 - Liquidtight flexible steel conduit
 4. UL514-B - Conduit tubing and cable fittings
 5. UL651-A - Type EB and a PVC conduit and HDPE conduit
 6. UL651-B - Continuous length HDPE conduit
 7. UL746A - Standard for polymeric materials - short term property evaluations
 8. UL797 - Electrical metal tubing
 9. UL1242 - Intermediate metal conduit
- G. American Standard of Testing and Materials (ASTM):
1. ASTM D 570 - standard test method for water absorption of plastics
 2. ASTM D 638 - standard test method for tensile properties of plastics
 3. ASTM D 648 - standard test method for deflection temperature of plastics under flexural load in the edge wise position
 4. ASTM D 2412 - standard test method for determination of external loading characteristics of plastic pipe by parallel-plate loading
 5. ASTM D 2447 - standard specification for polyethylene (pe) plastic pipe, schedules 40 and 80, based on outside diameter
 6. ASTM D 3350 - standard specification for polyethylene plastic pipe and fittings material
- H. Definitions:
1. Fittings: conduit connection or coupling.
 2. Body: enlarged fittings with opening allowing access to the conductors for pulling purposes only.
 3. Mechanical spaces: enclosed areas, usually kept separated from the general public, where the primary use is to house service equipment and to route services. These spaces generally have exposed structures, bare concrete and non-architecturally emphasized finishes.
 4. Finished spaces: enclosed areas where the primary use is to house personnel and the general public. These spaces generally have architecturally emphasized finishes, ceilings and/or floors.
 5. Concealed: not visible by the general public. Often indicates a location in column coverings.

6. Above grade: not directly in contact with the earth. For example, an interior wall located at an elevation below the finished grade shall be considered above grade but a wall retaining earth shall be considered below grade.
7. Slab: horizontal pour of concrete used for a floor or sub-floor.

PART 2 - PRODUCTS

2.1 RIGID METALLIC CONDUIT (RMC) AND FITTINGS

- A. Minimum size galvanized steel: 3/4 inch, unless otherwise noted.
- B. Fittings and conduit bodies:
 1. All other fittings and conduit bodies shall be of malleable iron construction and hot dip galvanized.

2.2 INTERMEDIATE METALLIC CONDUIT (IMC) AND FITTINGS

- A. Minimum size galvanized steel: 3/4 inch, unless otherwise noted.

2.3 ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS

- A. Minimum size electrical metallic tubing: 3/4 inch, unless otherwise noted.

2.4 LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT (LFMC) AND FITTINGS

- A. Construction: flexible steel, approved for conduit ground, zinc coated, threadless type formed from a continuous length of spirally wound, interlocked zinc coated strip steel and an extruded PVC cover.
- B. Fittings and conduit bodies:
 1. Watertight, compression type, galvanized zinc coated cadmium plated malleable cast iron, UL listed. ASTM test description values HDPE
D-1505 density g/cm 3 less than 0.941
D-1238 melt index, g/10 min condition e greater than 0.55 grams/10 min.
D-638 tensile strength at yield (psi) 3000 min.
D-1693 environmental stress crack resistance 96 hrs.
Condition B, F 20
D-790 flexural modulus, mpa (psi) less than 80,000
D-746 brittleness temperature -75°c max

2.5 OUTLET BOXES

- A. Outlet boxes for luminaires to be not less than 1-1/2" deep, deeper if required by the number of wires or construction. The box shall be coordinated with surface luminaires to conceal the box from view or provide a finished trim plate.
- B. Switch outlet boxes for local light control switches, dimmers and occupancy sensors shall be 4 inches square by 2-1/8 inches deep, with raised cover to fit flush with finish wall line. Multiple Gang switch outlets shall consist of the required number of gang boxes appropriate to the quantity of switches comprising the gang. Where walls are plastered, provide a plaster raised cover. Where switch

outlet boxes occur in exposed concrete block walls, boxes shall be installed in the block cavity with a raised square edge tile cover of sufficient depth to extend out to face of block or masonry boxes.

- C. Outlet boxes for telephone substations in walls and columns shall be 4 inches square and 2-1/8 inches deep with single gang raised cover to fit flush with finished wall line equipped with flush telephone plate.
- D. Wall or column receptacle outlet boxes shall be 4 inches square with raised cover to fit flush with finished wall line. Boxes in concrete block walls shall be installed the same as for switch boxes in block walls.

2.6 ECONN; ELECTRICAL CONNECTION

- A. Electrical connection to equipment and motors, sized per electrical code. Coordinate requirements with contractor furnishing equipment or motor. Refer to specifications and general installation notes for terminations to motors.

2.7 JB; PULL AND JUNCTION BOXES

- A. Sheet metal boxes larger than 12 inches in any dimension that contain terminations or components: continuous hinged enclosure with 1/4 turn latch and white back panel for mounting terminal blocks and electrical components.
- B. Flanged type boxes shall be used where installed flush in wall.

2.8 ROUGH-IN

- A. Provide with one (1) flush mount double gang box with single gang plaster ring and appropriate cover plate,
- B. Conduit stubbed to above the lay-in ceiling.

PART 3 - EXECUTION

3.1 CONDUIT INSTALLATION SCHEDULE AND SIZING

- A. In the event the location of conduit installation represents conflicting installation requirements as specified in the following schedule, a clarification shall be obtained from the City. If this contractor is unable to obtain a clarification as outlined above, concealed rigid galvanized steel conduit installed per these specifications and the electrical code shall be required.
- B. Installation schedule: refer to drawings.
- C. Size conduit as shown on the drawings and specifications. Where not indicated in the contract documents, conduit size shall be according to the electrical code. Conduit and conductor sizing shall be coordinated to limit conductor fill to less than 40%, maintain conductor ampere capacity as required by the electrical code

(to include enlarged conductors due to temperature and quantity derating values) and to prevent excessive voltage drop and pulling tension due to long conduit/conductor lengths.

- D. Minimum conduit size (unless noted otherwise):
 - 1. Above grade: 3/4 inch. (The use of 1/2 inch would be allowed for installation conduit to individual light switches, individual receptacles and individual fixture whips from junction box.)
 - 2. Below grade 5' or less from building foundation: 1 inch.
 - 3. Below grade more than 5' from building foundation: 1 inch.
 - 5. Controls conduit: 1/2 inch.
- E. Conduit embedded in slabs above grade:
 - 1. Embedded installation not allowed in elevated slabs with metal composite decks nor structural pour in place slabs less than 6 inches in depth unless specifically noted or shown on drawings otherwise.
 - 2. Maximum size 1-1/4 inch for conduits crossing each other.
- F. Conduit sizes shall change only at the entrance or exit to a junction box, unless specifically noted on the drawings.

3.2 CONDUIT ARRANGEMENT

- A. In general, conduit shall be installed concealed in walls, in finished spaces and where possible or practical, or as noted otherwise. Conduit shall be installed parallel or perpendicular to walls, ceilings, and exposed structural members. In unfinished spaces, mechanical and utility areas, conduit may run either concealed or exposed as conditions dictate and as practical unless noted otherwise on drawings. Installation shall maintain headroom in exposed vicinities of pedestrian or vehicular traffic.
- B. Exposed conduit on exterior walls or above roof will not be allowed without prior written approval of architect/engineer. A drawing of the proposed routing and a photo of the location shall be submitted 14 days prior to start of conduit rough-in. Routing shall be shown on coordination drawings.
- C. Conduit arrangement in elevated slabs (restricted to applications specifically noted or shown on drawings):
 - 1. Conduit size shall not exceed one-third of the structural slab thickness. Place conduit between the top and bottom reinforcing with a minimum of 3" concrete cover.
 - 2. Parallel conduits shall be spaced at least 8 inches apart. Exception: within 18 inches of commonly served floor boxes, junction boxes, or similar floor devices. Arrange conduits parallel or perpendicular to building lines and walls.

- D. Conduit shall not share the same cell as structural reinforcement in masonry walls.
- E. Conduit runs shall be routed as shown on large scale drawings. Conduit routing on drawings scaled 1/4"=1'-0" or less shall be considered diagrammatic, unless noted otherwise. The correct routing, when shown diagrammatically shall be chosen by the contractor based on information in the contract documents, in accordance with manufacturer's written instructions, applicable codes, the NECA's "standard of installation", in accordance with recognized industry standards, and coordinated with other contractors.
- F. Contractor shall adapt contractor's work to the job conditions and make such changes as required and permitted by the architect/engineer, such as moving to clear beams and joists, adjusting at columns, avoiding interference with windows, etc., to permit the proper installation of other mechanical and/or electrical equipment.
- G. Contractor shall cooperate with all contractors on the project. Contractor shall obtain details of other contractor's work to ensure fit and avoid conflict. Any expense due to the failure of this contractor to do so shall be paid for in full by contractor. The other trades involved as directed by the architect/engineer shall perform the repair of work damaged as a result of neglect or error by this contractor. The resultant costs shall be borne by this contractor.

3.3 CONDUIT SUPPORT

- A. Conduit runs installed above a suspended ceiling shall be properly supported. In no case shall conduit rest on the suspended ceiling construction, nor utilize ceiling support system for conduit support.
 - 1. Support wire used to independently support raceway and wiring systems above suspending ceilings shall be supported on both ends, minimum 12 gauge suspended ceiling support wire, and distinguishable from ceiling support systems by color (field paint), tagging, or equivalent means.
- B. Conduit shall not be supported from ductwork, water, sprinkler piping, or other non-structural members, unless approved by the architect/engineer. All supports shall be from structural slabs, walls, structural members, and bar joists, and coordinated with all other applicable contractors, unless noted otherwise.
- C. Conduit shall be held in place by the correct size of galvanized one-hole conduit clamps, two-hole conduit straps, patented support devices, clamp back conduit hangers, or by other means if called for on the drawings.
- D. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.

- E. Spring-steel conduit clips specifically designed for supporting single conduits or tubing may be used in lieu of malleable-iron hangers for 1-1/2" and smaller raceways serving lighting and receptacle branch circuits above accessible ceilings and for securing raceways to slotted channel and angle supports.
- F. Group conduits in parallel runs where practical and use conduit racks or trapeze hangers constructed of steel channel, suspended with threaded solid rods or wall mounted from metal channels with conduit straps or clamps. Provide space in each rack or trapeze for 25% additional conduits.
- G. Do not exceed 25 lbs. Per hanger and a minimum spacing of 2'-0" on center when attaching to metal roof decking (excludes concrete on metal deck). This 25 lbs. Load and 2'-0" spacing include adjacent electrical and mechanical items hanging from deck. If the hanger restrictions cannot be achieved, supplemental framing off steel framing will need to be added.
- H. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.
- I. Supports for metallic conduit shall be no greater than 10 feet. A smaller interval may be used if necessitated by building construction, but in no event shall support spans exceed the electrical code requirements. Conduit shall be securely fastened within 3 feet of each outlet box, junction box, device box, cabinet, or fitting.
- J. Supports of flexible conduit shall be within 12 inches of each outlet box, junction box, device box, cabinet, or fitting and at intervals not to exceed 4.5 feet.
- K. Supports for non-metallic conduit shall be at sufficiently close intervals to eliminate any sag in the conduit. The manufacturer's recommendations shall be followed, but in no event shall support spans exceed the electrical code requirements.
- L. Where conduit is to be installed in poured concrete floors or walls, provide concrete-tight conduit inserts securely fastened to forms to prevent conduit misplacement.
- M. Finish:
 - 1. Prime coat exposed steel hangers and supports. Hangers and supports in crawl spaces, pipe shafts, and above suspended ceiling spaces are not considered exposed.
 - 2. Trim all ends of exposed field fabricated steel hangers, slotted channel and threaded rod to within 1" of support or fastener to eliminate potential injury to personnel unless shown otherwise on the drawings. Smooth ends and install elastomeric insulation with two coats of latex paint if exposed

steel is within 6'-6" of finish floor and presents potential injury to personnel.

3.4 CONDUIT INSTALLATION

A. Conduit connections:

1. Shorter than standard conduit lengths shall be cut square using industry standards. The ends of all conduits cut shall be reamed or otherwise finished to remove all rough edges.
2. Metallic conduit connections in slab on grade installation shall be sealed and one coat of rust inhibitor primer applied after the connection is made.
3. Where conduits with tapered threads cannot be coupled with standard couplings, then approved split or Erickson couplings shall be used. Running threads will not be permitted.
4. Install expansion/deflection joints where conduit crosses structure expansion/seismic joints.

B. Conduit terminations for all low voltage wiring shall have nylon bushings installed on each end of every conduit run.

C. Conduit bends:

1. Use a hydraulic one-shot conduit bender or factory elbows for bends in conduit 2" in size or larger. All steel conduit bending shall be done cold; no heating of steel conduit shall be permitted.
2. A run of conduit shall not contain more than the equivalent of four (4) quarter bends (360°), including those bends located immediately at the outlet or body.
3. Telecommunications conduits shall have no more than two (2) 90-degree bends between pull points and contain no continuous sections longer than 100 feet. Insert pull points or pull boxes for conduits exceeding 100 feet in length. A third bend is acceptable if:
 - 1) the total run is not longer than (33) feet.
 - 2) the conduit size is increased to the next trade size.
4. Telecommunications pull boxes shall not be used in lieu of a bend. Align conduits that enter the pull box from opposite ends with each other. Pull box size shall be twelve (12) times the diameter of the largest conduit. Slip sleeves or gutters can be used in place of a pull box.
5. Telecommunications conduit(s): maintain appropriate conduit bend radius at all times. for conduits with an internal diameter of less than 2", maintain a bend radius of at least 6 times the internal diameter. For conduits with an internal diameter 2" or greater, maintain a bend radius of at least 10 times the internal diameter.
6. Rigid polyvinyl chloride conduit (pvc) runs longer than 100 feet or runs which have more than two 90° equivalent bends (regardless of length) shall use rigid metal or RTRC factory elbows for bends.
7. Use conduit bodies to make sharp changes in direction (i.e. around beams).

D. Conduit placement:

1. Conduit shall be mechanically continuous from source of current to all outlets. Conduit shall be electrically continuous from source of current to all outlets, unless a properly sized grounding conductor is routed within the conduit. All metallic conduits shall be bonded per the electrical code.
2. Route exposed conduit and conduit above suspended ceilings (accessible or not) parallel/perpendicular to the building structural lines, and as close to building structure as possible. Wherever possible, route horizontal conduit runs above water and steam piping.
3. Route conduit through roof openings provided for piping and ductwork where possible. If not provided or routing through provided openings is not possible, route through roof jack with pitch pocket. Coordinate roof penetrations with other trades.
4. Conduits, raceway, and boxes shall not be installed in concealed locations in metal deck roofing or less than 1.5" below bottom of roof decking.
5. Avoid moisture traps where possible. Where unavoidable, provide a junction box with drain fitting at conduit low point.
6. All conduits through walls shall be grouted or sealed into openings. Where conduit penetrates firewalls and floors, seal with a UL listed sealant. Seal penetrations with intumescent caulk, putty, or sheet installed per manufacturer's recommendations. All materials used to seal penetrations of firewalls and floors shall be tested and certified as a system per ASTM e814 standard for fire tests or through-penetration fire stops as manufactured by 3m or approved equal.
7. Contractor shall be responsible for all openings required in masonry or exterior walls under this division. A qualified mason at the expense of this contractor shall repair all openings to match existing conditions.
8. Seal interior of conduit at exterior entries, air handling units, coolers/freezers, etc., and where the temperature differential can potentially be greater than 20°F, to prevent moisture penetration. Seal shall be placed where conduit enters warm space. Conduit seal fitting shall be a drain/seal, with sealing compound, identified for use with cable and raceway system, equal to O-Z/Gedney type EYD.
9. Horizontal conduit routing through slabs above grade

E. Conduits, if run in concrete structure, shall be in middle one-third of slab thickness, and leave at least 3" min. Concrete cover. Conduits shall run parallel to each other and spaced at least 8" apart centerline to centerline. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement. Maximum conduit outside diameter 1".

F. No conduits are allowed in concrete on metal deck unless expressly approved in writing by the structural engineer.

- G. No conduits are allowed to be routed horizontally through slabs above grade.
- H. Do not route conduits across each other in slabs on grade.
- I. Contractor shall provide suitable mechanical protection around all conduits stubbed out from floors, walls or ceilings during construction to prevent bending or damaging of stubs due to carelessness with construction equipment.
- J. Contractor shall provide a polypropylene pull cord with 2000 lbs. Tensile strength in each empty conduit (indoor and outdoor), except in sleeves and nipples.

3.5 CONDUIT TERMINATIONS

- A. Where conduit bonding is indicated or required in the contract documents, the bushings shall be a grounding type sized for the conduit and ground bonding conductor as manufactured by O-Z/Gedney, Appleton, Thomas & Betts, Burndy, regal, orbit industries or approved equal.
- B. Conduits with termination fittings shall be threaded for one (1) lock nut on the outside and one (1) lock nut and bushing on the inside of each box.
- C. Where conduits terminate in boxes with knockouts, they shall be secured to the boxes with lock nuts and provided with approved screw type tinned iron bushings or fittings with plastic inserts.
- D. Where conduits terminate in boxes, fittings, or bodies with threaded openings, they shall be tightly screwed against the shoulder portion of the threaded openings.
- E. Conduit terminations to all motors shall be made with flexible metallic conduit (FMC), unless noted otherwise. Final connections to roof exhaust fans, or other exterior motors and motors in damp or wet locations shall be made with Liquidtight flexible metallic conduit (LFMC). Motors in hazardous areas, as defined in the electrical code, shall be connected using flexible conduit rated for the environment. Flexible conduit shall not exceed 6' in length. Route equipment ground conductors from circuit ground to motor ground terminal through flexible conduit.
- F. All conduit ends shall be sealed with plastic immediately after installation to prevent the entrance of any foreign matter during construction. The seals shall be removed and the conduits blown clear of all foreign matter prior to any wires or pull cords being installed.

3.6 RIGID POLYVINYL CHLORIDE CONDUIT (PVC) OVERHEAD CONDUIT INSTALLATION

- A. Conduit shall be installed away from high temperature piping and equipment.

- B. Conduit shall be installed to prevent exposure to ultraviolet radiation.
- C. Proper allowances shall be made for expansion and/or contraction of the conduit during installation.
- D. Expansion fittings shall be installed in any 100' continuous run of conduit and at each 100' thereafter.
- E. Supports shall be made from non-corroding materials and spacing shall not be greater than the listing in the electrical code, but also shall not exceed the manufacturer's recommendations depending on the expected surface temperature.

3.7 UNDERGROUND CONDUIT INSTALLATION

- A. Conduit connections:
 - 1. Conduit joints in a multiple conduit run shall be staggered at least one foot apart.
- B. Conduit bends (lateral):
 - 1. Conduits shall have long sweep radius elbows instead of standard elbows wherever special bends are indicated and noted on the drawings, or as required by the manufacturer of the equipment or system being served.
 - 2. Telecommunications conduit bend radius shall be six times the diameter for conduits under 2" and ten times the diameter for conduits over 2". Where long cable runs are involved, sidewall pressures may require larger radius bends. Coordinate with the City prior to conduit installation to determine bend radius.
- C. Conduit elbows (vertical):
 - 1. Minimum metal or RTRC elbow radiuses shall be 30 inches for primary conduits (greater than 600v) and 18 inches for secondary conduits (less than 600v). Increase radius, as required, is based on pulling tension calculation requirements.
- D. Expansion fittings at finished grade: provide underground raceways with an expansion fitting after emerging from finished grade and exterior equipment pads. Field locate the expansion fitting above and within 24 inches of finished grade. Raceways extending less than 12 inches above finished grade, transitioning to FLMC within 12 inches of finished grade, and interior concrete building slabs do not require an expansion fitting unless required by code.
- E. Conduit placement:
 - 1. Conduit runs shall be pitched a minimum of 4" per 100 feet to drain toward the terminations. Duct runs shall be installed deeper than the minimum wherever required to avoid any conflicts with existing or new piping, tunnels, etc.
 - 2. For parallel runs, use suitable separators and chairs installed not greater than 4' on centers. Band conduit together with suitable banding devices.

Securely anchor conduit to prevent movement during concrete placement or backfilling.

3. Where concrete is required, the materials for concreting shall be thoroughly mixed to a minimum F'C = 2500 and immediately placed in the trench around the conduits. No concrete that has been allowed to partially set shall be used.
4. Before the contractor pulls any cables into the conduit, contractor shall have a mandrel 1/4" smaller than the conduit inside diameter pulled through each conduit and if any concrete or obstructions are found, the contractor shall remove them and clear the conduit. Spare conduit shall also be cleared of all obstructions.
5. Conduit terminations in manholes, masonry pull boxes, or masonry walls shall be with malleable iron end bell fittings.
6. All spare conduits not terminated in a covered enclosure shall have its terminations plugged as described above.
7. Ductbanks and conduit shall be installed a minimum of 24" below finished grade, unless otherwise noted on the drawings or elsewhere in these specifications.
8. All non-metallic conduit installed underground outside of a slab shall be rigid.

F. Horizontal directional drilling:

1. Entire drill path shall be accurately surveyed, with entry and exit stakes placed and coordinated with other contractors. If using a magnetic guidance system, entire drill path shall be surveyed for any surface geo-magnetic variations or anomalies.
2. Any utility locates within 20 feet of the bore path shall have the exact location physically verified by hand digging or vacuum excavation. Restore inspection holes to original condition after verification.

G. Raceway seal

1. Where a raceway enters a building or structure, it shall be sealed with a sealing bushing or duct seal to prevent the entry of liquids or gases. Seal must be compatible with conductors and raceway system. Spare or unused raceway shall also be sealed.
2. All telecommunications conduits and innerducts, including those containing cables, shall be plugged at the building and vault with "Jackmoon" or equivalent duct seal, capable of withstanding a 10-foot head of water (5 psi).
3. Duct seal alternative option: inflatable duct seal system. Capable of withstanding a 10-foot hHead of water (5 PSEI).

A. Manufacturers:

- 1) Raychem Rayflate duct sealing systems RDSS
- 2) approved equal

3.8 COORDINATION OF BOX LOCATIONS

- A. Provide electrical boxes as shown on the drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.
- B. Electrical box locations shown on the contract drawings are approximate, unless dimensioned. Verify location of floor boxes and outlets in offices and work areas prior to rough-in.
- C. Locate and install boxes to allow access. Avoid interferences with ductwork, piping, structure, equipment, etc. Recessed luminaires shall not be used as access to outlet, pull, and junction boxes. Where installation is inaccessible, provide access doors. Coordinate locations and sizes of required access doors with the architect/engineer and general contractor.
- D. Locate and install to maintain headroom and to present a neat appearance.
- E. Coordinate locations with heating contractor to avoid baseboard radiation cabinets.

3.9 OUTLET BOX INSTALLATION

- A. Do not install boxes back-to-back in walls.
 - 1. Provide a minimum horizontal separation of 6 inches between boxes installed on opposite sides of non-rated stud walls. When the minimum separation cannot be maintained, install sound insulation pads on all five sides of the back box in accordance with the manufacturer's instructions.
 - 2. Provide a minimum horizontal separation of 24 inches between boxes installed on opposite sides of fire-rated walls. When the minimum separation cannot be maintained, the box is greater than 16 square inches or the total box area (all trades) per 100 square feet is greater than or equal to 100 square inches, install fire-rated moldable pads to all five sides of the back box to maintain the fire rating of the wall. Install moldable pads in accordance with ul listing for the specific product. Sound insulation pads are not acceptable for use in fire-rated wall applications unless the product carries the necessary fire rating.
- B. Install sound insulation pads on all five sides of the back of all boxes in sound-rated wall assemblies. Sound-rated wall assemblies are defined as partition types carrying a sound transmission class (STC) rating.
- C. The contractor shall anchor switch and outlet box to wall construction so that it is flush with the finished masonry, paneling, drywall, plaster, etc. The contractor shall check the boxes as the finish wall surface is being installed to assure that the box is flush. (provide plaster rings as necessary.)

- D. Mount at heights shown or noted on the drawings or as generally accepted if not specifically noted.
- E. Locate boxes in masonry walls to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat openings for boxes.
- F. Provide knockout closures for unused openings.
- G. Support boxes independently of conduit.
- H. Use multiple-gang boxes where more than one device is mounted together; do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.
- I. Install boxes in walls without damaging wall insulation.
- J. Coordinate mounting heights and locations of outlets mounted above counters, benches, backsplashes, and below baseboard radiation.
- K. Position outlets to locate luminaires as shown on reflected ceiling drawings.
- L. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioned to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.
- M. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.
- N. Provide cast outlet boxes in exterior locations and wet locations, and where exposed rigid or intermediate conduit is used.

3.10 PULL AND JUNCTION BOX INSTALLATION

- A. Locate pull boxes and junction boxes above accessible ceilings or in unfinished areas.
- B. Support pull and junction boxes independent of conduit.
- C. Do not install boxes back-to-back in walls.
 - 1. Provide a minimum horizontal separation of 6 inches between boxes installed on opposite sides of non-rated stud walls. When the minimum separation cannot be maintained, install sound insulation pads on all five sides of the back box in accordance with the manufacturer's instructions.
 - 2. Provide a minimum horizontal separation of 24 inches between boxes installed on opposite sides of fire-rated walls. When the minimum separation cannot be maintained, the box is greater than 16 square inches or the total box area (all trades) per 100 square feet is greater than or equal

to 100 square inches, install fire-rated moldable pads to all five sides of the back box to maintain the fire rating of the wall. Install moldable pads in accordance with ul listing for the specific product. Sound insulation pads are not acceptable for use in fire-rated wall applications unless the product carries the necessary fire rating.

- D. Install sound insulation pads on all five sides of the back of all boxes in sound-rated wall assemblies. Sound-rated wall assemblies are defined as partition types carrying a sound transmission class (stc) rating.

3.11 EXPOSED BOX INSTALLATION

- A. Boxes shall be secured to the building structure with proper size screws, bolts, hanger rods, or structural steel elements.
- B. On brick, block and concrete walls or ceilings, exposed boxes shall be supported with no less than two (2) Ackerman-Johnson, Paine, Phillips, or approved equal screw anchors or expansion shields and round head machine screws. Cast boxes shall not be drilled.
- C. On steel structures, exposed boxes shall be supported to the steel member by drilling and tapping the member and fastening the boxes by means of round head machine screws.
- D. Boxes may be supported on steel members by approved beam clamps if conduit is supported by beam clamps.
- E. Boxes shall be fastened to wood structures by means of a minimum of two (2) wood screws adequately large and long to properly support. (quantity depends on size of box.)
- F. Wood, plastic, or fiber plugs shall not be used for fastenings.
- G. Explosive devices shall not be used unless specifically allowed.

END OF SECTION

SECTION 26 05 53 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Nameplates and signs
- B. Product Colors

1.2 REFERENCES

- A. NFPA 70e - National Electrical Safety Code
- B. NFPA 70 - National Electrical Code (NEC)
- C. CEC California Electrical Code
- D. ANSI Z535.4 - Standard for product safety signs and labels

PART 2 - PRODUCTS

2.1. NAMEPLATES AND SIGNS

- A. Engraved, plastic-laminated labels, signs and instruction plates: engraving stock melamine plastic laminate, 1/16-inch minimum thick for signs up to 20 square inches, or 8 inches in length; 1/8 inch thick for larger sizes. Labels shall be punched for mechanical fasteners.
- B. Text sizes:
 - 1. The following information shall be used for text heights, fonts, and size, unless otherwise noted.
 - a. Text height: 3/8 inch minimum
 - b. Fasteners for plastic-laminated signs; self-tapping stainless steel screws or number 10/32 stainless steel machine screws with nuts and flat and lock washers.

2.2. PRODUCT COLORS

- A. Nameplates and signs:
 - 1. Normal power: black letters on white face

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Lettering and graphics: coordinate names, abbreviations, colors, and other designations used in electrical identification work with corresponding

designations specified or indicated. Install numbers, lettering, and colors as required by code.

- B. Exposed ceilings and finished spaces: the project includes exposed ceilings in finished spaces. The installation of colored raceways and labeling may not be aesthetically desirable in finished spaces. The contractor shall coordinate identification requirements in exposed ceilings of finished spaces with the a/e prior to installation and ordering of materials.
- C. Electrical system color chart: this contractor shall furnish and install framed 8" x 12" charts of the color-coded identification scheme used for the electrical system in all electrical rooms.
- D. Install identification devices in accordance with manufacturer's written instruction and requirements of electrical code.
- E. Sequence of work: where identification is to be applied to surfaces that require finish, install identification after completion of finish work. All mounting surfaces shall be cleaned and degreased prior to identification installation.
- F. Circuit identification: tag or label conductors as follows:
 - 1. Multiple power or lighting circuits in same enclosure: where multiple branch circuits are terminated or spliced in a box or enclosure, label each conductor with source and circuit number.
 - 2. Multiple control wiring and communication/signal circuits in same enclosure: for control and communications/signal wiring, use wire/cable marking tape at terminations in wiring boxes, troughs, and control cabinets. Use consistent letter/number conductor designations throughout on wire/cable marking tape.
 - 3. Match identification markings with designations used in panelboards shop drawings, contract documents, and similar previously established identification schemes for the facility's electrical installations.
- G. Apply danger, warning, caution and instruction signs as follows:
 - 1. Install danger, warning, caution or instruction signs where required by electrical code, where indicated, or where reasonably required to assure safe operation and maintenance of electrical systems and of the items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions or explanations are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.
 - 2. 'Danger' indicates a hazardous situation which, if not avoided, will result in death or serious injury. Ansi standard red background, white letters.
 - 3. 'Warning' indicates a hazardous situation which, if not avoided, could result in death or serious injury. Ansi standard orange background, black letters.

4. 'Caution' indicates a hazardous situation which, if not avoided, may result in minor or moderate injury. Ansi standard yellow background, black letters.
 5. Emergency operating signs: install, where required by electrical code, where indicated, or where reasonably required to assure safe operation and maintenance of electrical systems and of the items to which they connect, engraved laminate signs with white legend on red background with minimum 3/8-inch high lettering for emergency instructions on power transfer, load shedding, or other emergency operations.
- H. Apply circuit/control/item designation labels of engraved plastic laminate for pushbuttons, pilot lights, alarm/signal components, and similar items, except where labeling is specified elsewhere.
- I. Install labels parallel to equipment lines at locations as required and at locations for best convenience of viewing without interference with operation and maintenance of equipment.
- J. Install arc flash warning signs on all power distribution equipment per section 26 05 73.
- K. Install arc flash warning signs on all switchboards, switchgear, distribution panels, branch panelboards, industrial control panels, and motor control centers.
1. Sample label:
! Warning arc flash and shock hazard appropriate PPE required failure to comply can result in death or injury refer to NFPA 70E
- L. Underground electrical lines: for exterior underground power, control, signal, and communication lines, install continuous underground plastic line marker located directly above line at 6 (150mm) to 8 (205mm) inches below grade. A single plastic line marker is permitted when the width of the common trench does not exceed 16 inches; provide a second plastic line marker to mark each edge of the trench when 16 inches of width is exceeded. Limit line markers to direct-buried cables install line marker for underground wiring, both direct-buried cables and cables in raceway.
- 3.2 FEEDER AND BRANCH CIRCUIT DIRECTORIES
- A. Product:
1. Adhesive labels and field markings
 2. Nameplates and signs
- B. Feeder directories branch: provide each feeder, branch circuit, feeder modification, and branch circuit modification with a typed circuit directory label. Refer to technical equipment specification sections for additional requirements. Include the following with each label:

1. Load description: lighting, receptacles, specific equipment, spare, space, or similar description.
 2. Location: room name, number, location.
- C. Provide a factory or custom clear plastic sleeve for each branch panel directory and secure to inside panel cover.

3.3 SERIES RATING IDENTIFICATION

- A. Products:
1. Nameplates and Signs
- B. Upstream devices of series rated components not enclosed in a single nema type enclosure shall be identified with a nameplate reading "caution - series rated system -identical component replacement required".
- C. Downstream devices of series rated components not enclosed in a single nema type enclosure shall be identified with a nameplate reading "caution - series rated system -additional series combination rating: xx,xxx rms symmetrical amperes" where xx,xxx shall be the series combination rating.

END OF SECTION

SECTION 26 09 33 - LIGHTING CONTROL SYSTEMS

PART 1 - GENERAL

1.1 RELATED SECTIONS

- A. The lighting system design includes a combination of luminaire sources, lighting control components, programming sequences, and supplementary components for building and energy code compliance. The design uses performance-based specifications for portions of the lighting system to account for the limitation of comparable product solutions available by competitive manufacturers. The contractor shall reference related specification sections, plans, schedules, and details prior to submitting pricing, submittals, and installation. The contractor shall coordinate system component compatibility among various manufacturers and suppliers for a turnkey lighting system. Referenced sections include, but are not limited to, the following:
 - 1. 26 51 19 Led Lighting
 - 2. Electrical drawings: plans, luminaire schedules, lighting control sequence of operations, diagrams, and details.

1.2 QUALITY ASSURANCE

- A. Manufacturers shall be regularly engaged in the manufacture of lighting control equipment and ancillary equipment, of types and capacities required, whose products have been in satisfactory use in similar service for not less than five (5) years.
- B. All components and assemblies are to be factory pre-tested prior to delivery and installation.
- C. Comply with electrical code as applicable to electrical wiring work.
- D. Comply with applicable portions of NEMA standards pertaining to types of electrical equipment and enclosures.
- E. Panels and accessory devices are to be ul listed under ul 916 energy management equipment. Panels and accessories used for control of life safety and critical branch circuits shall be listed under ul 924 emergency lighting and power equipment.
- F. All assemblies are to be in compliance with FCC emissions standards specified in part 15 subpart j for class a applications.

1.3 REFERENCES

- A. FCC rules and regulations, part 15, subpart j - radio frequency interference
- B. California energy code - building energy efficiency standards Title 24

- C. Nema wd 1 - General color requirements for wiring devices
- D. Nema wd 7 - Occupancy motion sensors
- E. NFPA 70 - National Electrical Code (NEC)
- F. CEC California electrical code
- G. UL 1472 - solid-state dimming controls

1.4 PROJECT RECORD DOCUMENTS

- A. Submit project record documents under provisions of Section 26 05 00.
- B. Accurately record location of all controls and devices. Include description of switching sequences and circuiting arrangements.
- C. Identify installed location and labeling for each luminaire controlled by automated lighting controls.
- D. Submit software operating and maintenance manuals, program software backup on compact disc or compatible media with data files, device address list, and a printout of software application and graphic screens, where applicable.

1.7 MOCKUP

- A. Provide and install luminaires with power and control connections in mockup rooms as identified in Division 1. Approved luminaires and controls in mockup may be reused as part of complete work in original condition.

1.8 COMMISSIONING

- A. Commissioning of a system or systems specified in this section is part of the construction process. Documentation and testing of these systems, as well as training of the owner's operation and maintenance personnel is required in cooperation with the City. Project closeout is dependent on the successful completion of all commissioning procedures, documentation, and issue closure. Refer to Division 1 for detailed commissioning requirements.
- B. The contractor shall provide all services necessary for compliance with the IECC section C408 commissioning. The commissioning shall include, but not be limited to, a commissioning plan, preliminary commissioning report, construction documents, manuals, final commissioning report, and lighting system functional testing.
- C. This project will have selected building systems commissioned. The contractor is responsible to execute commissioning. The commissioning process, equipment, and systems to be commissioned are defined in Division 1.

- D. The contractor shall notify the architect/engineer and owner's representative ten (10) Working days prior to scheduled commissioning date.
- E. The commissioning process requires meeting attendance. Refer to division 1 for meeting requirements.
- F. The system shall be functionally tested by a factory-authorized engineer and comply with the sequence of operation. All loads shall be tested live for continuity and freedom from defects, and all control wiring shall be tested for continuity and connections prior to energizing the system.

1.9 WARRANTY

- A. Manufacturer shall warrant products under normal use and service to be free from defects in materials and workmanship for a period of two (2) years from date of commissioning.
- B. Occupancy, vacancy, daylight sensors and controls shall have a five (5) year warranty from date of substantial completion.

PART 2 - PRODUCTS

2.2 COVERPLATES

- A. All switches and lighting controls shall be complete with coverplates that match material and color of the wiring device coverplates in the space.
- B. Where several devices are ganged together, the coverplate shall be of the ganged style for the number of devices used.
- C. Install nameplate identification as indicated in section 26 05 53.
- D. Plate-securing screws shall be metal with head color matching the wall plate finish.

2.3 Wall Switches

- A. Refer to electrical symbols list for device type.
- B. Switch touch surfaces shall have an antimicrobial additive that suppresses the growth of harmful bacteria, mold, mildew, and fungi. Coverplate color shall match the switch color.

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

- A. Schedule a pre-construction meeting with the controls representative, installing contractor, the City to explain the proposed lighting control centralized, wireless, and distributed systems.

3.2 EXAMINATION

- A. Verify that surfaces are ready to receive work.

END OF SECTION

SECTION 26 27 26 - WIRING DEVICES

Part 1 - General

1.1 SECTION INCLUDES

- A. Device plates and box covers
- B. Receptacles (REC-#)

1.2 References

- A. DSCC W-C-896f - general specification for electrical power connector
- B. FS W-C-596 - electrical power connector, plug, receptacle, and cable outlet
- C. NEMA WD 1 - general color requirements for wiring devices
- D. NEMA WD 6 - wiring devices - dimensional requirements
- E. NFPA 70 - national electrical code (nec)
- F. CEC California electrical code
- G. UI 498 - standard for attachment plugs and receptacles
- H. UI 943 - standard for ground fault circuit interrupters

1.2 SUBMITTALS

- A. Submit product data under provisions of section 26 05 00.
- B. Provide product data showing configurations, finishes, dimensions, and manufacturer's instructions.

1.4 COORDINATION

- A. Receptacles for owner furnished equipment: match plug configurations.
- B. Cord and plug sets: match equipment requirements.

PART 2 - PRODUCTS

2.1 DEVICE COLOR

- A. All switch, receptacle, and outlet colors shall be white, unless indicated otherwise.

2.2 COVERPLATES

- A. All switches, receptacles, and outlets shall be complete with the following:
 - 1. Unbreakable thermoplastic/thermoset plastic and match device color coverplates in finished spaces where walls are finished.
 - 2. Decorator grade - public: decorator wallplates in public finished spaces where walls are finished.
 - 3. Decorator grade - screwless: decorator snap-on nylon or polycarbonate wallplates with sub-base in public finished spaces; match device color.
 - 4. Galvanized steel coverplates in unfinished spaces for surface mounted boxes.

- B. Where several devices are ganged together, the coverplate shall be of the ganged style for the number of devices used.
- C. Install nameplate identification as indicated in section 26 05 53.
- D. Plate securing screws shall be metal with head color matching the wall plate finish.

2.3 RECEPTACLES

- A. Refer to electrical symbols list for device type.
- B. Devices that are shaded on the drawings shall be red.
- C. Devices that are shaded on the drawings shall be red and shall have an illuminated face or indicator light to indicate that there is power to the device.
- D. Rec-dup-wp: NEMA 5-20r weatherproof ground fault duplex receptacle:
 - 1. 125-volt, 20 amp, 3-wire grounding type with test and reset buttons in impact resistant thermoplastic face, weather resistant WR listed. Provide extra-duty NEMA 3r rated while-in-use cast aluminum cover.
 - 2. Device shall perform self-test of GFCI circuitry in accordance with UL 943.
- E. Rec-quad: NEMA 5-20r double duplex receptacle:
 - 1. Consists of two duplex receptacles, double gang box, plaster ring and faceplate.
- F. Back wired devices shall be complete with eight holes that are screw activated with metal clamps for connection to #12 or #10 copper conductors.
- G. Side wired devices shall have four binding screws that are undercut for positive wire retention.
- H. Ground fault circuit interrupter (GFCI) receptacles shall be listed and comply with UL 943 requiring increased surge immunity, improved corrosion resistance, improved resistance to false tripping and diagnostic indication for miswiring if the line and load conductors are reversed during installation.
- I. Isolated ground receptacles shall have the equipment ground contacts connected only to the green grounding screw terminal of the device with inherent electrical isolation from the mounting strap.
- J. Hazardous (classified) location receptacles shall comply with NEMA FB 11.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install convenience receptacles at elevations indicated in the general installation notes on the contract drawings.
- B. Install specific-use receptacles at heights shown on the contract drawings. Install devices level, plumb, and square with building lines. Coordinate installation of adjacent devices of separate systems with common mounting heights, including lighting, power, systems, technology, and temperature control device rough-ins.
- C. Ground fault protection: provide ground fault protection for all branch circuit breakers serving 120/208 receptacles and electrical outlets rated 50 amps or less single-phase and 100 amps or less three-phase in the following locations, as shown on drawings, or required by adopted code:
 - 1. Bathrooms, locker rooms, shower rooms
 - 2. Interior/exterior locations subject to damp/wet conditions
 - 3. When located within 6 feet of sinks, bathtubs, and shower stalls
 - 4. Plug-and-cord receptacles when the utilization appliance is located within 6 feet of a sink edge.
 - 5. Garages, accessory buildings, service bays
 - 6. Specific appliances: auto vacuum machines, water drink/bottle fill coolers, pressure staying machines, tire inflation machines, vending machines, sump pumps, dishwashers, electric ranges, ovens, clothes dryers, microwave ovens
- D. Install receptacles vertically with ground slot up or where indicated on the drawings, horizontally with ground slot to the left.
- E. Install decorative plates on switch, receptacle, and blank outlets in finished areas, using jumbo size plates for outlets installed in masonry walls.
- F. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.
- G. Install devices and wall plates flush and level.
- H. Install nameplate identification to receptacle cover plates indicated. Identification shall identify panel name and circuit number. Refer to specification SECTION 26 05 53 - ELECTRICAL IDENTIFICATION.
- I. Test receptacles for proper polarity, ground continuity and compliance with requirements.

END OF SECTION

SECTION 26 43 00 - SURGE PROTECTION DEVICES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This section describes materials and installation requirements for factory and field wired low voltage surge protection devices (SPD) for the protection of all ac electrical circuits. SPD equipment to be installed at designated service entrance equipment.

1.2 TESTING, WARRANTY AND LIFE EXPECTANCY

- A. Minimum repetitive surge current capacity:
 - 1. Service entrance suppressor units should be tested repetitively at an independent lab to verify repetitive capacity.
 - 2. Minimum repetitive surge current capacity test:
- B. An initial ul 1449 surge defined as 1.2 x 50 μ s, 6000v open circuit voltage waveform and an 8 x 20 μ s, 500a and 3ka short circuit current waveform shall be applied to benchmark the unit's suppression voltage.
- C. A repetitive number of ansi/ieee c62.41.2-2002 (category c3) surges, defined as a 1.2 x 50 μ s 10kv or 20kv open circuit voltage waveform and an 8 x 20 μ s 10,000a short circuit current waveform, shall then be applied at one-minute intervals.
- D. To complete the test, another ul 1449 surge shall be applied to verify the unit's survival.
 - 1. Survival is achieved if the suppression voltage (VPR) does not vary by more than 10%.
 - 2. Proof of such testing shall be the test log generated by the surge generator.
- E. Provide ul 1449 classification white sheet pages indicating the VPR (voltage protection rating) for each SPD unit submitted for this product using the 6kv/3ka combination wave surge.
- F. Warranty: ten (10) years. Includes workmanship, installation and programming.
- D. No scheduled parts replacement or preventative maintenance shall be required.

PART 2 - PRODUCTS

2.1 DESCRIPTION

- A. General: the unit shall provide transient voltage suppression, surge current diversion and high-frequency noise attenuation, when connected in parallel to the facilities distribution system. The unit MCOV shall not be less than 115% of the

nominal system voltage. Operating frequency shall be for a 60 HZ system. The unit shall provide protection in all normal modes for "wye" and "delta" systems.

- B. Short circuit current rating: provide factory label for SCCR rating. The short circuit current rating shall be the larger of the listed value on the drawings or as required by the equipment protected.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine equipment for size and type of surge protection device to be used to ensure physical compatibility.
- B. Inspect surge protection device for any signs of physical damage due to shipping or handling before installing surge protection device.

3.2 INSTALLATION

- A. Mounting location:
 - 1. The unit shall be installed as close as practical to the panel in accordance with applicable national/local electrical codes and the manufacturer's recommended installation instructions. Connect the unit to the panel using a conduit nipple. Flush mount the unit in the front of the switchboard. Mount unit directly across from the breaker or disconnect serving it.
 - 2. Integral surge protection devices mount between the main and branch circuit breakers.
 - 3. If internal surge protection device is specified, device shall be installed in a barrier compartment isolated from other components.
- B. Connections:
 - 1. Contractor shall provide wire and circuit breakers sized per the approved manufacturer's requirements. Maximum lead length from protected bus to surge protection device shall be per manufacturer's requirements, but no greater than 5'-0".
 - 2. The surge protection unit shall be isolatable from the electrical distribution system via 3 pole circuit breaker mounted in the switchboard/panelboard. Single phase 120-volt units shall be hardwired without a disconnecting means.
 - 3. Neutral and ground shall not be bonded together at secondary panelboard locations.
- C. General:
 - 1. Check unit for proper operation of protection and indication under start-up.
 - 2. Check unit to ensure all movs for each mode of protection are operational. Verify integral fuse links are operational and have not melted.

3. Surge suppression devices shall not be installed ahead of the main service disconnect(s).
4. Install fuses in all fuse holders and fused disconnects internal to the surge protection unit. Use fuses recommended by the manufacturer to satisfy repetitive UL 1449 operation of the surge suppression unit. External fusing of the surge protection device is not allowed.
5. Coordinate location of surge protection device to allow adequate clearances for maintenance.
6. Manufacturer service phone number shall be posted on the front of the surge protection device.

END OF SECTION

SECTION 26 51 19 - LED LIGHTING

PART 1 - GENERAL

26 51 00 LIGHTING

- A. Submit product data sheets for luminaires, led lamps, led lighting engines, drivers, and poles. Include complete product model numbers with all options as specified. Submittals shall be arranged with luminaires listed in ascending order, and with each luminaire's associated led light engine, driver, or pole information following luminaire's product data.
- B. Submit IESNA lm-79 photometric report for the latest generation system being furnished. Provide name of independent testing laboratory, report number, date of test, luminaire series/model number, input wattage, and light source specifications. Product data shall also include IESNA LM-80 measuring lumen maintenance of led light sources.
- C. Submit lighting control capability data for each luminaire. The submittal shall clearly identify device data proposed by the contractor and approved by the luminaire manufacturer for dimming, switching, addressable, wireless, and similar control characteristics.
- D. Provide extra stock to owner including 10% of field-replaceable led light engines or modules, 3% lenses, 10% led drivers, 10% led lamps minimum one (1) of each size and type for all.
- E. Deliver products to site. Protect luminaire finishes, lenses, and trims from damage during storage and installation. Do not remove protective films until construction cleanup within each area is complete. Handle site lighting poles carefully to prevent breakage and damage to finish.
- F. The warranty period begins at the date of substantial completion. Provide LED light engines and drivers with a five (5) year warranty. Provide emergency lighting units and exit signs with a three (3) year non-prorated warranty. Provide emergency units and exit sign batteries with sealed lead acid or lead calcium cell, requiring no maintenance or replacement for ten (10) years under normal conditions.
- G. Provide emergency LED driver with five (5) year warranty.
- H. Provide emergency inverter and battery, sealed nickel cadmium, with five (5) year non-prorated warranty.
- I. Provide automatic load control relay (ALCR) with five (5) year warranty. Provide exterior finish on poles with three (3) year warranty.

- J. Provide LED light engine with three (3) year warranty and any driver with five (5) year warranty.
- K. Provide lensed troffers with hinged frames with latches and 0.125-inch thick virgin acrylic lenses. Prismatic lenses shall have depth of no less than 0.080", ksh12 or equal. Other lenses as scheduled.
- L. Confirm ceiling and wall type for recessed luminaires and furnish trim and accessories necessary to permit proper installation in each system.
- M. Verify suspension length prior to submittal. Painted reflector surfaces shall have a minimum reflectance of 90%. All painted components shall be painted after fabrication exterior luminaires shall be listed for wet or damp location as scheduled. Provide ingress protection (IP) rating when scheduled. Provide low temperature LED drivers, with reliable starting to -20°F. Light emitting diodes used in interior applications shall have a minimum color rendering index (CRI) of 70 80 90. The R9 color rendering value shall be a minimum of 50. Light emitting diodes used in exterior applications shall have a minimum color rendering index (CRI) of 70. Color temperature of the luminaires shall be as noted on the luminaire schedule. Provide light source color consistency by utilizing a binning tolerance within a maximum 3-step MCADAM ellipse unless noted otherwise. Rated life shall be minimum of 50,000 hours at 170. LED chips shall be wired so that failure of one chip does not prohibit operation of the remainder of the chip array. Luminaire delivered lumens is defined as the absolute lumens per the manufacturer's lm-79-08 test report. Led light engine shall have a maximum lld of 0.85 at 50,000 100,000 hours at 25°C ambient. Lighting poles shall be square round straight tapered steel aluminum lighting pole with embedded anchor transformer base. Wind load: 100 mph velocity, with 1.3 gust factor with luminaires and brackets mounted.

SECTION 31 10 00 - SITE CLEARING

PART 1 - GENERAL

SUMMARY

1.1 SECTION INCLUDES

- A. Removal of surface debris, miscellaneous paving, curbs, trees including stumps, grass, weeds and plant life in preparation for site and/or building excavation operations and disposing of cleared material in accordance with all local, state and federal requirements. Chemical or physical treatment, pruning of vegetation and installation of tree protection fences is also included.
- B. Installation of temporary erosion and sediment control devices in accordance with local, state and federal requirements
- C. Removal of topsoil, subsoil, rough grading, and site contouring.
- D. Protecting existing vegetation to remain
- E. Clearing and grubbing.
- F. Stripping and stockpiling topsoil.
- G. Stripping and stockpiling rock.
- H. Disconnecting, capping or sealing, removing site utilities and/or abandoning site utilities in place.

1.2 RELATED SECTIONS

Section 31 22 00 - Grading

Section 31 23 13 - Subgrade Preparation

Section 31 25 00 - Erosion and Sedimentation Controls

The following Sections of the "GREENBOOK" Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNI Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:

Section 300 - Earthwork

Section 301 - Subgrade Preparation, Treated Materials and Placement of Base Materials.

Section 400 - Protection and Restoration

Section 401 - Removal

Section 601 - Temporary Traffic Control for Construction and Maintenance Work Zones.

1.3 REGULATORY REQUIREMENTS

- A. Coordinate clearing Work with utility companies.
- B. Construct temporary erosion and sediment control systems as shown on the Construction Drawings to protect adjacent properties and water resources from erosion and sedimentation.
- C. In the event that sitework on this project will disturb one or more acres, starting work shall be strictly governed by the sequence of construction as specified on the Erosion Control and Stormwater Pollution Prevention Plans (SWPPP). Contractor shall not begin work without a "National Pollution Discharge Elimination System" (NPDES) permit governing discharge of storm water from the site for the entire construction period.
- D. Contractor shall be solely responsible to obtain all required local, State and Federal permits and approvals for site clearing, grubbing and off-site disposal at approved disposal facilities.
- E. Contractor shall conduct storm water management practices in accordance with the project documents and applicable NPDES permit and shall enforce action taken or imposed by Federal or State agencies, including cost of fines, construction delays and remedial actions resulting from Contractor's failure to comply with the provisions of the NPDES permit.
- F. Provide Traffic Control as required by the local municipality, in accordance with the US Department of Transportation's "Manual on Uniform Traffic Control Devices" and applicable local municipality and state highway department requirements.

1.4 DEFINITIONS

- A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow.
- D. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches (50 mm) in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

- E. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
 - F. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction.
 - G. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.
- 1.5 MATERIAL OWNERSHIP
- A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.
- 1.6 INFORMATIONAL SUBMITTALS
- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
 - B. Use sufficiently detailed photographs or video recordings.
 - C. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.
 - D. Topsoil stripping and stockpiling program.
 - E. Rock stockpiling program.
 - F. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.
 - G. Burning: Documentation of compliance with burning requirements and permitting of authorities having jurisdiction. Identify location(s) and conditions under which burning will be performed.
- 1.6 QUALITY ASSURANCE
- A. Topsoil Stripping and Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.
 - B. Rock Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

1.7 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
- B. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
- C. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.
- D. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
- E. Do not proceed with work on adjoining property until directed by Architect.
Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises.
- F. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
Do not commence site clearing operations until temporary erosion- and sedimentation-control[and plant-protection] measures are in place.
Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Herbicide: Roundup (Monsanto) or Brush Killer (Ortho).
- B. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 31 22 00 - Grading
- C. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

2.2 .EXECUTION

2.3 PROTECTION

- A. Identify and protect utilities from damage.
Protect trees, plant growth, and features designated to remain, as final landscaping.
Identify and tag.

- B. Verify that survey benchmark and intended elevations for the Work are as indicated. Protect benchmarks, property corners and other survey monuments from damage or displacement. If a survey marker needs to be removed it shall be referenced by a licensed land surveyor and replaced, if necessary, in kind.
- C. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- D. Do not disrupt public utilities without permit from authority having jurisdiction. Protect existing structures and other elements that are not to be removed.
- E. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations according to requirements in Section 33 90 00 - Planting.
- F. Protect existing site improvements to remain from damage during construction. Restore damaged improvements to their original condition, as acceptable to Owner.

2.4 CLEARING

- A. Material shall be transported to and from the project site using well-maintained and operating vehicles. Transporting vehicles operating on site shall stay on designated haul roads and shall not endanger improvements by rutting, overloading or pumping.
- B. Clear areas required for access to site and execution of Work to a minimum depth of 12 inches. Remove paving, curbs, surface and rock.
- C. Remove trees and shrubs within marked areas indicated. Remove stumps, main root ball and root system in locations indicated.
- D. Apply herbicide to remaining stumps or plant life to inhibit growth.
- E. Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 12 inches or more in diameter and shall be trimmed of all branches to the heights indicated or directed.
- F. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches. Cuts more than 12 inches in diameter shall be painted with an approved tree-wound paint. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work.

2.5 ROUGH GRADING

- A. Identify required lines, levels, contours, and datum.
- B. Identify known underground, aboveground, and aerial utilities. Stake and flag locations of utilities.
- C. Notify utility companies to remove and relocate utilities.
- D. Excavate topsoil and subsoil from areas to be further excavated, re-landscaped or re-graded.
- E. Stockpile topsoil and subsoil in area designated on site. Remove excess topsoil and subsoil not being reused, from site. Install silt fence around perimeter of soil and subsoil stockpile areas.
- F. Stake and trench silt fence in place.

2.6 CLEAN UP

- A. Remove debris, rock larger than 3" diameter and extracted plant life from site.
- B. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- C. Burning tree, shrub, and other vegetation waste is permitted according to burning requirements and permitting of authorities having jurisdiction. Control such burning to produce the least smoke or air pollutants and minimum annoyance to surrounding properties. Burning of other waste and debris is prohibited.
- D. Separate recyclable materials produced during site clearing from other nonrecyclable materials.
- E. Store or stockpile without intermixing with other materials, and transport them to recycling facilities. Do not interfere with other Project work.

2.7 GRUBBING

- A. Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed to a depth of not less than 18 inches below the original surface level of the ground in the construction areas under this contract, such as areas for buildings, and areas to be paved. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.
- B. Use only hand methods or air spade for grubbing within protection zones.

- C. Chip removed tree branches and stockpile in areas approved by Engineer.

2.8 CLEARING AND GRUBBING AREA

- A. It is the intent of the work to minimize clearing and grubbing. The Engineer will designate the work area limits. Disturbed perennial plants and bushes outside the area shall be replaced by the Contractor under this section.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground not less than 90% relative compaction.

2.9 DISPOSAL OF MATERIALS

- A. Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations shall be disposed of outside the limits of the project by the Contractor. Contractor shall be responsible for obtaining all permits required for site clearing, grubbing and off-site disposal.
- B. Do not burn, bury, landfill, or leave materials to be cleared or grubbed on site.
- C. Dead Wood: Remove all dead trees (standing or down), limbs, and dry brush on entire site.
- D. Remove debris, junk, and trash from site.
- E. Leave site in clean condition, ready for subsequent work.
- F. Clean up spillage and wind-blown debris from public and private lands.
- G. All material generated by this project must be disposed of at a permitted site when required. Contractor is solely responsible for obtaining all required local, state and/or federal permits required for disposal. Permitted facilities include construction and demolition debris sites, restricted use sites, and regional landfills.

2.10 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

END OF SECTION

SECTION 31 22 00 - GRADING

PART 1 - GENERAL

SUMMARY

1.1 SECTION INCLUDES:

- A. General exterior grading, cutting and filling, including grading for building area, paving, planting areas, banks and sloped hillsides. All excavation, fill and embankment shall be unclassified.
- B. Perform borrow excavation and embankment construction as specified in the "GREENBOOK" as referenced in 1.1(B) below.
- C. Spread topsoil over areas specified.
- D. Protection of existing topographic features such as, but not limited to: utilities, site and off-site amenities, trees and landscape items to remain, etc.
- E. Stripping and stockpiling Topsoil
- F. Dewatering

1.2 RELATED SECTIONS:

Section 31 10 00 - Site Clearing.

Section 31 23 13 - Subgrade Preparation

Section 31 23 23 - Excavation, Backfill and Compaction for Utilities

Section 32 11 23 - Aggregate Base Course.

The following Sections of the "GREENBOOK" Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNI Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:

Section 200 - 1: Rock Products

Section 300 - Earthwork

Section 300-1: Clearing and Grubbing

Section 300-2: Unclassified Excavation

Section 300-3: Structure Excavation and Backfill

Section 300-4: Unclassified Fill

Section 300-5: Borrow Excavation

Section 300-6: Earthwork for Debris Dams and Basins

Section 300-7: Earthwork for Channels

Section 300-8: Geotextiles for Drainage

1.3 PROJECT REQUIREMENTS

- A. General:
- B. Fees: Pay as required by authorities having jurisdiction over the area.
- C. Bonds: Post as required by authorities having jurisdiction over the area.
- D. Haul Routes and Restrictions: Comply with requirements of authorities having jurisdiction over the area.
- E. Before grading, contact Underground Service Alert of Southern California (USASC) for information on public buried utilities and pipelines. Retain the services of an underground utility locator for on-site utilities.

1.4 GEOTECHNICAL CONSULTANT AND TESTING

- A. The Owner has retained the services of a qualified geotechnical consultant to perform specified maximum density and in-place density tests.
- B. Responsibilities of the geotechnical consultant will include:
- C. Sampling, testing and approval of excavated materials used for embankment construction.
- D. Observation of placement and testing of materials during placement to determine that specified compaction and moisture requirements are met.
- E. Preparing reports that summarize the observations and materials testing and submitting to Engineer, Owner and Contractor.

1.5 DESCRIPTION OF WORK

- A. Protection: includes, but is not limited to, sheeting, shoring and bracing, earth stabilization, and protection of existing utilities and structures necessary to prevent damage to the work, property, life and limb, due to earth moving operations.
- B. Stripping and Respreading Topsoil: includes stripping, stock piling, and spreading of the depth of topsoil indicated on the Construction Drawings.
- C. Unclassified Excavation, Fill and Embankment: includes excavation, storing, and rehandling of all normal earth materials, such as loam, silt, gumbo, peat, clay, soft shale, sand, gravel and fragmentary rock or boulders, or any other material encountered, regardless of its nature, which may be handled in a manner similar to normal earth materials from existing ground surface to subgrade for pavement or to finish grade outside the paved areas. It also includes:
- D. Site preparation.

- E. Removal and disposal of excess excavated material.
- F. Loading and hauling of the material from the area being excavated to the embankment.
- G. The placing and proper compaction of excavated material in an embankment within the Project limits of this Contract.
- H. Disking and aeration of wet soil in order to remove moisture from the material.
- I. Furnishing and applying water as required to obtain proper moisture content and compaction and control dust.
- J. Rework and retesting of areas and materials where failing tests occur.
- K. The finish grading of earth surfaces.
- L. Dewatering
 - 1. Dewatering – This work includes the removal of groundwater from the excavation utilizing a well system, portable pumps, or some other means appropriate to maintain a reasonably dry excavation.

1.6 SUBMITTALS

- A. If the Contractor is to provide a borrow site and the Contractor is not the owner of the borrow site, prior to commencing work on the borrow site, the Contractor shall be responsible to obtain written authorization from the owner of the borrow site, to utilize the area as a borrow site and provide such authorization to the Engineer. Upon completion of the restoration of the borrow site, the Contractor shall also be responsible to obtain written acceptance from the owner of the borrow site regarding its restoration, and provide a copy of such acceptance to the Engineer.
- B. Submit samples and test results as set forth in the Contract Documents.
- C. Submit certificate of compliance indicating the materials incorporated into the work comply with the Contract Documents.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Store cleared, grubbed, and excavated material in locations which will minimize the interference with operations, minimize environmental damage, facilitate proper drainage, and protect adjacent areas from flooding, runoff and sediment disposition.

1.8 SCHEDULING AND CONFLICTS

- A. Schedule work to minimize disruption of public streets and facilities.
- B. Coordinate work with the local municipal Public Works Department.

1.9 SPECIAL REQUIREMENTS

- A. Use of explosives is forbidden unless provided for in the Contract Document Special Provisions.
- B. All work and materials incorporated into this Project shall conform to all applicable local, state, and federal requirements.
- C. During the progress of work, the Contractor shall conduct his operation and maintain the area of his activities so as to minimize the creation and dispersion of dust per Section 31 25 00.

1.10 JOB CONDITIONS

- A. Elevations shown for existing work and ground are reasonably correct, but are not guaranteed to be absolutely accurate. Contractor shall notify Engineer of any discrepancy between the existing and/or proposed elevations prior to proceeding with work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials shall conform to requirements specified in this and related sections.

2.2 EXECUTION

- A. Protect and maintain installed stakes until their removal is required for the Work. Provide replacement grade or location stakes lost or disturbed.
- B. Install grade stakes and compare to indicated grades. If discrepancies are found between existing grades and grades indicated on Drawings, do not proceed until discrepancies are resolved.
- C. Prior to all excavating, Contractor shall become thoroughly familiar with the site and all existing and proposed site conditions.
- D. Nothing in this Specification shall be deemed to allow the use of protective systems less effective than those required by the Occupational Safety and Health Administration (OSHA) and other applicable code requirements.
- E. The Contractor shall keep Project free from drainage ponding due to construction operations.
- F. High Ground Water Conditions (when present)

- G. Prior to site grading and any excavation, an effective means of controlling groundwater shall be established to “predrain” the site and minimize disturbance of the bearing soils.
- H. Use a series of ditches, French drains, and/or drain lines to lower the groundwater level to at least 2 feet below the excavation depth. This system can be incorporated into the pavement underdrain system.
- I. Avoid operating heavy equipment directly on soft saturated soils; consider performing earthwork with track-mounted construction equipment to minimize subgrade disturbance.

2.3 ROUGH AND FINE GRADING

- A. Rough grade area sufficiently high to require cutting by fine grading:
- B. Grade area for bituminous surfacing and other paving to the indicated grades, equal to the section of the indicated base and pavement.
- C. Slope banks to required finish grades as cut progresses or leave cuts full and finish grade by mechanical equipment to provide grades and soil densities indicated on the Drawings.
- D. Rough grade, fill and compact banks beyond indicated finish grades. Finish grade banks and slopes to indicated grades and specified soil densities.
- E. Grade Only Areas: In areas not indicated to receive pavement, rough grade to approximate finish grades and then scarify, moisten and roll to obtain required density and indicated finish grades.
- F. Tolerances: Finish grades shall be within the following tolerances above or below grades indicated. Provide an average grade as indicated:
 - 1. Unpaved areas near buildings, parking areas and sidewalks: +0.10 ft.
 - 2. Unpaved areas away from buildings, parking areas and sidewalks: +0.25 ft.
 - 3. Grading surface of fill under building slab: +0.04 ft to -0.10 ft.
- G. Base or Subgrade:
 - 1. After subgrade has been constructed to approximate required grades, scarify to a depth of at least 6 inches:
 - 2. After scarifying, process loosened material to a finely divided condition and adjust moisture content to optimum condition by addition of water, addition and blending of dry suitable material, or by drying of existing material.
 - 3. Subgrade material shall be compacted by tamping, sheepsfoot rollers or pneumatic tire rollers. Required relative compaction shall be 90 percent minimum for the top 12 inches below subgrade.

4. Install base course in accordance with Section 32 11 23 – Aggregate Base Course.
5. Tolerance of completed grades of base or subgrade shall not vary more than 0.03 inch per foot from grades indicated. Provide an average grade as indicated.

2.4 SHORING AND BRACING

- A. Provide shoring as necessary to properly and safely support earth sides of excavations, and existing curbs, sidewalks, gutter, drives and stairs, against movement and collapse.
- B. Design and Calculations: Provide in accordance with requirement of CalOSHA.
- C. Remove shoring upon completion of the Work of this section or when no longer needed unless required otherwise by authorities having jurisdiction.
- D. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and crossbraces, in good serviceable condition.
Establish requirements for trench shoring and bracing to comply with local codes, Construction
- E. Manager work rules and authorities having jurisdiction.
- F. Maintain shoring and bracing in excavations regardless of the time period excavations will be open. Carry down shoring and bracing as excavation progresses.

2.5 EXCESS MATERIAL DISPOSAL

- A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.
- B. Contractor shall be solely responsible for obtaining all required permits for off-site disposal of site materials.

2.6 PROTECTION

- A. Protect the Work of this section until Substantial Completion.
- B. Contractor shall provide all necessary sheeting and shoring including all labor, material, equipment and tools required or as necessary to maintain the excavation in a condition to provide safe working conditions, to permit the safe and efficient installation of all items of the work, and to protect adjacent property. Contractor shall be held liable for any damage which may result to property from excavation or construction operations. Sheet piling and timbers in excavations shall be withdrawn in a manner so as to prevent subsequent settlement of structures.

- C. Provide the necessary traffic control protection according to Section 01 55 26 to prevent accidents, to avoid all hazards and to protect the public, the work and property at all times.
- D. The Contractor shall be responsible for damages to any party whatsoever by reason of the Contractor's neglect in providing proper safeguards to prevent damage to property, life and limb.
- E. Protect structures, utilities, sidewalks, pavements, and other facilities from damage due to settlement, lateral movement, undermining, washout and other hazards created by earth operations.

2.7 BORROW EXCAVATION

- A. Replace zones of unstable material encountered with suitable material.
- B. Unstable material and excess excavated material shall be transferred off site to disposal areas designated by the Owner.
- C. Borrow excavation shall be conducted in accordance with Section 300-5 of the "GREENBOOK" Specifications.

2.8 MATERIAL TESTS

- A. Moisture-density laboratory tests: Minimum of one test on each type of soil to be used in embankment construction; conform to ASTM D698 (Standard Proctor). Perform tests prior to placement of embankment materials.
- B. In-place density tests for embankments: Perform tests on embankments for successive 8" layers conforming to ASTM D2922 and ASTM D3017.

2.8 FINISH GRADING

- A. Finish grade and borrow to grades shown on the Drawings.
- B. Finish grade to neat appearance and to provide positive drainage.
- C. Handwork with tampers and other hand tools may be required to achieve neat appearance around structures.
- D. All earth surfaces, except those requiring aggregate or riprap, shall have topsoil placed to the finished grade lines as shown on Drawings and seeded. The depth of topsoil shall be as specified on the Construction Drawings.

2.9 OPERATIONS

- A. Water must be used as a controlling agent for dust control.
- B. Regulations as set forth by OSHA and appropriate state agencies shall govern.

2.10 FINISH ELEVATIONS AND LINES

- A. Secure the services of a surveyor licensed in the State of California for setting and establishing the elevations, line and layout of the work. Take care to preserve all data and monuments set by the surveyor, and if displaced or lost, immediately replace them to the approval of the Engineer at no additional cost.

2.11 UNCLASSIFIED EXCAVATION

- A. Do not start unclassified excavation, suitable temporary erosion and sediment control measures are in place as set forth in Section 31 25 00.
- B. Excavate the area to the elevations and cross sections as indicated in the Contract Documents.
- C. When excavation has reached the required subgrade elevations, notify the Engineer who will make an inspection of conditions.
- D. If excess excavated material exists, it shall be disposed of legally off-site in accordance with the Contract Documents.
- E. All material other than non-organic firm solid earth, sand or gravel shall be removed from the excavation.
- F. Excavation for all footings, foundation walls, pits, etc. shall be large enough to provide adequate clearance for the proper execution for the work within them.
- G. Excavations scheduled to extend below groundwater shall not be started until the area has been dewatered.
- H. No footings or slabs shall bear on soil within two feet of existing grade. Where subgrade is within two feet of existing grade, remove soils to two feet below existing grade and backfill with compacted fill.
- I. When excavations reach subgrade elevations as shown on the Drawings, or as specified herein, the Engineer will observe the bottom material. Where, in the opinion of the Engineer, unsuitable foundation material is found at the level of the subgrade, original material below the excavation necessary for construction according to grades shown or specified, shall be removed and replaced with material and placing methods as specified under compacted fill.
- J. Excavations that are undercut beneath the foundation shall extend beyond the perimeter of the foundation one-foot plus a distance at least equal to the depth of undercut below footing grade.
- K. Contractor shall backfill and compact all over-excavated areas not required to complete the work at Contractor's expense.

2.12 COLD WEATHER PROTECTION

- A. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 deg. F. (2 deg. C.). Material shall not be placed on frozen ground.

2.13 DEWATERING

- A. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding the project site and surrounding area.
- B. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
- C. Convey water removed from excavations and rainwater to collecting or run-off areas.
- D. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for structure. Do not use trench excavations as temporary drainage ditches.
- E. Dewater to at least two feet below the top of subgrade elevation.

2.14 UTILITIES

- A. Locate existing underground utilities in areas of work before starting excavations.
- B. Provide adequate means of protecting utilities that remain in place during earthwork operations.
- C. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult utility company immediately for directions.
- D. Cooperate with Owner and utility companies in keeping respective services and facilities in operation and repair any damaged utilities to satisfaction of utility company.
- E. Do not interrupt existing serving facilities occupied and used by Owner or others, except when permitted in writing by Owner.
- F. Accurately locate and record abandoned and active utility lines rerouted or extended on project record drawings.
- G. In case water, gas pipes, conduits, or other utilities are broken in the prosecution of the work, stop work and give immediate notice to the proper authorities. Contractor shall be responsible for any damage to persons or property caused by

such breaks. Failure to give prompt notice to the authorities shall make the Contractor responsible for any needless loss of water, gas, energy, or for interruption of services.

2.15 CLEAN-UP

- A. Upon completion of the work of this Section, place in stockpile areas all excess excavated material, and remove from the site all rubbish, trash and debris resulting from operations. Leave the site in a neat and orderly condition.

END OF SECTION

SECTION 31 23 13 - SUBGRADE PREPARATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Subgrade Preparation.
- B. Subgrade Stabilization
- C. Granular Subbase.
- D. Special Backfill.
- E. Granular and Earth Shoulder Preparation.
- F. Related Sections:
 - Section 33 10 00 - Site Clearing
 - Section 31 22 00 - Grading
 - Section 32 11 23 - Aggregate Base Courses
 - Section 32 13 13 - Concrete Paving
 - Section 32 16 00 - Curbs, Gutters, Sidewalks and Driveways

The following Sections of the “GREENBOOK” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNI Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:

- Section 200 - 1: Rock Products
- Section 300 - Earthwork
- Section 301 - Subgrade Preparation, Treated Materials and Placement of Base Materials.
- Section 301-1: Subgrade Preparation
- Section 301-2: Untreated Base

1.2 DESCRIPTION OF WORK

- A. Subgrade Preparation – includes the shaping and consolidation of a prescribed portion of a roadbed, parking area and/or paved area in preparation for the placement of granular subbase.
- B. Subgrade Stabilization – includes the removal and disposal of unsuitable or unstable material that is not appropriate to place subbase on and backfill with suitable backfill or macadam stone base material. Geotextile fabrics, as required per the Contract Drawings, are also included in this section.
- C. Granular Subbase - includes the furnishing, placing, shaping and compaction of granular subbase in preparation for PCC or ACC pavement.

- D. Special Backfill – includes furnishing, placing, shaping and compaction of special backfill in preparation for pavement base course.
- E. Granular and Earth Shoulder Preparation – consists of blading over the foreslope both the soil excavated from the trench and any material of the shoulder lying above the proposed, finished shoulder line, and hauling offsite, as required. Work shall also include the placement of granular shoulder material, as required.

1.3 SUBMITTALS

- A. Submit certification of compliance and/or samples indicating the materials incorporated into the Work comply with the Contract Documents.
- B. The substitution of materials is allowed as set forth in the General Conditions.
- C. Scheduling And Conflicts
- D. Schedule Work to minimize disruption of public streets and facilities.
- E. Special Requirements
- F. All Work and materials incorporated into this Project shall conform to all applicable local, state, and federal requirements.

1.4 PRODUCTS

- A. Subgrade Stabilization
 - 1. All backfill materials utilized for the backfill of excavation of unsuitable or unstable soil shall meet the requirements for suitable soil as set forth in Section 31 22 00.
- B. Geotextile Stabilization Fabric:
 - 1. All engineering fabric (geogrid) incorporated into this item shall have properties as set forth in the “GREENBOOK” Specification Section 213-1 “Engineering Geosynthetics”.
 - 2. All engineering fabric (geotextile) incorporated into this item shall have properties as indicated in the GREENBOOK” Specification Section 213-1 “Engineering Geosynthetics”.
- B. Granular Subbase
 - 1. The granular subbase material shall meet the requirements of the following “GREENBOOK” Specifications:
 - 2. Section 200-2: Untreated Base Materials
 - 3. Reclaimed asphalt shall not be allowed.
 - 4. The granular subbase material for use with geogrid applications shall meet the requirements of the Manufacturer.

PART 2 – EXECUTION

2.1 GENERAL

- A. Remove all deleterious materials such as topsoil, vegetation, or loose, soft, frozen, or otherwise unsuitable materials. The actual stripping depth shall be evaluated by qualified geotechnical personnel.
- B. The Contractor shall keep Project Site free from drainage ponding due to construction operations.
- C. High Ground Water Conditions (when present)
- D. Prior to site grading and any excavation, an effective means of controlling groundwater shall be established to “predrain” the site and minimize disturbance of the bearing soils.
- C. Use a series of ditches, french drains, and/or drain lines to lower the groundwater level to at least 2 feet below the excavation depth. This system can be incorporated into the pavement underdrain system.
- D. Heavy equipment traffic directly on soft saturated soils should be avoided. Consideration should be given to performing earthwork with track-mounted construction equipment which helps minimize subgrade disturbance.
- E. Subgrade compaction shall be Type A unless otherwise specified. Type A compaction refers to compaction requiring a minimum of one rolling per inch depth of each lift and a maximum of 8 inch lifts, and it is further required that the roller continue operation until it is supported on its feet, or the equivalent.
- F. Subgrade Preparation
 - 1. Preparation of subgrade shall not commence prior to the completion of any trenching operations under the area to be paved except as specified in Section 33 41 00. If the subdrains are installed prior to subgrade preparation, the Contractor shall be responsible to protect the porous material from contamination with the subgrade material.
 - 2. The subgrade shall be constructed to have uniform stability for at least 12 inches below top of subgrade and for a width at least equal to that of the proposed pavement plus 2 feet on each side. It shall be brought to an elevation and cross section as set forth in the Contract 3. Documents and such that, after being rolled, the surface shall be at the required elevation. If subdrains are installed prior to subgrade preparation, the area 2 feet outside the paved area does not require compaction in addition to consolidation of the porous material in the subdrain trench.
 - 4. Compaction of soils with greater than 6 percent fines shall be accomplished with an impact device.

5. Compaction of soils with less than or equal to 6 percent fines shall be accomplished with vibratory devices.

G. Subgrade Compaction:

1. After rough grade has been established and prior to placement of any fill, the exposed subgrade should be proofrolled in the presence of the Engineer's representative. Proofroll subgrade with minimum 20 ton loaded tandem truck to determine uniformity and stability of subgrade.
2. In cut sections, disk, scarify, moisture condition and recompact the top 12 inches of subgrade with Type A compaction.
3. If equipment is not sized to perform required compaction at minus 12 inches, then excavate top 6 inches of subgrade, then scarify, moisture condition, and recompact next 6 inches of subgrade with moisture and density control. Then replace, pulverize, moisture condition, and compact top 6 inches of subgrade.
4. The above requirement also applies for the top 12 inches of embankments.
5. The upper 12 inches of subgrade shall consist of a low-plasticity cohesive soil, or granular material. If fat clay exists at the subgrade elevation, lime or Class C fly ash could be incorporated into the soil to reduce its plasticity. The underlying fat clay should not be allowed to desiccate; the soil should be maintained at 0 to +4 percent of the soils optimum moisture value.
6. Compact soil to 95 percent of the material's maximum standard Proctor dry density with moisture content between -2 to +3 percent of the soil's optimum moisture content, unless specified otherwise on the Construction Documents.
7. Unsuitable areas observed shall be improved by compaction or by undercutting and replacing with suitable compacted fill.
8. Contractor shall repeat scarification, recompaction, and testing as many times as needed to obtain specified density.
9. Remove large stones or rubble (i.e., concrete) over 3 inches in size from within 2 feet of the finished subgrade elevation.
10. Unstable Material: If soft, yielding, or pumping areas are located, improve by scarifying, moisture conditioning and recompaction or remove unstable materials and replace with suitable materials and compact as specified.

- H. Following the trenching operations, the Contractor shall scarify, thoroughly mix, and recompact the materials present in the upper 12 inches of the subgrade for the full width of the subgrade area to produce a uniform condition. The compaction shall be to 95 percent of maximum standard proctor dry density with moisture content between -2 and +3 percent of soil's optimum moisture content.

- I. The Contractor shall determine if moisture content of the material is excessive or suitable for satisfactory compaction. The Contractor may elect to start rolling operations immediately after the smoothing operation, or may elect to delay rolling operations, and instead, aerate the material in preparation for rolling.

Aeration and compaction operations shall proceed in an orderly fashion without unreasonable and unnecessary delay. Rolling operations made prior to any aeration operations for a lift will not be counted as any of the required coverages.

- J. Should the material be dry to the extent that it is likely to be unsatisfactorily compacted, the Contractor may moisten the material, or the Engineer may order the material to be moistened uniformly, before it is compacted. Authorization may be given for the use of water in the final finishing of the roadbed.
- K. Following completion of subgrade scarification and compaction, subgrade shall be proof-rolled in the presence of the Engineer. Proof-roll subgrade with a minimum 20-ton loaded tandem truck to determine uniformity and stability of subgrade.
- L. Subgrade Maintenance:
 - 1. Maintain subgrade prior to and during paving operations.
 - 2. Care should be taken to avoid saturation or desiccation of the subgrade prior to construction of pavement. If this occurs, the material shall be removed, or scarified, moisture conditioned and recompact.
 - 3. Pavements shall be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavement could saturate the subgrade and contribute to premature pavement deterioration.
 - 4. If rutting or any other damage occurs to the subgrade for any reason, the Contractor shall immediately repair the subgrade. Such repair will include, if necessary, scarifying, aerating, and recompacting the subgrade.
- M. Subgrade Stabilization
 - 1. Prior to commencing with the removal of unsuitable or unstable material, the Contractor shall be responsible to notify the Engineer. The Engineer will review the conditions and, if appropriate, shall authorize the Work to proceed.
 - 2. The Engineer shall mark the limits of the excavation and may observe the Work.
 - 3. If the excavation is backfilled with suitable soil, the upper 8 inches shall be compacted as set forth in subgrade preparation. Any material below that shall be compacted in accordance with the requirements for the construction of embankment.
 - 4. If the excavation is backfilled with macadam stone base material, the material shall be consolidated as it is placed. Required depth for subgrade stabilization shall be established by the Engineer.
 - 5. Remove soft, unstable soil to a desired depth.
 - 6. Backfill area with material meeting the requirements of Section 2.01.
 - 7. Subgrade areas from which unstable native material has been excavated may be lined with geotextile prior to placement of macadam stone for subgrade stabilization. Engineer shall determine the need for geotextile use.

8. The following procedure for subgrade stabilization may be utilized, subject to the approval of the Engineer.
 9. Excavate unstable native subgrade to depth ordered by the Engineer, but not less than 12 inches.
 10. Place granular subbase over excavated subgrade and in-place geogrid in accordance with manufacturer's instructions.
 11. Contract Documents or the Engineer shall identify which of the above-described stabilization procedures is approved for a given project.
 12. Soil Reinforcement Fabric/Geogrid
- N. Remove and replace fabric areas damaged during construction. Lap or sew replaced fabric, as specified for the class of fabric used.
- O. Install geotextiles in accordance with manufacturer's recommendations.
- P. Do not run vehicles directly on engineering fabrics. Rubber tired vehicles shall not run on rock placed over soil reinforcement fabric.
- Q. Soil Reinforcement Geogrid
- R. See geotechnical report instructions for geogrid.

END OF SECTION

SECTION 31 25 00 - EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Temporary Erosion and Sediment Control.
- B. Temporary Seeding.
- C. Dust Control.
- D. Stormwater Pollution Prevention Plan (SWPPP) monitoring per NPDES requirements.
- C. Stormwater Quality as applicable.

1.2 RELATED SECTIONS

- Section 31 10 00 - Site Clearing
- Section 31 20 00 - Earth Moving

The following Sections of the “GREENBOOK” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNI Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:

- Section 213 - Engineering Geosynthetics
- Section 300-9 - Geotextiles for Erosion Control
- Section 300-11 - Stonework for Erosion Control

1.3 DESCRIPTION OF WORK

- A. Temporary Erosion and Sediment Control: includes the installation and maintenance of temporary structural control measures of soil and transport of sediment offsite. This may include, but not be limited to, silt fences, ditch checks, sediment basins, erosion control mats, stabilized construction entrance, temporary diversions, inlet protection, sediment traps and slope drains.
- B. Dust Control: includes the management of operations and the application of water or dust palliatives in order to reduce or eliminate the spread of dust from the Project limits.

1.4 SUBMITTALS

- A. Certification and Sampling: The Contractor shall furnish a manufacturer’s certification, stating that the material supplied conforms to the requirements of these Specifications. The certification shall include or have attached, typical results of tests for the specified properties, representative of the materials supplied.

- B. Submit sequence of construction items, if not included in Contract Drawings or in Erosion Control Permit.
- C. Submit an itemized summary of soil erosion and sediment control procedures, materials and practices contractor intends to use at specific locations on this particular project. Make specific reference to the standard procedures and standard drawings included in the referenced EPA specifications.

1.5 NPDES REQUIREMENTS

- A. The Contractor shall be responsible to secure a National Pollutant Discharge Elimination System from the Environmental Protection Agency as is required to comply with City of Duarte requirements.
- B. California Environmental Protection Agency (CEPA).
- C. Standards and Specifications for Soil Erosion and Sediment Control.

PART 2 - PRODUCTS

2.1 TEMPORARY EROSION AND SEDIMENT STRUCTURAL CONTROLS - GENERAL

- A. The materials incorporated into this Project as part of this item shall conform to the requirements of the "GREENBOOK" Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNI Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 cited in Section 1.1 (B)(5) above.

2.2 DUST CONTROL

- A. Water shall be clear and free from suspended fine sediment.
- B. Water shall be spray-applied in trucks clearly marked "WATER".

2.3 TEMPORARY SLOPE DRAINS

- A. Shall be constructed of stone, concrete or asphalt gutters, half round pipe, metal pipe, plastic pipe or flexible rubber pipe with a minimum length of six feet adequate to carry water down slopes to reduce erosion.

2.4 DITCH CHECKS

- A. Rock ditch checks shall be constructed of base rock in accordance with "GREENBOOK" Specification Section 31 20 10.
- B. Straw bale ditch checks shall not be used except by prior arrangement with the Engineer. In general, these will only be allowed as a temporary measure. Where used, they shall be constructed of rectangular oat or wheat bales in good condition. Hay bales are not acceptable.

2.5 EROSION CONTROL MATS

- A. Erosion control mats consist of wood excelsior mats, jute mesh, glass fiber or other materials with the following material properties:

Mat Type	Min. Unit Weight (lb/sq.yd)	Min Roll Width (inches)
Straw blanket	0.5	42
Wood excelsior blanket	0.8	42
30 percent coconut/70 percent straw or wood excelsior	0.5	42
Coconut fiber	0.5	42

2.6 SILT FENCE

- A. This Specification and the related Standard Plans provide criteria for wire supported geotextile silt fence as well as self-supporting geotextile silt fence.
- B. The geotextile shall be free of any treatment or coating which might adversely alter its physical properties after installation. Unless otherwise specified, geotextile shall be furnished in 36-inch width rolls.
- C. Geotextile rolls shall be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure prior to placement. Each roll shall be labeled or tagged to provide product identification sufficient for inventory and quality control purposes.
- D. Posts: Either steel or synthetic posts may be used. Posts shall have a minimum length of 60 inches and be of sufficient strength to resist damage during installation and to support applied loads. Steel posts shall be standard "T" sections weighing not less than 1.3 pounds per foot.
Prefabricated fence systems may be used provided they meet all of the above material requirements.
- E. Geotextile fabric will have the following physical properties:
- F. Grab strength shall be 100 pounds minimum in accordance with IDOT Test 913.
- G. Filter efficiency shall be 50 percent maximum in accordance with IDOT Test 909.
- H. Ultraviolet degradation at 500 hours shall not be less than 50 percent strength retained.

2.7 TEMPORARY PIPE

- A. Temporary pipe shall be 16-gauge corrugated metal pipe or plastic with minimum pipe stiffness of 46 psi.

2.8 STABILIZED CONSTRUCTION ENTRANCE

- A. Course aggregate (crushed rock or gravel), measuring 2 to 2½ inches in diameter.
- B. Non-woven polypropylene geotextile filter fabric in accordance with AASHTO-M-288 Specifications for separation and high survivability.

2.8 MATERIALS

- A. All material used shall be new unless specifically approved by Engineer in writing.
- B. Material shall be as specified and shown in the referenced specifications.

PART 3 - EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENT CONTROL – GENERAL

- A. Contractor shall perform construction operations to minimize the amount of disturbed land that is susceptible to erosion.
- B. Contractor shall incorporate all temporary and permanent erosion control features into the project at the earliest practicable time, and within 14 days after soil is disturbed.
- C. The Contractor shall provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment, or the delivery and deposition of sediment onto adjacent roads or properties.
- D. The Contractor shall install the appropriate temporary erosion and sediment structural controls measures in accordance with approved sequence of construction. Site Clearing and grubbing operations shall be so scheduled and performed that grading operations and permanent erosion control features can follow immediately thereafter.
- E. The Contractor may request approval for modifications to the erosion and sediment control plan from the Engineer.
- F. The surface area of erodible earth material exposed at one time by clearing and grubbing, by excavating, by fill, or by borrow shall not exceed one-half of the project length without written approval of the Engineer.
- G. The Contractor shall be responsible to inspect the temporary erosion and sediment control measures periodically and within 24 hours following a rainfall of ½ inch or more. If a control measure has been reduced in capacity by 50 percent or more, the Contractor shall restore such features to their original condition within a schedule approved by the Engineer.

- H. If sediment is deposited outside the Project limits, or within newly constructed storm sewer facilities within the Project limits, the Contractor shall be responsible to remove the sediment from the location(s) in which it is deposited within 24 hours of the occurrence.
- I. Upon final acceptance of the Project and establishment of permanent erosion control measures, the Contractor shall remove all temporary erosion control measures.
- J. The Contractor shall be responsible to clean and dust control haul routes to the Project Site.
- K. Existing intakes, manholes, and sewer lines shall be kept clean of debris and sediment originating from the Project.

3.2 DUST CONTROL

- A. Water or water combined with calcium chloride (if applicable) shall be applied to the construction Site as appropriate to reduce or eliminate the spread of dust outside the Project limits.
- B. Water alone shall be applied at a rate of 1 to 2 gallons per square yard of roadbed or disturbed area.
- C. The calcium chloride may be applied to the roadway or disturbed area at a rate of 1.0 lb/sq.yd. on an anhydrous basis, following a separate application of water at a rate of approximately one gallon per square yard of roadbed, or disturbed area.
- D. If the calcium chloride is applied in liquid form, the solution shall be applied at such a rate as to provide an equivalent rate of dry calcium chloride as indicated above.

3.3 DITCH CHECKS

- A. Construction: Refer to "GREENBOOK" Standard Plans for Erosion Control items.
- B. Rock Ditch Checks: Remove existing vegetation from ditch or channel banks prior to placing rock ditch checks.
- C. Straw bale ditch checks.
- D. Use only with prior permission of Engineer.
- E. Place bales perpendicular to the flow with ends tightly abutting. Use straw, rocks, or filter fabric to fill any gaps and tamp backfill material.

- F. Silt fence material shall be required and be securely stapled to upstream side of bales.
- G. Silt fence ditch checks shall be constructed in accordance with paragraph 3.5.
- H. Maintenance
 - 1. Sediment shall be removed once per month or when it reaches one-half of the original height.
 - 2. Sediment removal will include disposal in a location where it will not erode into construction areas, offsite properties or watercourses.
 - 3. Regular inspections shall be made to ensure that the center of the check is lower than the edges. Erosion around the edges of the check shall be corrected immediately.

3.4 SILT FENCE

- A. The Contractor shall install temporary silt fence according to the “GREENBOOK” Standard Plans at locations shown in the drawings or as required by the Engineer. Fence construction shall handle the stress from hydraulic and sediment loading. Geotextile at the bottom of the fence shall be buried in a trench. The trench shall be backfilled and the soil compacted over the geotextile. Overlapping geotextile shall be spliced together.
- B. Install silt fence to match existing ground contours. Flare fence uphill at end of fence.
- C. Closer post spacing, greater embedment depth and/or wider posts shall be used as necessary in low areas and soft or swampy ground to provide adequate resistance to applied loads.
- D. Secure the fabric to the upstream side of the sedimentation device.
- E. Clean the fabric by tapping when it is dry.
- F. When support fence is used, the mesh shall be fastened securely to the up-slope of the post.
- G. When self-supported fence is used, the geotextile shall be securely fastened to fence posts.
- H. Should the fabric cease to function due to clogging, damage, or deterioration, replace with a new fabric, when and as required.
- I. Inspect and repair fence after each storm event and remove sediment where necessary.
- J. Sediment trapped by the silt fence shall be used to repair the eroded areas or deposited to an area unlikely to contribute sediment offsite.

3.5 TEMPORARY PIPE

- A. Construction Requirements: All temporary pipe shall be installed in the same manner as permanent pipe. Backfill material shall be placed in 6-inch lifts and mechanically compacted.

3.6 CONSTRUCTION IN WATERWAYS

- A. Construction operations in rivers, streams, and impoundments shall be restricted to those areas which must be entered for the construction of temporary or permanent structures.

Frequent fording of live streams with construction equipment shall be minimized.

3.7 STABILIZED CONSTRUCTION ENTRANCE

- A. Stabilized construction entrances shall be placed as set forth in the Contract Documents or as required by the Engineer.
- B. The entrance/exit shall be located to provide maximum use by all construction vehicles.
- C. Compact subgrade to 95 percent maximum dry density.
- D. Cover subgrade with non-woven, polypropylene filter fabric. Ensure a smooth surface exists that is free of protrusions before laying the geotextile. Roll out the geotextile in a continuous length. Width of fabric shall equal the width of the entrance/exit to avoid seams. Any required overlaps shall be a minimum of one foot.
- E. The entrance shall be maintained to prevent tracking or flowing of sediment onto existing pavements.

3.7 TEMPORARY SLOPE DRAINS

- A. Anchor slope drain to ground.
- B. If flexible tubing is used for the drop section, it shall be the same diameter as the inlet pipe and shall be constructed of a durable material, securely fastened to the inlet pipe with metal strapping or watertight connection collars and secured with hold-down grommets.
- C. The diversions directing runoff to the drop structure shall be at least 1 foot higher than the top of the inlet of the slope drain. This includes soil placed around and over the top of the inlet section. To help accomplish this the invert of the inlet may be set lower than the top of fill.
- D. The soil around and under the inlet pipe shall be placed in 4-inch layers and hand compacted to the top of the earth dike or gravel bedding.

- E. Riprap shall be placed at the outlet side of the embankment per the Construction Documents.

3.8 TEMPORARY DIVERSION

- A. The diversion shall be constructed according to the dimension, line, and grade shown on the Contract Documents.
- B. Earthen material shall be compacted by traversing with tracked earthmoving equipment.
- C. The fill material shall be free of frozen material and accumulations of brush, roots, and other objectional material which will interfere with the proper functioning of the diversion channel and prevent proper compaction.
- D. Diversions shall not be breached or lowered to allow construction traffic to cross; instead the top width may be made wider and side slopes made flatter than specified on the erosion and sediment control plan.
- E. All diversions shall have an outlet stabilized with vegetation, rock, concrete, or a level spread.
- F. Fertilizing, seeding, and mulching of the diversion shall conform to paragraphs 2.2 and 3.2.

3.9 STRAW BALE DIKE

- A. Use only with prior permission from Engineer. In general, these will not be acceptable except as a temporary measure under frost conditions.
- B. Install all straw bales prior to grading operations and installation of utilities.
- C. Bales shall be placed on the contour and in a row with the ends of each bale tightly abutting the adjacent bales. Fill gaps between bales with straw, rocks, or filter fabric.
- D. Bales shall be securely anchored in place by either two stakes or rebars driven through the bale into the ground. The first stake in each bale shall be driven toward the previously laid bale at an angle to force the bales together. Stakes shall be driven flush with the top of the bale.
- E. All bales shall be removed when the site has been stabilized. The trench where the bales were located shall be graded flush and stabilized.

3.10 STORM SEWER INLET PROTECTION

- A. Inlet protection shall be constructed according to the “GREENBOOK” Standard Plans for

- B. Erosion Control items before upslope land disturbance begins or before the storm drain becomes operational.
- C. Stone shall be placed around the sediment barrier as to prevent water from entering the inlet under or around the filter fabric.
- D. A compacted earth dike or a check dam shall be constructed to direct flow to the inlet if the inlet is not at a low point and if runoff bypassing the inlet will not flow to a settling pond.
- E. The top of earth dikes shall be at least 6 inches higher than the top of the frame.
- F. Remove any accumulated silt from inlets at the completion of the Project.

3.11 SEDIMENT BASINS

- A. The area under the embankment shall be cleared, grubbed, and stripped of any vegetation and root mat. The pool area shall be cleared as needed to facilitate sediment cleanout. Gullies and sharp breaks shall be sloped to no steeper than 2:1. The surface of the foundation area shall be thoroughly scarified before placement of the embankment material.
- B. A cutoff trench shall be excavated along the centerline of the embankment. The minimum top width shall be wide enough to permit operation of compaction equipment. The trench shall be kept free of standing water during backfill operations.
- C. The fill material shall be free of all sod, roots, frozen soils, stones over 6 inches in diameter, and other objectionable material. The placing and spreading of the fill material shall be started at the lowest point of the foundation and the fill shall be brought up in approximately 8-inch horizontal layers or of such thickness that the required compaction can be obtained with the equipment used. Construction equipment shall be operated over each layer in a way that will result in the required compaction. Special equipment shall be used when the required compaction cannot be obtained without it. The moisture content of fill material shall be such that the required degree of compaction can be obtained with the equipment used.
- D. The pipe conduit barrel shall be placed on a firm foundation to the lines and grades shown on the drawings. Connections between the riser and barrel, the anti-seep collars and barrel, and all pipe joints shall be watertight. Selected backfill material shall be placed around the conduit in layers and each layer shall be compacted to at least the same density as the adjacent embankment. All compaction within 2 feet of the pipe spillway will be accomplished with hand-operated tamping equipment.

- E. Both the top of the riser and the dewatering orifice shall be fitted with trash racks firmly fastened to the riser pipe.
- F. The emergency spillway shall be cut in undisturbed ground. Accurate construction of the spillway elevation and width is critical and shall be within a tolerance of 0.2 foot.
- G. Sediment shall be removed and the sediment basin restored to its original dimensions when the sediment has filled one-half the pond's original depth or as indicated on the plans. Sediment removed from the basin shall be placed so that it will not erode.

3.12 EROSION CONTROL MATS

- A. Install according to manufacturer's recommendations.

END OF SECTION

SECTION 31 23 23 - EXCAVATION, BACKFILL AND COMPACTION FOR UTILITIES

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Excavating, backfilling, and compacting utility trenches such as water, irrigation, storm drain, sewer lines, concrete-encased conduits, and manholes, vaults, valve boxes, catch basins, underground tanks, thrust blocks, yard boxes, pull boxes and other utility appurtenances.
- B. When applicable, Contractor shall furnish and place controlled low strength material (CLSM) backfill bedding where shown on the Construction Drawings. The pipeline trench shall be excavated to the proper lines, grades, and dimensions and CLSM placed under, along the sides, and on top of the pipe. Unless otherwise shown on the Construction Drawings, a minimum of one (1) foot of CLSM shall be placed over the crown of the pipe.

1.2 RELATED REQUIREMENTS:

- Section 01 4200 Testing and Inspection
- Section 31 10 00 - Site Clearing.
- Section 31 22 00 - Grading.
- Section 33 14 13 – Water Utility Transmission Piping
- Section 33 31 00 - Sanitary Sewerage Piping.
- Section 33 42 11 – Stormwater Gravity Piping

The following Sections of the “GREENBOOK” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNI Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:

- Section 200 - 1: Rock Products
- Section 217 - Bedding and Backfill Materials
- Section 300 - Earthwork
- Section 306 - Open Trench Conduit Construction

1.3 PROJECT REQUIREMENTS

- A. Import and Export of Earth Materials:
- B. Fees: Pay as required by authorities having jurisdiction over the area.
- C. Bonds: Post as required by authorities having jurisdiction over the area.
- D. Haul Routes and Restrictions: Comply with requirements of authorities having jurisdiction over the area.

1.3 QUALITY ASSURANCE

- A. Comply with the following as a minimum requirement: “GREENBOOK” Specifications Section 306 - “Open Trench Conduit Construction” except as modified herein.
- B. Sampling, testing, and certification of imported and/or exported soils shall be performed in accordance with Section 01 4200 - Testing and Inspection.

1.4 TESTING

- A. Contractor to retain a Geotechnical Engineer to provide observations, tests, inspections and approvals identified in the Contract Documents.
- B. Imported Soils: The Geotechnical Engineer will obtain initial product Sample for testing.

1.5 PROJECT CONDITIONS

- A. Information on Drawings or in soils report does not constitute a guarantee of accuracy or uniformity of soil conditions over the Project site.
- B. A minimum of two (2) days prior to starting CLSM WORK. Provide product data on the following:
 - 1. CLSM mix design
 - 2. Fly Ash
 - 3. Admixtures

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Bedding material from trench bottom to one foot above the pipe:
- B. Sand, gravel, crushed aggregate or native free-draining granular material providing a sand equivalent of at least 30 or a coefficient of permeability greater than 1.4 inches per hour.
- C. Sand complying with the Specifications for cement concrete aggregates.
- D. Backfill Materials:
 - 1. Excavated trench material to be installed for backfilling shall be clean, free of large clods, and stones larger than 2 ½-inch in any dimension.
 - 2. Cement-sand slurry shall be provided with one sack of cement per cubic yard of the mixture.
 - 3. Imported Fill Material: Imported fill material shall be a granular material with sufficient binder to form a firm and stable unyielding subgrade and shall not have more than 60 percent of fines passing a 200-mesh sieve. Material shall provide a coefficient of expansion of not more than two

percent from air dry to optimum moisture content and not more than six percent from air dry to saturation. Imported materials shall be clean and free of rubbish, debris, and toxic or hazardous contaminants. Adobe or clay soils are not permitted.

4. Cement: All cement used shall be Type II Portland cement which shall conform to the requirements of ASTM C150.
5. Fly Ash: Fly ash may be either Class C or Class F. The fly ash shall conform to ASTM C618.

E. Aggregates:

1. Fine Aggregate: All fine aggregate shall conform to the grading and quality requirements of ASTM C33.
2. Coarse Aggregate: Coarse aggregate shall conform to the grading and quality requirements of ASTM C33 for size No. 476, No. 57, or No. 67.
3. Water: The batch mixing water and mixer washout water shall conform to the requirements of ASTM C94.

F. Admixtures:

1. Chemical admixtures that do not contain calcium chloride and conform to ASTM C494/C494M for concrete may be used in the CLSM mix.
2. All chemical admixtures shall be compatible with the cement and all other admixtures in the batch.

G. CLSM Proportions:

1. Strength: CLSM shall have a minimum twenty-eight (28) day compressive strength of one hundred (100) psi when molded and cured as in conformance with ASTM D4832.
2. The CLSM shall have a minimum cement content of fifty (50) pounds per cubic yard. The water-cementitious materials ratio of the mix shall not exceed three and one-half to one (3.5:1).
3. Air-Entrainment: All CLSM shall be air entrained to a total air content of approximately five percent (5%).
4. Slump: The minimum slump shall be six (6) inches and the maximum slump shall be eight (8) inches when tested in accordance with ASTM D6103.
5. Aggregate: Fine aggregate shall be between fifty percent (50%) and sixty percent (60%) by volume of the total aggregates in the CLSM mix.

H. Consistency:

1. The consistency of the CLSM slurry shall be such that the material flows easily into all openings between the pipe and the lower portion of the trench.
2. When trenches are on a steep slope, a stiffer mix of slurry may be required to prevent CLSM from flowing down the trench.

- A. Before initiating intrusive activities, contact Underground Service Alert of Southern California (USA or Dig Alert) to obtain a Dig Alert ticket for location information on buried public and USA member utilities and pipelines at least 48-hours prior to beginning work. A copy of the Dig Alert ticket shall be forwarded to the OWNER. For on-site utilities, retain a state-licensed third party underground utility locating service.
- B. Barricade trenches, ditches, pits, sumps, and similar Work outside the barricaded working area with chain link fence as specified in 31 25 00 – “Erosion and Sedimentation Controls” and in accordance with Cal-OSHA standards and requirements.
- C. Saw-cut concrete or bituminous paving for trench installation.
- D. Trenches over 5 feet in depth shall conform to the Cal-OSHA.
- E. Where indicated and required to excavate in lawn areas, protect adjoining lawn areas outside of the Work area. Replace or install removed sod upon completion of backfill by installing sod level with adjacent lawns. If installation of removed sod fails, furnish sod and install to match existing lawns.
- F. Backfill over excavations to the required elevations with earth, gravel, sand, or concrete and compact as required. Provide excavations free from standing water by pumping, draining, or providing protection against water intrusion. Slope adjacent grades away from excavations to minimize entry of water.
- G. Do not install piping lengthwise under concrete walks without review by the Engineer.
- H. Do not excavate trenches parallel to footings closer than 18 inches from the face of the footing or below a plane having a downward slope of two horizontal to one vertical, from a line 9 inches above bottom of footings.
- I. Unless otherwise indicated on Drawings, depth of excavations outside the buildings shall allow for a minimum coverage above top of pipe, tank, or conduit measured from the lowest adjoining finished grade, as follows:
- J. Plastic Pipe (other than waste) 30 inches below finished grade

- K. Tanks or other structures 36 inches below finished grade
- L. Soil, Sewer & Storm Drain minimum 18 inches below finished grade, and as required for proper pitch and traffic load. (Install polypropylene sewer pipe with at least 24 inches coverage)
- M. Trench width shall provide ample space for fitting and joining. Excavate for piping bells and fittings, bell and spigot pipe and other fittings.
- N. Unless indicated otherwise, excavate trenches to the required depths for utilities, such as pipes, conduit and tanks, with minimum allowances of 6 inches at the bottom and 6 inches at the sides for bedding of unprotected piping or as required for concrete encasement of conduits as indicated on Drawings. Grade bottom of trenches to a uniform smooth surface. Remove loose soil from the excavation before installing sand bedding or concrete encasement.
- O. Provide excavations free from standing water by pumping, draining, or providing protection against water intrusion. If soil becomes soft, soggy, or saturated, excavate to firm undisturbed soil and fill as required. Slope adjacent grades away from excavations to minimize entry of water.
- P. Provide a minimum clear dimension of 2 inches from sides of wall excavation to outer surfaces of buried pipes or conduits installed in the same trench or outside surfaces of containers and tanks.
- Q. Do not install backfill until required inspections and testing is completed.
- R. Backfill electrical or other excavated utility trenches located outside of barricaded
- S. Install backfill materials in layers not exceeding 4 inches in thickness and compact to 90 percent of the maximum density.
- T. If materials excavated from the Project site are not permitted for trench backfill in paved areas, backfill trenches with a cement-sand slurry mix. Install backfill to an elevation of the existing undisturbed grade plus one inch.
- U. Install and compact sand bedding to provide a uniform full length bearing under piping and conduits.
- V. Where portions of existing structures, walks, paving, or other improvements are removed or cut for piping or conduit installation, replace the material with equal quality, finished to match adjoining existing improvements. Repair pavement as specified in Section 31 0117, Pavement Repair.
 - 1. CLSM shall be placed as closely behind pipe laying operations as possible.

2. CLSM shall not be placed, if, in the judgment of Engineer, weather conditions are unsuitable.
3. CLSM shall not be placed when the trench bottom or walls are frozen or contain frozen materials.
4. CLSM shall not be placed when the air temperature is below forty degrees Fahrenheit (40°F) unless the air temperature is thirty-five degrees Fahrenheit (35°F) or more and the temperature is rising.

1.2 IMPORT/EXPORT OF MATERIALS

- A. Provide fill materials as specified in Part 2, Products. If excavated materials from the Project site are not of required quality or sufficient quantity, import additional materials as necessary.
- B. In addition to the requirements of this Section, import and exported materials shall comply with the requirements of Section 01 4200 - Testing and Inspection.
- C. Imported fill materials will be sampled by the Geotechnical Engineer for compliance with the requirements of Part 2 of this Section.
- D. The Geotechnical Engineer will perform the tests by utilizing an independent approved testing laboratory.
- E. Initial sampling will be performed by the Geotechnical Engineer before importing material to the Project site. Identify the location of the source site in addition to the address, name of the person and/or entity responsible for the source site. The Geotechnical Engineer will obtain both the initial sample and additional samples from the identified site and shall submit all samples to the approved independent testing laboratory.
- F. The Geotechnical Engineer will perform additional sampling during import operations. If the total quantity of import is determined to be greater than 1,000 cubic yards of material, one sample shall be obtained and submitted for testing for each 250 cubic yards of imported material. If the total quantity of import is determined to be less than 1,000 yards, one sample shall be obtained and submitted for testing for each 100 cubic yards of imported material.
- G. The independent approved testing laboratory will perform the required tests and report results of all tests noting if the tested material passed or failed such tests and will furnish copies to the Project Inspector, ENGINEER, OAR, CONTRACTOR, and others as required. Report shall state tests were conducted under the responsible charge of a licensed State of California professional engineer and the material was tested in accordance with applicable provisions of the Contract Documents and the CBC. Upon completion of the Work of this Section, the independent testing laboratory and Geotechnical Engineer will submit a verified report to the ENGINEER, OAR AND CONTRACTOR as required by CBC.

- H. Bills of lading or equivalent documentation will be submitted to the Project Inspector on a daily basis.
- I. Upon completion of import operations, provide the OAR a certification statement attesting that imported material has been obtained from the identified source site.

1.3 INSPECTION AND TESTING

- A. The Geotechnical Engineer will inspect and test excavations, sample material quality as required in Part 2, observe installation and compaction of fill materials.
- B. Compaction test shall be performed in accordance with ASTM D1557, method "C."

1.4 PROTECTION

- A. Protect the Work of this Section until Substantial Completion.

1.5 CLEANUP

- A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

1.6 PLACEMENT: CLSM

- A. Pipe shall be placed on two (2) sandbags and leveled to the proper grade. Precast or other types of rigid pads that constitute a point load are unacceptable.
 - 1. CLSM shall be placed under the pipe from one side so that it flows under the pipe until it appears on the other side.
 - 2. CLSM shall be added to both sides of the pipe until it completely fills the space between the pipe and the sides of the trench, to the depths shown in the DRAWINGS.
 - 3. Rodding, mechanical vibration and compaction of CLSM shall be performed to assist in consolidating the CLSM.
 - 4. When required to prevent uplift, the CLSM shall be placed in two (2) stages as required, allowing sufficient time for the initial set of the first stage before the remainder is placed.
 - 5. CLSM shall be deposited as nearly as practical in its final position and in no way disturb the pipe trench or cause foreign material to become mixed with the CLSM.
 - 6. Soil backfill shall not be placed until the CLSM has reached the initial set.
 - 7. If backfill is not to be placed over the CLSM within eight (8) hours, a six-inch (6") cover of moist earth shall be placed over the CLSM surface.
 - 8. If the air temperature is fifty degrees Fahrenheit (50°F) or less, the moist earth cover should be at least eighteen inches (18") thick.

END OF SECTION

SECTION 32 11 23 - AGGREGATE BASE COURSE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Aggregate Base Course for use in the project construction on the streets and/or parking lots to be surfaced.
- B. The Contractor will be responsible for furnishing, loading, hauling, placing, and shaping the aggregate base course to the typical section for the street.
- C. Provide surface treatment at graveled roads, shoulders and parking areas where applicable and as shown in the Construction Drawings.

1.2 RELATED REQUIREMENTS

Section 31 22 00 - Grading

Section 31 23 13 - Subgrade Preparation

The following Sections of the “GREENBOOK” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNI Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:

Section 200-2 - Untreated Base Courses

1.3 SUBMITTALS

- A. Materials Sources: Submit name of imported materials source.
- B. Material Certifications: Manufacturer's certificate of compliance.
- C. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- D. Compaction Density Test Reports.

1.4 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. Aggregate Base Course

1.5 FIELD CONDITIONS

- A. Weather Limitations:
 - 1. Do not lay gravel base when underlying surface is unstable, muddy, frozen, or wet or during periods of precipitation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Blended Aggregate Type Aggregate Base: Angular crushed washed stone or gravel; free of shale, clay, friable material, and debris.
- B. Graded in accordance with ASTM C135, within the following limits:
 - 1. 1 inch sieve: 100 percent passing
 - 2. 3/4 inch sieve: 80 to 100 percent passing
 - 3. 1/2 inch sieve: 68 to 91 percent passing
 - 4. No. 4 sieve: 46 to 70 percent passing
 - 5. No. 8 sieve: 34 to 58 percent passing
 - 6. No. 40 sieve: 13 to 35 percent passing
 - 7. No. 200 sieve: 3 to 12 percent passing
- B. Recycled materials may be used and shall meet gradation requirements.
- C. Geotextile Fabric: Woven geotextile separator fabric designed for subgrade stabilization and capable of filtration, separation, and reinforcement.
 - 1. Tensile Strength: Minimum 130 lbs/inch
 - 2. Permittivity: Minimum 0.05 sec-1
 - 3. Acceptable Products:
"Greenbook" woven geotextile separator fabric approved products list.
 - 4. Engineer approved equal

2.2 SOURCE QUALITY CONTROL

- A. If tests indicate materials do not meet specified requirements, change material and retest.
- B. Provide materials of each type from same source throughout the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that survey benchmarks and intended elevations for the Work as indicated.
- B. Verify substrate has been inspected, gradients and elevations are correct and is dry.

3.2 PREPARATION

- A. Prepare the subgrade of the area to be surfaced to the density requirements specified for areas on the project.
- B. Remove loose and foreign material from the area to receive base course.

- C. Shape subgrade to the plan cross-section, and to an elevation which will allow placement of the required compacted thickness of base course.
- D. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- E. Do not place aggregate on soft, muddy, or frozen surfaces.

3.3 PLACING BASE COURSE

- A. Spread aggregate uniformly over the prepared subgrade in loose lifts of three inch (3") or less and water and compact to specified density by rolling.
- B. Compact to not less than 95% of maximum density per Standard Proctor (ASTM D698) using pneumatic-tired, vibratory, steel faced, or other suitable equipment.
- C. Rolling shall proceed simultaneously with spreading and watering and shall continue in parallel overlapping strips until the entire surface has been rolled at least four times.
- D. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- E. Use mechanical tamping equipment in areas inaccessible to compaction equipment.
- F. Shape the finished base to the lines and grades called for on the plans.

3.4 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10-foot straight edge.
- B. Scheduled Compacted Thickness: +/- 1/4-inch.
- C. Variation from Design Elevation: +/- 1/4 inch.

3.5 FIELD QUALITY CONTROL

- A. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D3017.
- B. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 (Standard Proctor), ASTM D1557 (Modified Proctor), or AASHTO T180.
- C. If tests indicate work does not meet specified requirements, remove work, replace, and retest.
- D. Frequency of Tests: Minimum one (1) test per block. Notify Engineer in advance of all tests.

- E. Submit two (2) copies of a written report to the Engineer detailing procedures and results of all tests.
- F. Proof roll compacted aggregate at surfaces that will be under slabs-on-grade.

3.6 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition.
Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 32 12 13 - PREPARATORY COATS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Included in this section is the preparation of the gravel surface, prime and treating the bituminous surfacing with tack coat.

1.2 RELATED SECTIONS

- Section 31 23 13 - Subgrade Preparation
- Section 32 11 23 - Aggregate Base Course

1.3 REFERENCES

The following Sections of the “GreenBook” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNi Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:

- Section 302-5 - Asphalt Concrete Pavement
- Section 302-5.3 - Prime Coat
- Section 302-5.4 - Tack Coat
- Section 302-7 - Pavement Fabric

1.4 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. Prime - MC-70: AASHTO M82.
 - 2. Tack:
 - a. SS-1h: AASHTO M140.
 - b. CSS-1h: AASHTO M208.
 - c. SS-1h Flush Seal: AASHTO M140.

1.5 FIELD CONDITIONS

- A. Weather and Seasonal Requirements:
- B. Application shall be made only during daylight hours, when the wind does not adversely affect the spraying operation and when the following conditions are met:
- C. Tack Coat: The application of a tack coat will be permitted only:
 - 1. When air and surface temperature on the project are both at least 35° F. in the shade.
 - 2. When conditions are dry, except emulsified asphalt may be applied when the surface is slightly damp.

- D. Prime Coat: The application of a prime coat will be permitted only:
 - 1. When the air and surface temperatures on the project are both at least 60° F. in the shade.
 - 2. When conditions are dry.

PART 2 - PRODUCTS

2.1 SAND FOR FLUSH SEAL

- A. Prime, Tack, and Flush Seal:
 - 1. Prime - MC-70: AASHTO M82
 - 2. Tack:
 - a. SS-1h: AASHTO M140
 - b. CSS-1h: AASHTO M208

PART 3 - EXECUTION

3.1 EQUIPMENT

- A. The following minimum equipment shall be furnished by the Contractor.
- B. Broom: A rotary power broom.
- C. Heating Equipment: Equipment for heating asphalt material in or at tank car, transport truck, or distributor shall be designed and constructed to heat material without burning, scorching, or overheating and with positive control of the heat. The introduction of steam directly into material will not be permitted.
- D. Distributors: Distributors used to apply asphalt material shall be self-propelled, equipped with pressure type mechanical circulating pumps and valves, a heating system and insulated tank which will provide uniform required temperature throughout entire contents of distributor tank.
 - 1. Distributor shall have capacity of at least 800 gallons. Detachable distributor units separate from the tank will not be allowed.
 - 2. Distributor shall uniformly apply heated asphalt material to road surface in accurately measured quantities, and maintain specified rate of application during the distribution of the entire tank-load, regardless of change in gradient, super-elevation, direction, or content level in the tank.
- F. Calibration runs for verification shall be made at the start of the work.
- G. Spray nozzles shall be designed, sized, and arranged to insure uniform distribution of heated asphalt material at the designated rate, in an overlapping fan-shaped spray without surge, streaks, ridges, or bare spots. A strainer shall be provided in the discharge line to prevent nozzles from clogging. The output of each and every nozzle on the bar shall be the same and a test shall be made, in advance of use to determine compliance with this requirement. Different sizes,

heights, pressures, and settings of nozzles for different designated areas shall be provided.

- H. The distributor shall be equipped with a tachometer, clearly visible to the operator, which accurately shows the speed in feet per minute.
- I. Pressure metering distributors shall be furnished with an accurate pressure gage showing the distribution pressure. Volume metering distributors shall be furnished with a pump tachometer or meter showing the volume furnished. The distributor shall include an accurate, mercury-actuated thermometer showing the temperature of the material in the tank and a contents gage showing the number of gallons in the tank at any content level. The distributor shall be equipped with adjustable spray bars arranged so the application width will be available in two foot intervals from four (4) feet to at least 16 feet.
- J. The distributor spray bars shall be capable of operating at constant controlled height and shall be of the full circulating type. Each nozzle of the distributor bar shall be equipped with a cutoff valve which immediately stops the flow without dripping. Compliance with these requirements must be proven before the distributor can be used.

3.2 SURFACE PREPARATION

- A. The Contractor shall adjust the gate valve boxes and manholes to the top of surfacing and grout water tight prior to placing the surfacing. This work will be absorbed into the project bid items.
- B. The surface shall be thoroughly swept with a rotary power broom and cleaned of all foreign material. Adjacent appurtenances shall be protected from the splatter of asphalt. Surfaces to receive a prime coat shall be satisfactorily compacted and cured and if necessary, lightly sprinkled with water.

3.3 APPLICATION OF ASPHALT

- A. During application, the temperature of the asphalt shall be maintained within the temperature range specified. Asphalt shall be applied by pressure distributor in a uniform and continuous manner.
- B. Unauthorized increases in rate of application will not be eligible for payment.
- C. The angle of the spray nozzles and the height of the spray bars shall be set to obtain uniform distribution. The distributor shall travel at the established speed when the spray bar is opened. Areas inaccessible to the distributor shall be covered by hand-spray methods. When the distributor is not in operation, it shall be parked off the roadbed or drip pans shall be placed under the spray bar.

- D. Tack application ahead of mat lay down shall be limited by job conditions and be subject to approval. Tack application ahead of mat lay down shall not exceed the amount estimated for one (1) day's operation.
- E. Tacked areas which become unsatisfactory as a result of traffic, weather, or other conditions shall be retacked. Required re-tacking which is not the fault of the Contractor, will be paid for at the contract unit price for tack asphalt.

3.4 APPLICATION OF SAND

- A. Blotting of prime coats shall be accomplished by broom sweeping or by spreading sand on the primed surface by with a mechanical spreader. Hand spreading will be permitted on odd shaped or inaccessible areas. Sanding or blotting will not be permitted until the prime has set for at least 24 hours.

3.5 TRAFFIC CONTROL

- A. Contractor shall provide flaggers, signs, and barriers to warn, direct, and prevent traffic from traveling on freshly applied asphalt until it has penetrated, and does not track or pickup on the tires of vehicles.

END OF SECTION

SECTION 32 12 16 - ASPHALT PAVING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this Section.
- B. The work performed under this section shall consist of constructing a pavement composed of asphaltic concrete as specified, constructed on a prepared subgrade or base course in accordance with these Specifications, and in reasonably close conformity with the lines, grades, thickness, and cross-sections shown on the plans or Contract Documents as well as cold milling of existing asphalt pavement.
 - 1. Hot-mix asphalt patching.
 - 2. Hot-mix asphalt paving
 - 3. Hot-mix asphalt overlay
 - 4. Asphalt curbs
 - 5. Asphalt traffic-calming devices.
 - 6. Asphalt surface treatments

1.2 RELATED REQUIREMENTS

Section 31 25 00 - Erosion Control and Sedimentation
Section 31 23 13 - Subgrade Preparation
Section 32 11 23 - Aggregate Base Course
Section 32 12 13 - Preparatory Coats
Section 32 12 36 - Seal Coats
Section 32 17 23 - Pavement Markings
Section 32 16 13 - Curb and Gutter

The following sections of the “GREENBOOK” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNI Building News, 990 Park Center Drive, Vista, CA 92081 shall be included in this specification as if fully written:

Section 200 - Rock Materials
Section 203 - Bituminous Materials
Section 302 - Roadway Surfacing
Section 404 - Cold Milling
Section 405 - Micro-Milling

1.3 SUBMITTALS

- A. Design Mix: Before any asphaltic concrete paving is constructed, submit actual design mix to Engineer/Architect for review and/or approval. Design mix submittal shall follow the format as indicated in the Asphalt Institute Manual MS-2, Marshall Stability Method; and shall include the type/name of the mix, gradation analysis, Marshall Stability (lbs.), flow, effective asphalt content

(percent), and direct references to the applicable “GREENBOOK” specifications sections for each material. Mix designs submitted containing recycled materials must be current (within one year) and be approved by the City of Duarte.

- B. Material Certificates: Submit materials certificate to on-site independent testing laboratory. Certificate shall be signed by material producer and Contractor, certifying that materials comply with, or exceed, the requirements herein.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Include technical data and tested physical and performance properties.
- C. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
- D. Job-Mix Designs: For each job mix proposed for the Work.
- E. Sustainable Design Submittals:
- F. To be submitted to Engineer for review and approval.
- G. Hot-Mix Asphalt Designs:
 - 1. Certification, by authorities having jurisdiction, of approval of each hot-mix asphalt design proposed for the Work.
 - 2. For each hot-mix asphalt design proposed for the Work.
- H. Samples for Verification: For the following product, in manufacturer's standard sizes unless otherwise indicated:
 - 1. Paving Geotextile: 12 by 12 inches minimum.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data for manufacturer and testing agency.
- B. Material Certificates: For each paving material. Include statement that mixes containing recycled materials will perform equal to mixes produced from all new materials as applicable.
- C. Material Test Reports: For each paving material, by a qualified testing agency.
 - 1. Field quality-control reports.
 - 2. Material Certificates:
 - 3. Aggregates.
 - 4. Asphalt binder.
 - 5. Asphalt cement.
 - 6. Cutback prime coat.
 - 7. Emulsified asphalt prime coat.

8. Tack coat.
9. Fog seal.
10. Undersealing asphalt.
11. Field quality-control reports.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not apply asphalt material if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 1. Prime Coat: Minimum surface temperature of 60 deg F.
 2. Tack Coat: Minimum surface temperature of 60 deg F.
 3. Slurry Coat: Comply with weather limitations in ASTM D3910.
 4. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
 5. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

1.7 JOB CONDITIONS

- A. Weather Limitations
 1. Apply prime and tack coats when ambient temperature is above 40 degrees F, and when temperature has been above 35 degrees F for 12 hours immediately prior to application. Do not apply when base material is wet or contains excess moisture.
 2. Construct asphaltic concrete paving when atmospheric temperature is above 40 degrees
- B. Hot-Mix Asphalt Designs:
 1. Certification, by authorities having jurisdiction, of approval of each hot-mix asphalt design proposed for the Work.
 2. For each hot-mix asphalt design proposed for the Work.
 3. Samples for Verification: For the following product, in manufacturer's standard sizes unless otherwise indicated:
- C. Paving Geotextile: 12 by 12 inches minimum.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by authorities having jurisdiction.
- B. Testing Agency Qualifications: Qualified in accordance with ASTM D3666 for testing indicated.
- C. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of authorities having jurisdiction for asphalt paving work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide asphalt-aggregate mixture as recommended by local or state paving authorities to suit project conditions. Use locally available materials and gradations which meet “GREENBOOK” specifications and exhibit satisfactory record of performance on previous installations.
- B. Mineral Filler: Rock or slag dust, hydraulic cement, or other inert material complying with AASHTO M-17/ASTM D242, if recommended by applicable “GREENBOOK” standards.
- C. Asphalt Cement: Comply with AASHTO M-226/ASTM D3381; AC-20, AR-80, viscosity grade.
- D. Tack Coat: Emulsified Asphalt; AASHTO M-140/ASTM D997 or M208/ASTM D2397, SS-1h, CSS-1, or CSS-1h, diluted with one part water to one part emulsified asphalt.
- E. Asphalt-Aggregate Mixture: Unless otherwise noted on the drawings, the design mix shall have a minimum stability based on a 50- blow Marshall complying with ASTM D1559 of 1000 lbs., with flow between 8 and 16. The design mix shall be within sieve analysis and bitumen ranges below:

Sieve Analysis of Mix

Square Sieve	Total Percent Passing
$\frac{3}{4}$	100%
$\frac{1}{2}$	90 – 100%
$\frac{3}{8}$	65 – 90%
#8	40 – 50%
#50	12 – 27%
#200	0 – 10%

Percent bitumen by weight of total mix 5.0 – 8.5

Density percent of calculated void less mixture of material. 94 – 97 %

Once design mix has been accepted by Engineer / Architect, the following sieve analysis tolerances are allowable during construction, beyond which design mix must be resubmitted for acceptance.

Square Sieve	Total Percent Passing
$\frac{1}{2}$	7%
$\frac{3}{8}$	5%
#8	4%
#50	4%
#200	2%

Allowable variance of percent bitumen by weight of total mix = .4.

2.2 EQUIPMENT

- A. Maintain equipment in satisfactory operating condition and correct breakdowns in a manner that will not delay or be detrimental to progress of paving operations.

2.3 AGGREGATES

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.
- B. Coarse Aggregate: ASTM D692, sound; angular crushed stone, crushed gravel, or cured, crushed blast-furnace slag.
- C. Fine Aggregate: ASTM D1073 sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof.
- D. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.
- E. Mineral Filler: ASTM D242, rock or slag dust, hydraulic cement, or other inert material.

2.3 ASPHALT MATERIALS

- A. Asphalt Binder: ASTM D6373 binder designation PG 64-22.
- B. Asphalt Cement: ASTM D3381 for viscosity-graded material, ASTM D946 for penetration-graded material.
- C. Cutback Prime Coat: ASTM D2027, medium-curing cutback asphalt, MC-70.
- D. Emulsified Asphalt Prime Coat: ASTM D977 emulsified asphalt, or ASTM D2397 emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.
- E. Tack Coat: ASTM D977 emulsified asphalt, or ASTM D2397 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.
- F. Fog Seal: ASTM D977 emulsified asphalt, or ASTM D2397 cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.
- G. Water: Potable.
- H. Undersealing Asphalt: ASTM D3141; pumping consistency.

2.4 AUXILIARY MATERIALS

- A. Recycled Materials for Hot-Mix Asphalt Mixes: Reclaimed asphalt pavement; reclaimed, unbound-aggregate base material; and recycled tires or asphalt shingles from sources and gradations that have performed satisfactorily in previous installations, equal to performance of required hot-mix asphalt paving produced from all new materials.
- B. Herbicide: Commercial chemical for weed control, registered by the EPA, and not classified as "restricted use" for locations and conditions of application. Provide in granular, liquid, or wettable powder form.
- C. Sand: ASTM D1073, Grade No. 2 or No. 3.
- D. Paving Geotextile: AASHTO M 288 paving fabric; nonwoven polypropylene; resistant to chemical attack, rot, and mildew; and specifically designed for paving applications.
- E. Joint Sealant: ASTM D6690, Type I, Type II or III, Type IV, hot-applied, single-component, polymer-modified bituminous sealant.

2.5 MIXES

- A. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction; designed according to procedures in AI MS-2, "Asphalt Mix Design Methods"; and complying with the following requirements:
- B. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
- C. Base Course: <Insert mix designation>.
- D. Surface Course: <Insert mix designation>.
- E. Emulsified-Asphalt Slurry: ASTM D3910, [Type 1] [Type 2] [Type 3].
- F. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and complying with the following requirements:
- G. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
- H. Base Course and Surface Course: AR-2000 or AR-4000.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to begin paving.
- B. Proceed with paving only after unsatisfactory conditions have been corrected.
- C. Proof-roll prepared base material surface to check for unstable areas. The paving work shall begin only after the unsuitable areas have been corrected and are ready to receive paving. Compaction testing for the base material shall be completed prior to the placement of the paving
- D. Verify paving base course elevation.

3.2 PREPARATION

- A. Remove loose material, dirt, and debris from compacted base material surface immediately before applying prime coat.
- B. Do not begin paving work until deficient base material areas have been corrected and area ready to receive paving
- C. Do not construct paving on a wet or frozen base.
- D. Protection: Provide protective materials, procedures, and worker training to prevent asphalt materials from spilling, coating, or building up on curbs, driveway aprons, manholes, and other surfaces adjacent to the Work.
- E. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
- F. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction]. Limit vehicle speed to 3 mph.
- G. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
- H. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

3.3 PATCHING

- A. Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into perimeter of adjacent sound pavement, unless otherwise indicated. Cut

excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

- B. Tack Coat: Before placing patch material, apply tack coat uniformly to vertical asphalt surfaces abutting the patch. Apply at a rate of 0.05 to 0.15 gal./sq. yd.
- C. Allow tack coat to cure undisturbed before applying hot mix asphalt paving.
- D. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- E. Placing Patch Material: Fill excavated pavement areas with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.
- F. Placing Patch Material: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

3.4 REPAIRS

- A. Leveling course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
- B. Install leveling wedges in compacted lifts not exceeding 3 inches thick.
- C. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.
- D. Clean cracks and joints in existing hot-mix asphalt pavement.
- E. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch (6 mm) wide.
- F. Fill flush with surface of existing pavement and remove excess.
- G. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch (6 mm) wide.
- H. Fill flush with surface of existing pavement and remove excess.

3.5 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving. Compact top 12" to minimum 90% relative compaction

- B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
- C. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
- D. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
- E. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.
- F. Herbicide Treatment: Apply herbicide in accordance with manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.
- G. Mix herbicide with prime coat if formulated by manufacturer for that purpose.

3.6 BITUMINOUS MATERIAL APPLICATIONS

- A. Prime Coat
 - 1. Apply bituminous prime coat to all base material surfaces where asphaltic concrete paving will be constructed.
 - 2. Apply bituminous prime coat in accordance with applicable "GREENBOOK" specifications.
 - 3. Apply at a minimum rate of 0.375 gallon per square yard over compacted base material. Apply to penetrate seal, but not flood surface.
- B. Make necessary precautions to protect adjacent areas from overspray.
- C. Cure and dry as long as necessary to attain penetration and evaporation of volatile.
- D. Tack Coat
 - 1. Apply to contact surfaces of previously constructed asphaltic concrete base courses or Portland cement concrete and surfaces abutting or projecting into asphaltic concrete and pavement.
 - 2. Apply tack coat to asphaltic concrete base course or sand asphalt base course. Apply emulsified asphalt tack coat between each lift or layer of fill depth asphaltic concrete and sand asphalt bases and on surface of all such bases where asphaltic concrete paving will be constructed.
 - 3. Apply emulsified asphalt tack coat in accordance with applicable "GREENBOOK" specifications.
 - 4. Apply at minimum rate of 0.075 gallon per square yard of surface.

5. Allow to dry to proper condition to receive paving.

3.7 HOT-MIX ASPHALT PLACEMENT

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
- B. Place hot-mix asphalt base course and binder course in number of lifts and thicknesses indicated.
- C. Place hot-mix asphalt surface course in single lift.
- D. Spread mix at a minimum temperature of 250 deg F.
- E. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
- F. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- G. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
- H. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches from strip to strip to ensure proper compaction of mix along longitudinal joints.
- I. Complete a section of asphalt base course and binder course before placing asphalt surface course.
- J. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.8 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
- B. Clean contact surfaces and apply tack coat to joints.
- C. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
- D. Offset transverse joints, in successive courses, a minimum of 24 inches.

- E. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method in accordance with AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
- F. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
- G. Compact asphalt at joints to a density within 2 percent of specified course density.

3.9 ROLLING AND COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
- B. Complete compaction before mix temperature cools to 185 deg F.
- C. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- D. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density, Marshall Test Method: 96 percent of reference laboratory density in accordance with ASTM D6927, but not less than 94 percent or greater than 100 percent.
 - 2. Average Density, Rice Test Method: 92 percent of reference maximum theoretical density in accordance with ASTM D2041, but not less than 90 percent or greater than 96 percent.
- E. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- F. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- G. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace them with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- H. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

- I. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.10 QUALITY ASSURANCE

- A. Independent testing laboratory, selected and paid by Owner, shall be retained to perform construction testing of in-place asphaltic concrete courses for compliance with requirements for thickness and surface smoothness. Asphaltic surface and base courses shall be randomly cored at a minimum rate of one core for every 20,000 square feet of paving. However, no less than three cores in light duty areas and three cores in heavy duty areas shall be obtained. Coring holes shall be immediately filled with full-depth asphalt or with concrete. Asphaltic concrete pavement samples shall be tested for conformance with the mix design.

3.11 QUALITY CONTROL

- A. Grade Control: Establish and maintain required lines and elevations.
- B. Thickness: In-place compacted thickness shall not be less than thickness specified on drawings.
- C. Surface Smoothness: Testing shall be performed on the finished surface of each asphalt concrete course for smoothness, using 10'- 0" straightedge applied parallel with, at right angles to, and centerline of paved area. The results of these tests shall be documented and made available to the Architect and Owner. Surfaces will not be acceptable if exceeding the following tolerances for smoothness:

Base Course Surface	1/4"
Wearing Course Surface	3/16"

- D. Check surface areas at intervals necessary to eliminate ponding areas. Remove and replace unacceptable paving as directed by Engineer.
- E. Areas of deficient paving thickness shall receive a tack coat and a minimum 1" overlay until specified thickness of the course is met or exceeded at no additional expense to Owner.

3.12 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce thickness indicated within the following tolerances:
 - 1. Base Course and Binder Course: Plus, or minus 1/2 inch.
 - 2. Surface Course: Plus 1/4 inch, no minus.
 - 3. Pavement Surface Smoothness: Compact each course to produce surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 4. Base Course and Binder Course: 1/2 inch
 - 5. Surface Course: 1/4 inch no minus

6. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.
7. Asphalt Traffic-Calming Devices: Compact and form asphalt to the shapes indicated and within a tolerance of plus or minus 1/8 inch of height indicated above pavement surface.

3.13 SURFACE TREATMENTS

- A. Fog Seals: Apply fog seal at a rate of 0.10 to 0.15 gal./sq. yd. to existing asphalt pavement and allow to cure. With fine sand, lightly dust areas receiving excess fog seal.
- B. Slurry Seals: Apply slurry coat in uniform thickness in accordance with ASTM D3910 and allow to cure.
- C. Roll slurry seal to remove ridges and provide a uniform, smooth surface.

3.14 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined in accordance with ASTM D3549.
- C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- D. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement in accordance with ASTM D979.
- E. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared in accordance with ASTM D2041, and compacted in accordance with job-mix specifications.
- F. In-place density of compacted pavement will be determined by testing core samples in accordance with ASTM D1188 or ASTM D2726.
- G. One core sample will be taken for every 1,000 sq. yd. or less of installed pavement, with no fewer than three cores taken.
- H. Field density of in-place compacted pavement may also be determined by nuclear method in accordance with ASTM D2950 and coordinated with ASTM D1188 or ASTM D2726.
- I. Replace and compact hot-mix asphalt where core tests were taken.

- J. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.15 CLEANUP / WASTE HANDLING

- A. General: Handle asphalt-paving waste according to approved waste management plan.
- B. Upon completion of asphalt paving and surfacing operations, the entire work site shall be cleaned of all containers, surplus material, equipment, waste, rubbish, and construction debris of any nature, and leave the site in a clean and orderly condition acceptable to the Owner's Representative.

END OF SECTION

SECTION 32 12 36 - SEAL COATS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This section includes all work related to furnishing all materials and the application of a bituminous seal coat.

1.2 ADDITIONAL REQUIREMENTS

Section 01 55 70 - Traffic Control

1.3 REFERENCES

- A. The following Sections of the “GreenBook” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNi Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:
 - Section 302-4 - Slurry Seal Surfacing
 - Section 320-8 - Seal Coat for Miscellaneous Areas

1.4 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. SS-1h Flush Seal: AASHTO M140.
 - 2. Slurry Seal: ASTM D6307

1.5 FIELD CONDITIONS

- A. Weather and Seasonal Requirements:
- B. Application shall be made only during daylight hours, when the wind does not adversely affect the spraying operation and when the following conditions are met:
 - 1. The application of a seal coat will be permitted only:
 - a. Between May 1 and November 1, inclusive.
 - b. When air and surface temperatures on the project are both at least 50° F in the shade.
 - c. When weather is not foggy or rainy.
 - d. When the surface is dry or slightly damp.

PART 2 - PRODUCTS

2.1 SAND FOR FLUSH SEAL

Flush Seal: GSB-78

SS-1h: AASHTO M140

Sand for flush seal shall meet the following requirements:

Percent passing 3/8" sieve:	100%
Percent passing No. 10 sieve:	0 - 95%

Percent passing No. 40 sieve: 0 - 70%
Percent passing No. 200 sieve: 0 - 12%

A tolerance of three percent (3%) in the amount passing the maximum size screen will be permitted providing all material passes a screen having 1/4 inch larger opening. The sand shall be free from dirt and vegetable matter and shall have a plasticity index not to exceed six (6). Crushing is not required. Blow sand is not considered satisfactory material.

2.2 BITUMINOUS MATERIAL

- A. Bituminous material used for seal coating shall conform to the specifications and requirements for ASTM D2027, HFMS-2P Asphalt Material.

2.3 MINERAL AGGREGATE

- A. Mineral aggregate used for seal coat operations shall be 3/8" crushed granite conform and to the gradation and quality requirements as follows:

Percent Passing 3/8" Sieve:	100%
Percent Passing No. 4 Sieve:	0 - 70%
Percent Passing No. 10 Sieve:	0 - 28%
Percent Passing No. 40 Sieve:	0 - 4
Processing Required:	Crushed
Plasticity Index (Maximum):	3
Los Angeles Abrasion Loss	40%
Maximum:	
Soundness Loss Maximum:	15%

At least fifty percent of the material by weight retained on the No. 4 sieve shall have two or more fractured faces produced by crushing.

PART 3 - EXECUTION

3.1 EQUIPMENT

- A. The following minimum equipment shall be furnished by the Contractor.
- B. General Requirements: Equipment, plant, and tools used in the Work shall be subject to approval and shall be maintained in a satisfactory working condition at all times. The equipment shall be adequate and shall have the capability of producing the results specified.
- B. Heating Equipment: Equipment for heating asphalt material in or at tank car, transport truck, or distributor shall be designed and constructed to heat material without burning, scorching, or overheating and with positive control of the heat. The introduction of steam directly into material will not be permitted.
- C. Distributors: Distributors used to apply asphalt material shall be self-propelled, equipped with pressure type mechanical circulating pumps and valves, a heating

system and insulated tank which will provide uniform required temperature throughout entire contents of distributor tank. D. Distributor shall have capacity of at least 800 gallons. Detachable distributor units separate from the tank will not be allowed.

E. Distributor shall uniformly apply heated asphalt material to road surface in accurately measured quantities and maintain specified rate of application during the distribution of the entire tank-load, regardless of change in gradient, super-elevation, direction, or content level in the tank. Calibration runs for verification shall be made at the start of the work.

F. Spray nozzles shall be designed, sized, and arranged to insure uniform distribution of heated asphalt material at the designated rate, in an overlapping fan-shaped spray without surge, streaks, ridges, or bare spots. A strainer shall be provided in the discharge line to prevent nozzles from clogging. The output of each and every nozzle on the bar shall be the same and a test shall be made, in advance of use, to determine compliance with this requirement. Different sizes, heights, pressures, and settings of nozzles for different designated areas shall be provided.

The distributor shall be equipped with a tachometer, clearly visible to the operator, which accurately shows the speed in feet per minute.

G. Pressure metering distributors shall be furnished with an accurate pressure gage showing the distribution pressure. Volume metering distributors shall be furnished with a pump tachometer or meter showing the volume furnished. The distributor shall include an accurate, mercury-actuated thermometer showing the temperature of the material in the tank and a contents gage showing the number of gallons in the tank at any content level.

H. The distributor shall be equipped with adjustable spray bars arranged so the application width will be available in two-foot intervals from four (4) feet to at least 16 feet.

The distributor spray bars shall be capable of operating at constant controlled height and shall be of the full circulating type. Each nozzle of the distributor bar shall be equipped with a cutoff valve which immediately stops the flow without dripping. Compliance with these requirements must be proven before the distributor can be used.

I. Aggregate Spreader: The aggregate spreading equipment shall be adjustable and capable of uniformly spreading aggregate at the specified rate in a single-pass operation over the surface to be sealed.

J. Pneumatic-Tired Roller: The pneumatic-tired roller shall be of sufficient size to seat the cover aggregate into the bituminous material without fracturing the aggregate particles.

- K. Power Brooms and Power Blowers: Power brooms and power blowers shall be suitable for cleaning surfaces to which the seal coat is to be applied.
- L. Storage Tanks: Tanks shall be capable of heating the bituminous material, under effective and positive control at all times, to the required temperature. Heating shall be accomplished by steam coils, hot oil, or electricity. An armored thermometer shall be affixed to the tank so that the temperature of the bituminous material may be read at all times.

3.2 SURFACE PREPARATION

- A. The Contractor shall adjust the gate valve boxes and manholes to the top of surfacing and grout watertight prior to placing the surfacing. This work will be absorbed into the project bid items.
- B. The surface shall be thoroughly swept with a rotary power broom and cleaned of all foreign material. Adjacent appurtenances shall be protected from the splatter of asphalt. Surfaces to receive a prime coat shall be satisfactorily compacted and cured and if necessary, lightly sprinkled with water.

3.3 APPLICATION OF BITUMINOUS MATERIAL

- A. During application, the temperature of the asphalt shall be maintained within the temperature range specified. Asphalt shall be applied by pressure distributor in a uniform and continuous manner.
- B. Unauthorized increases in rate of application will not be eligible for payment. The angle of the spray nozzles and the height of the spray bars shall be set to obtain uniform distribution. The distributor shall travel at the established speed when the spray bar is opened.
- C. Areas inaccessible to the distributor shall be covered by hand-spray methods. When the distributor is not in operation, it shall be parked off the roadbed or drip pans shall be placed under the spray bar.
- D. Application Rate:
 - 1. Bituminous material for seal coating HFMS-2P or AE-150 shall be applied at a rate of 0.30 Gal./SY. If necessary to adjust the application rate to suit field conditions, adjustments will be approved by the Engineer before commencing with work at a rate other than specified.
 - 2. Flush Seal shall be applied at a rate of 0.05 GAL./SY.
 - 3. Following the preparation and inspection of the pavement surface, the seal coat material shall be applied at the specified rates. The bituminous material shall be uniformly applied in a single pass of the distributor and with either a double or triple lap spray over the surface to be sealed. Building paper shall be spread on the surface for a sufficient distance back from the ends of each application so that flow through the spray bar may

be started and stopped on the paper and so that all sprays will be operating at the proper pressure on the surface to be sealed.

4. Immediately after the application, the building paper shall be removed. Spots missed by the distributor shall be properly treated with bituminous material.

3.4 APPLICATION OF SAND

- A. For Seal Coats: The specified quantity of cover aggregate shall be spread uniformly over the bituminous material at a rate of 30lbs/SY. Before the bituminous material is applied, sufficient aggregate to cover the distributor load of bituminous material shall be on trucks at the site of the work. No bituminous material shall be down more than 3 minutes before it is covered with aggregate. Spreading shall be done uniformly with aggregate-spreading equipment. Trucks spreading aggregate shall be operated backwards, covering the bituminous material ahead of the truck wheels. Areas having insufficient cover shall be lightly recovered with additional aggregate by hand during the operations whenever necessary. Immediately following the application of cover aggregate, rolling operations shall begin. Rolling shall be accomplished with pneumatic-tired rollers. The rollers shall be operated at a speed that will not displace the aggregate. Rolling shall continue until the aggregate is uniformly distributed and keyed into the bituminous material. All surplus aggregate shall be swept off the surface and removed not less than 24 hours nor more than 7 days after rolling is completed.
- B. For Flush Seal: May be covered with a spread of sand to blot the material. Sand shall be placed by a self-powered aggregate spreader with positive controls or other equipment acceptable to the Engineer. The sand shall be placed uniformly on the asphalt application at a rate of 15lbs/SY. Rolling will not be required. The finished surface shall be smooth riding without transverse or longitudinal ridges and shall present a uniform satisfactory appearance. Bleeding areas shall be re-sanded. Rough and non-uniform areas shall be corrected.

3.5 SAMPLING AND TESTING

- A. Bituminous Materials: One sample of the bituminous material used for seal coat will be required. The sample will be taken by the Contractor from the transport delivery during the construction completion operations. The Contractor shall provide for an independent testing laboratory to analyze the sample of asphalt material to verify that it conforms to the requirements of HFMS-2P, ASTM D2027 Asphalt Material. The cost for testing of the asphalt material will be considered incidental to the bid price for the various items of work involved.
- B. Aggregates: The Contractor shall provide for an independent testing laboratory to perform testing of the material to be used as a cover aggregate to evaluate its compliance with the requirements contained in these specifications. The Contractor shall provide test results for one sample prior to the beginning of

operations and for two (2) samples obtained by the Engineer during the construction operations.

- C. The cost for the testing of aggregate samples shall be considered incidental to the bid price for various items involved in the completion of the seal coat work.

3.6 TRIAL APPLICATION

- A. At the onset of operations to apply the seal coat, a test section at least 100 foot long by 20 foot wide shall be placed by the Contractor using the approved job material. The material shall be placed in accordance with the specified requirements. The application rates of the bituminous material and the aggregate shall be evaluated to ensure conformance with the specification requirements. Placement of additional seal coat on other project areas shall not commence until the Engineer approves the application rates of the bituminous and aggregate material.

3.7 TRAFFIC CONTROL

- A. Contractor shall provide flaggers, signs, and barriers to warn, direct, and prevent traffic from traveling on freshly applied asphalt until it has penetrated, and does not track or pickup on the tires of vehicles.

END OF SECTION

SECTION 32 16 13 - CURB AND GUTTER

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Included in this section is all work related to placement of curb and gutter, fillet and valley gutter. This includes the furnishing and placement of Portland Concrete Cement (PCC) for constructing curb and gutter, including applicable reinforcing steel, expansion material, jointing, joint sealing and finishing.

1.2 RELATED SECTIONS

- Section 03 30 10 - Cast-In-Place Concrete
- Section 31 23 13 - Subgrade Preparation
- Section 32 11 23 - Aggregate Base Courses
- Section 32 13 13 - Concrete Paving
- Section 32 16 23 - Sidewalks
- Section 32 16 33 - Driveways
- Section 32 17 26 - Tactile Warning Surfacing

1.3 REFERENCES

- A. The following Sections of the “GreenBook” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNi Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:
 - Section 201-1 - Portland Cement Concrete
 - Section 301-1 - Subgrade Preparation
 - Section 303-5 - Concrete Curbs, Walks, Gutters, Cross Gutters, Alley Intersections, Access Ramps and Driveways

1.4 SUBMITTALS

- A. Submit complete mix design and test reports.
- B. Submit Material Certificates for Steel reinforcement and reinforcement accessories.
- C. Admixtures
- D. Curing compounds
- E. Applied finish materials
- F. Bonding agent or epoxy adhesive
- G. Joint fillers

1.5 QUALITY ASSURANCE

- A. Source Quality Control: Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with (ASTM International) ASTM C 94 requirements for production facilities and equipment.
- B. Manufacturer certified according to (National Ready-Mixed Concrete Association) NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").
- C. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- D. Personnel conducting field tests shall be qualified as (American Concrete Institute) ACI Concrete Field-Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- E. Concrete Testing Service: Engage a qualified testing agency to perform material evaluation tests and to design concrete mixtures.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

- A. Shall comply with Division 3, Cast-In-Place Concrete. Proportioning of ingredients shall be in accord with an Engineer approved mix design. Minimum compressive strength shall be 4000 psi at 28 days.
- B. Cementitious Material: Use cementitious materials, of same type, brand, and source throughout Project:
 - 1. The cementitious materials shall be in accordance with the approved mix designs
 - 2. Normal-Weight Aggregates: Aggregates shall be in accordance with Local and State Standard Specifications.
 - 2. Water: Potable and complying with ASTM C 94.
 - 3. Air-Entraining Admixture: ASTM C 260.
- C. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain no more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
- D. Water-Reducing Admixture: ASTM C 494, Type A.
- E. Retarding Admixture: ASTM C 494, Type B.
- F. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

- G. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
- H. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
- I. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.2 CURING MATERIALS

- A. Absorptive Cover: (American Association of State Highway and Transportation Officials) AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry or cotton mats.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
- E. Provide evaporation retarders by:
 - Axim Italcementi Group, Inc.; Caltexol CIMFILM.
 - BASF Construction Chemicals, LLC; Confilm.
 - ChemMasters; Spray-Film.
 - Conspec by Dayton Superior; Aquafilm.
 - Dayton Superior Corporation; Sure Film (J-74).
 - Edoco by Dayton Superior; BurkeFilm.
 - Euclid Chemical Company (The), an RPM company; Eucobar.
 - Kaufman Products, Inc.; VaporAid.
 - iLambert Corporation; LAMBCO Skin.
 - L&M Construction Chemicals, Inc.; E-CON.
 - Meadows, W. R., Inc.; EVAPRE.
 - Metalcrete Industries; Waterhold.
 - Nox-Crete Products Group; MONOFILM.
 - Sika Corporation, Inc.; SikaFilm.
 - SpecChem, LLC; Spec Film.
 - Symons by Dayton Superior; Finishing Aid.
 - TK Products, Division of Sierra Corporation; TK-2120 TRI-FILM.
 - Unitex; PRO-FILM.
 - Vexcon Chemicals Inc.; Certi-Vex EnvioAssist.
 - Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- F. Provide curing compounds by:
 - Anti-Hydro International, Inc.; A-H Curing Compound #2 DR WB.
 - ChemMasters; Safe-Cure Clear.
 - Conspec by Dayton Superior; D.O.T. Resin Cure.

Dayton Superior Corporation; Day-Chem Rez Cure (J-11-W).
Edoco by Dayton Superior; DSSCC Clear Resin Cure.
Euclid Chemical Company (The), an RPM company; Kurez W VOX.
Kaufman Products, Inc.; Thinfilm 420.
Lambert Corporation; AQUA KURE - CLEAR.
L&M Construction Chemicals, Inc.; L&M CURE R.
Meadows, W. R., Inc.; 1100-CLEAR SERIES.
Nox-Crete Products Group; Resin Cure E.
SpecChem, LLC; PaveCure Rez.
Symons by Dayton Superior; Resi-Chem Clear.
Tamms Industries, Inc., Euclid Chemical Company (The); TAMMSCURE WB 30C.
TK Products, Division of Sierra Corporation; TK-2519 WB.
Vexcon Chemicals Inc.; Certi-Vex Enviocure 100.
White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.

- G. Provide curing compounds by:
Anti-Hydro International, Inc.; A-H Curing Compound #2 WP WB.
ChemMasters; Safe-Cure 2000.
Conspec by Dayton Superior; D.O.T. Resin Cure White.
Dayton Superior Corporation; Day-Chem White Pigmented Cure (J-10-W).
Edoco by Dayton Superior; Resin Emulsion Cure V.O.C. (Type II).
Euclid Chemical Company (The), an RPM company; Kurez VOX White Pigmented.
Kaufman Products, Inc.; Thinfilm 450.
Lambert Corporation; AQUA KURE - WHITE.
L&M Construction Chemicals, Inc.; L&M CURE R-2.
Meadows, W. R., Inc.; 1100-WHITE SERIES.
SpecChem, LLC; PaveCure Rez White.
Symons by Dayton Superior; Resi-Chem White.
Vexcon Chemicals Inc.; Certi-Vex Enviocure White 100.

2.3 RELATED MATERIALS

- A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:
- D. Types I and II, non-load bearing or Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

- D. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.
- E. Provide surface retarders by:
ChemMasters; Exposee.
Conspec by Dayton Superior; Delay S.
Dayton Superior Corporation; Sure Etch (J-73).
Edoco by Dayton Superior; True Etch Surface Retarder.
Euclid Chemical Company (The), an RPM company; Surface Retarder Formula S.
Kaufman Products, Inc.; Expose.
Meadows, W. R., Inc.; TOP-STOP.
Metalcrete Industries; Surfard.
iNox-Crete Products Group; CRETE-NOX TA.
jScofield, L. M. Company; LITHOTEX Top Surface Retarder.
Sika Corporation, Inc.; Rugasol-S.
SpecChem, LLC; Spec Etch.
TK Products, Division of Sierra Corporation; TK-6000 Concrete Surface Retarder.
Unitex; TOP-ETCH Surface Retarder.
Vexcon Chemicals Inc.; Certi-Vex Envioset.

2.4 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience. Mix designs must be a State approved mix.
- B. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
- C. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that meet or exceed requirements.
- D. Proportion mixtures to provide normal-weight concrete with the following properties:
- E. Compressive Strength (28 Days): 3,500 psi for cast in place concrete and 4,500 psi for precast concrete unless stated otherwise on the plans.
- F. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.32 to 0.42 based on State Standard Specifications.
- G. Slump Limit: 2 inches to 4 inches plus or minus 1 inch.
- H. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:

- I. Air Content: 5 percent to 8 percent for $\frac{3}{4}$ inch and 1-inch nominal maximum aggregate size.
- J. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
- K. Use water-reducing admixture high-range, water-reducing admixture high-range, water-reducing and retarding admixture, and plasticizing and retarding admixture in concrete as required for placement and workability.
- L. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- M. Do not exceed 95 degrees F concrete temperature at time of placement.
- N. Cementitious Materials: Use fly ash or ground granulated blast-furnace slag to reduce the total amount of portland cement, which would otherwise be used. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
- O. Fly Ash 15 percent for Class F Fly Ash and 20 percent for Class C Fly Ash.
- P. Ground Granulated Blast-Furnace Slag: 25 percent.

2.5 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94 and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.
- B. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- C. When the anticipated temperature of the concrete is 95 degrees or higher, the materials shall be cooled at the batch plant using ice or cold water. Adjustments must be made for water/cement ratio to keep the slump within specifications.

2.6 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
- B. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less.

- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.7 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from steel wire into flat sheets.
- B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.
- C. Reinforcing Bars: ASTM A 615, Grade 60; deformed.
- D. Epoxy-Coated Reinforcing Bars: ASTM A 775 or ASTM A 934; with ASTM A 615, Grade 60 deformed bars.
- E. Joint Dowel Bars: ASTM A 615, Grade 60 plain-steel bars [; zinc coated (galvanized) after fabrication according to ASTM A 767, Class I coating]. Cut bars true to length with ends square and free of burrs.
- F. Epoxy-Coated, Joint Dowel Bars: ASTM A 775; with ASTM A 615, Grade 60, plain-steel bars.
- G. Tie Bars: ASTM A 615, Grade 60, deformed.
- H. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- I. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to (Concrete Reinforcing Steel Institute) CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
 - 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
- J. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.
- K. Zinc Repair Material: ASTM A 780.

2.8 EXPANSION JOINTS

- A. Shall be premolded expansion joint filler complying with ASTM Specification D1751 for resilient bituminous types and ASTM Specification D1752 for resilient non-bituminous types.

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

- A. Seasonal Restrictions:
 - 1. Concrete pavements may not be placed after November 1 or before April 1 without special permission of Engineer.
 - 2. Weather Limitations:
 - 3. Temperature must be at least 40 degrees F., but less than 95 degrees F. during placement.

3.2 SUBGRADE

- A. Provide compacted subgrade and specified gravel under all curb and gutter and other specified concrete per typical sections or plan notes on drawings. Notify Engineer 24 hours prior to concrete placement to allow inspection of subgrade. If required, adjust subgrade elevations by removing excess material.

3.3 FORM WORK

- A. Curb and gutter forms shall provide an identical match with adjacent existing curb and gutter. Forms for other concrete shall meet the approval of the Engineer.
- B. Forms shall be firmly staked and braced in a manner that will not deflect if walked upon nor during concrete placement. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- C. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.
- D. Deflections shall be limited as specified by Section 203.1 of ACI 347. Reuse of wood forms will be permitted, but warped, deflected, or kinked forms shall not be used.
- E. Power driven slip forming equipment is permitted for this work subject to compliance with other requirements of these specifications.

3.4 PLACING

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.

- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site unless the required slump and workability cannot be met. If water must be added, the Material Tester II shall immediately call the batch plant and adjust the mix to resolve the problem. Do not add water to fresh concrete after testing. If water is added the test must be repeated.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
- H. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.
- I. Screed paving surface with a straightedge and strike off.
- J. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- K. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.
- L. Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.
- M. Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.

- N. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
- O. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
- P. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
- Q. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
- R. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.5 FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Placing shall proceed at such a rate that fresh concrete is integrated with concrete which is still plastic.
- C. All concrete shall be consolidated by vibration, spading, rodding or forking so that the concrete is thoroughly worked into corners of forms, eliminating all air pockets, or stone pockets which may cause honeycombing, pitting or places of weakness.
- D. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
- E. A medium broom finish shall be provided with consistent texture with lines running perpendicular to the length of the curb and gutter section.
- F. Floating shall be performed prior to texturing and shall be done in accordance with Division 3.

3.6 JOINTS

- A. Tooled contraction joints shall normally be spaced 10 feet center to center unless otherwise instructed by the Engineer. Curb and gutter and sidewalk shall be separated by one inch (1") preformed expansion joints when they abut each other.
- B. Expansion Joints:
- C. Extend to full depth of concrete.
- D. Place doveled connection as per the details on the drawings.
- E. Locate expansion joints at all construction joints, at beginning and end of curves, at 300-foot intervals, and at other locations as required by the Engineer.
- F. Longitudinal Joints at Slabs: Provide keyed construction joints with rebar at longitudinal joints between the gutter section and concrete pavements.
- G. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
- H. Locate expansion joints at intervals of Insert dimension unless otherwise indicated.
- I. Extend joint fillers full width and depth of joint.
- J. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
- K. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
- L. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
- M. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- N. Curb & Gutter and sidewalk Expansion joints shall be sealed in accordance with the plan details.

3.7 CURING AND PROTECTION

- A. The surface shall be protected against mechanical injury.

- B. The concrete shall be cured and protected against premature drying and excessively low or varying temperatures in accordance with Division 3. Membrane curing compound (colorless) must be applied to all exposed surfaces and to formed surfaces immediately after forms are removed.
- C. Comply with ACI 306.1 for cold-weather protection.
- D. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture curing moisture-retaining-cover curing, curing compound or a combination of these as follows:
- F. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
- G. Water using misters or soaker hoses.
- H. Continuous water-fog spray.
- I. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
- J. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.
- K. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period. If forms are stripped within the curing period, spray the exposed surfaces.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: The Contractor shall engage a qualified testing agency to perform Quality Control tests and inspections. The owner will engage a qualified testing agency to perform Quality Assurance tests and inspections.

- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
- C. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or 5000 sq. ft. or fraction thereof of each concrete mixture placed each day.
- D. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
- E. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
- F. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture. Air meters shall be calibrated at least yearly.
- G. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
- H. Compression Test Specimens: ASTM C 31; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
- I. Compressive-Strength Tests: ASTM C 39; test one specimen at seven days and two specimens at 28 days.
- J. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
- K. If the Contractor wishes to make extra test specimens to be broken at less than 28 days he may. If the test specimens indicate that design strength has been achieved the Contractor may proceed with the work.
- L. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- M. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and

materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

- N. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Owner but will not be used as sole basis for approval or rejection of concrete.
- O. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Owner.
- P. Concrete paving will be considered defective if it does not pass tests and inspections.
- R. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- S. If compressive strength tests fail, the Contractor shall have representative core samples taken and delivered to the laboratory. These samples shall be tested independently. If these samples fail then the work must be replaced.

3.9 REPAIRS AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Owner.
- B. Drill test cores, where directed by Owner, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with Portland cement concrete bonded to paving with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

3.10 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

- A. A specified Concrete Cleanout Area shall be maintained by the Contractor as described in the SWPPP and Erosion Control Plan. Concrete waste shall be removed whenever the cleanout area is full. Spillage shall be reported in accordance with the NPDES Permit.

3.11 BACKFILL

- A. After the curing period (min. 72 hrs.), the area behind the curb and gutter shall be filled to the required elevations with embankment material salvaged from excavation work.
- B. Compact material to required density and place topsoil to required thickness where applicable.
- C. Backfilling of curb and gutter must precede paving operations.

END OF SECTION

SECTION 32 16 23 - SIDEWALKS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This includes the furnishing and placement of Portland Concrete Cement (PCC) for constructing sidewalk, including applicable reinforcing steel, expansion material, jointing, joint sealing and finishing.

1.2 RELATED SECTIONS

Section 03 30 10 - Cast-In-Place Concrete
Section 31 25 00 - Erosion and Sedimentation Control
Section 32 11 23 - Aggregate Base Courses
Section 32 16 13 - Curb and Gutter
Section 32 16 33 - Driveways

1.3 REFERENCES

- A. The following Sections of the “GreenBook” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNi Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:
Section 201-1 - Portland Cement Concrete
Section 301-1 - Subgrade Preparation
Section 303-5 - Concrete Curbs, Walks, Gutters, Cross Gutters, Alley Intersections, Access Ramps and Driveways

1.4 SUBMITTALS

- A. Submit complete mix design and test reports.
- B. Submit Material Certificates for
- C. Steel reinforcement and reinforcement accessories.
- D. Admixtures
- E. Curing compounds
- F. Applied finish materials
- G. Bonding agent or epoxy adhesive
- H. Joint fillers

1.5 QUALITY ASSURANCE

- A. Source Quality Control: Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with (ASTM International) ASTM C 94 requirements for production facilities and equipment.
- B. Manufacturer certified according to (National Ready-Mixed Concrete Association) NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").
- C. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- D. Personnel conducting field tests shall be qualified as (American Concrete Institute) ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- E. Concrete Testing Service: Engage a qualified testing agency to perform material evaluation tests and to design concrete mixtures.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

- A. Shall comply with Division 3, Cast-In-Place Concrete. Proportioning of ingredients shall be in accord with an Engineer approved mix design. Minimum compressive strength shall be 4000 psi at 28 days.
- B. Cementitious Material: Use cementitious materials, of same type, brand, and source throughout Project:
- C. The cementitious materials shall be in accordance with the approved mix designs
- D. Normal-Weight Aggregates: Aggregates shall be in accordance with Local and State Standard Specifications.
- E. Water: Potable and complying with ASTM C 94.
- F. Air-Entraining Admixture: ASTM C 260.
- G. Chemical Admixtures: Admixtures certified by the manufacturer to be compatible with other admixtures and to contain no more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
- H. Water-Reducing Admixture: ASTM C 494, Type A.

- I. Retarding Admixture: ASTM C 494, Type B.
- J. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
- K. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
- L. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
- M. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.2 CURING MATERIALS

- A. Absorptive Cover: (American Association of State Highway and Transportation Officials) AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry or cotton mats.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
- E. Provide evaporation retarders by:
 - Axim Italcementi Group, Inc.; Caltexol CIMFILM.
 - BASF Construction Chemicals, LLC; Confilm.
 - ChemMasters; Spray-Film.
 - Conspec by Dayton Superior; Aquafilm.
 - Dayton Superior Corporation; Sure Film (J-74).
 - Edoco by Dayton Superior; BurkeFilm.
 - Euclid Chemical Company (The), an RPM company; Eucobar.
 - Kaufman Products, Inc.; VaporAid.
 - Lambert Corporation; LAMBCO Skin.
 - L&M Construction Chemicals, Inc.; E-CON.
 - Meadows, W. R., Inc.; EVAPRE.
 - Metalcrete Industries; Waterhold.
 - Nox-Crete Products Group; MONOFILM.
 - Sika Corporation, Inc.; SikaFilm.
 - SpecChem, LLC; Spec Film.
 - Symons by Dayton Superior; Finishing Aid.
 - TK Products, Division of Sierra Corporation; TK-2120 TRI-FILM.
 - Unitex; PRO-FILM.
 - Vexcon Chemicals Inc.; Certi-Vex EnvioAssist.
 - Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

- F. Provide curing compounds by:
Anti-Hydro International, Inc.; A-H Curing Compound #2 DR WB.
ChemMasters; Safe-Cure Clear.
Conspec by Dayton Superior; D.O.T. Resin Cure.
Dayton Superior Corporation; Day-Chem Rez Cure (J-11-W).
Edoco by Dayton Superior; DSSCC Clear Resin Cure.
Euclid Chemical Company (The), an RPM company; Kurez W VOX.
Kaufman Products, Inc.; Thinfilm 420.
Lambert Corporation; AQUA KURE - CLEAR.
L&M Construction Chemicals, Inc.; L&M CURE R.
Meadows, W. R., Inc.; 1100-CLEAR SERIES.
Nox-Crete Products Group; Resin Cure E.
SpecChem, LLC; PaveCure Rez.
Symons by Dayton Superior; Resi-Chem Clear.
Tamms Industries, Inc., Euclid Chemical Company (The); TAMMSCURE WB 30C.
TK Products, Division of Sierra Corporation; TK-2519 WB.
Vexcon Chemicals Inc.; Certi-Vex Enviocure 100.
White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.
- G. Provide curing compounds by:
Anti-Hydro International, Inc.; A-H Curing Compound #2 WP WB.
ChemMasters; Safe-Cure 2000.
Conspec by Dayton Superior; D.O.T. Resin Cure White.
Dayton Superior Corporation; Day-Chem White Pigmented Cure (J-10-W).
Edoco by Dayton Superior; Resin Emulsion Cure V.O.C. (Type II).
Euclid Chemical Company (The), an RPM company; Kurez VOX White Pigmented.
Kaufman Products, Inc.; Thinfilm 450.
Lambert Corporation; AQUA KURE - WHITE.
L&M Construction Chemicals, Inc.; L&M CURE R-2.
Meadows, W. R., Inc.; 1100-WHITE SERIES.
SpecChem, LLC; PaveCure Rez White.
Symons by Dayton Superior; Resi-Chem White.
Vexcon Chemicals Inc.; Certi-Vex Enviocure White 100.

2.3 RELATED MATERIALS

- A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:

1. Types I and II, non-load bearing or Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- D. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.
- E. Provide surface retarders by:
ChemMasters; Exposee.
Conspec by Dayton Superior; Delay S.
Dayton Superior Corporation; Sure Etch (J-73).
Edoco by Dayton Superior; True Etch Surface Retarder.
Euclid Chemical Company (The), an RPM company; Surface Retarder Formula S.
Kaufman Products, Inc.; Expose.
Meadows, W. R., Inc.; TOP-STOP.
Metalcrete Industries; Surfard.
Nox-Crete Products Group; CRETE-NOX TA.
Scofield, L. M. Company; LITHOTEX Top Surface Retarder.
Sika Corporation, Inc.; Rugasol-S.
SpecChem, LLC; Spec Etch.
TK Products, Division of Sierra Corporation; TK-6000 Concrete Surface Retarder.
Unitex; TOP-ETCH Surface Retarder.
Vexcon Chemicals Inc.; Certi-Vex Envioset.

2.4 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience. Mix designs must be State approved mix.
- B. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
- C. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that meet or exceed requirements.
- D. Proportion mixtures to provide normal-weight concrete with the following properties:
- E. Compressive Strength (28 Days): 3,500 psi for cast in place concrete and 4,500 psi for precast concrete unless stated otherwise on the plans.
- F. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.32 to 0.42 based on State Standard Specifications.
- G. Slump Limit: 2 inches to 4 inches plus or minus 1 inch.

- H. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
 - 1. Air Content: 5 percent to 8 percent for $\frac{3}{4}$ inch and 1-inch nominal maximum aggregate size.
- I. Chemical Admixtures:
 - 1. Use admixtures according to manufacturer's written instructions.
 - 2. Use water-reducing admixture high-range, water-reducing admixture high-range, water-reducing and retarding admixture, and plasticizing and retarding admixture in concrete as required for placement and workability.
 - 3. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 4. Do not exceed 95 degrees F concrete temperature at time of placement.
- J. Cementitious Materials: Use fly ash or ground granulated blast-furnace slag to reduce the total amount of Portland cement, which would otherwise be used. Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:
 - 1. Fly Ash: 15 percent for Class F Fly Ash and 20 percent for Class C Fly Ash.
 - 2. Ground Granulated Blast-Furnace Slag: 25 percent.

2.5 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94 and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.
- B. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- C. When the anticipated temperature of the concrete is 95 degrees or higher, the materials shall be cooled at the batch plant using ice or cold water. Adjustments must be made for water/cement ratio to keep the slump within specifications.

2.6 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
- B. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less.

- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.7 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from steel wire into flat sheets.
- B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.
- C. Reinforcing Bars: ASTM A 615, Grade 60; deformed.
- D. Epoxy-Coated Reinforcing Bars: ASTM A 775 or ASTM A 934; with ASTM A 615, Grade 60 deformed bars.
- E. Joint Dowel Bars: ASTM A 615, Grade 60 plain-steel bars; zinc coated (galvanized) after fabrication according to ASTM A 767, Class I coating. Cut bars true to length with ends square and free of burrs.
- F. Epoxy-Coated, Joint Dowel Bars: ASTM A 775; with ASTM A 615, Grade 60, plain-steel bars.
- G. Tie Bars: ASTM A 615, Grade 60, deformed.
- H. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- I. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to (Concrete Reinforcing Steel Institute) CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
 - 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
 - 3. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.
 - 4. Zinc Repair Material: ASTM A 780.

2.8 EXPANSION JOINTS

- A. Shall be premolded expansion joint filler complying with ASTM Specification D1751 for resilient bituminous types and ASTM Specification D1752 for resilient non-bituminous types.

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

- A. Seasonal Restrictions:
 - 1. Concrete pavements may not be placed after November 1 or before April 1 without special permission of Engineer.
- B. Weather Limitations:
 - 1. Temperature must be at least 40 degrees F., but less than 95 degrees F. during placement.

3.2 SUBGRADE

- A. Provide compacted subgrade and specified gravel under all sidewalk and other specified concrete per typical sections or plan notes on drawings. Notify Engineer 24 hours prior to concrete placement to allow inspection of subgrade. If required, adjust subgrade elevations by removing excess material.

3.3 FORM WORK

- A. Forms shall meet the approval of the Engineer.
- B. Forms shall be firmly staked and braced in a manner that will not deflect if walked upon nor during concrete placement. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- C. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.
- D. Deflections shall be limited as specified by Section 203.1 of ACI 347. Reuse of wood forms will be permitted, but warped, deflected or kinked forms shall not be used.
- E. Slope walks as indicated on the plans.
- F. Sidewalk thickness shall be three inches (3") unless otherwise noted on the plans.

3.4 PLACING

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.

- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site unless the required slump and workability cannot be met. If water must be added, the Material Tester II shall immediately call the batch plant and adjust the mix to resolve the problem. Do not add water to fresh concrete after testing. If water is added the test must be repeated.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
- H. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.
- I. Screed paving surface with a straightedge and strike off.
- J. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- K. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
 - 4. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

5. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
6. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
7. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.5 FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Placing shall proceed at such a rate that fresh concrete is integrated with concrete which is still plastic.
- C. All concrete shall be consolidated by vibration, spading, rodding or forking so that the concrete is thoroughly worked into corners of forms, eliminating all air pockets, or stone pockets which may cause honeycombing, pitting or places of weakness.
- D. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
- E. A medium broom finish shall be provided with consistent texture with lines running perpendicular to the length of the curb and gutter section.
- F. Floating shall be performed prior to texturing and shall be done in accordance with Division 3

3.6 JOINTS

- A. After floating, and prior to texturing, the sidewalk shall be edge tooled and control joints shall be placed across the concrete sidewalk surface at intervals to match the width of the sidewalk, or as designated by the engineer. The control joints shall be Zip Strip (12"), or Engineer approved equal, or tooled joints matching the existing sidewalk.
- B. Edges shall be retooled after texturing to provide uniform tool marks with smooth surfaces which are relatively free of defects.
- C. Sidewalk Expansion joints shall be sealed in accordance with the plan details.

3.7 CURING AND PROTECTION

- A. The surface shall be protected against mechanical injury.
- B. The concrete shall be cured and protected against premature drying and excessively low or varying temperatures in accordance with Division 3. Membrane curing compound (colorless) must be applied to all exposed surfaces and to formed surfaces immediately after forms are removed.
- C. Comply with ACI 306.1 for cold-weather protection.
- D. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- E. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- F. Curing Methods: Cure concrete by moisture curing moisture-retaining-cover curing, curing compound or a combination of these as follows:
- G. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - 1. Water using misters or soaker hoses.
 - 2. Continuous water-fog spray.
 - 3. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
- H. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.
- I. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period. If forms are stripped within the curing period, spray the exposed surfaces.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: The Contractor shall engage a qualified testing agency to perform Quality Control tests and inspections. The owner will engage a qualified testing agency to perform Quality Assurance tests and inspections.

- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or 5000 sq. ft. or fraction thereof of each concrete mixture placed each day.
 2. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 3. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 4. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture. Air meters shall be calibrated at least yearly.
 5. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
 6. Compression Test Specimens: ASTM C 31; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
 7. Compressive-Strength Tests: ASTM C 39; test one specimen at seven days and two specimens at 28 days.
 8. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
 9. If the Contractor wishes to make extra test specimens to be broken at less than 28 days he may. If the test specimens indicate that design strength has been achieved the Contractor may proceed with the work.
 10. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 11. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- C. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Owner but will not be used as sole basis for approval or rejection of concrete.

- D. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Owner.
- E. Concrete paving will be considered defective if it does not pass tests and inspections.
- F. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- G. If compressive strength tests fail, the Contractor shall have representative core samples taken and delivered to the laboratory. These samples shall be tested independently. If these samples fail then the work must be replaced.

3.9 REPAIRS AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Owner.
- B. Drill test cores, where directed by Owner, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

3.10 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

- A. A specified Concrete Cleanout Area shall be maintained by the Contractor as described in the SWPPP and Erosion Control Plan. Concrete waste shall be removed whenever the cleanout area is full. Spillage shall be reported in accordance with the NPDES Permit.

3.11 BACKFILL

- A. After the curing period (min. 72 hrs.), the area behind the curb and gutter shall be filled to the required elevations with embankment material salvaged from excavation work.

- B. Compact material to required density and place topsoil to required thickness where applicable.
- C. Backfilling of curb and gutter must precede paving operations.

END OF SECTION

SECTION 32 16 33 - DRIVEWAYS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This includes the furnishing and placement of Portland Concrete Cement (PCC) for constructing driveways, driveway aprons and alley aprons, including applicable reinforcing steel, expansion material, jointing, joint sealing and finishing.

1.2 RELATED SECTIONS

Section 03 30 10 - Cast-In-Place Concrete
Section 31 25 00 - Erosion and Sedimentation Controls
Section 32 11 23 - Aggregate Base Courses
Section 32 16 13 - Curb and Gutter
Section 32 16 23 - Sidewalks

1.3 REFERENCES

- A. The following Sections of the “GreenBook” Standard Specifications for Public Works Construction, 2018 Edition, written and promulgated by Public Works Standards, Inc. and published by BNI Building News, 990 Park Center Drive, Suite E, Vista, CA 92081 shall be included in this specification as if fully written:
Section 201-1 - Portland Cement Concrete
Section 301-1 - Subgrade Preparation
Section 303-5 - Concrete Curbs, Walks, Gutters, Cross Gutters, Alley Intersections, Access Ramps and Driveways

1.4 SUBMITTALS

- A. Submit complete mix design and test reports.
- B. Submit Material Certificates for
- C. Steel reinforcement and reinforcement accessories.
- D. Admixtures
- E. Curing compounds
- F. Applied finish materials
- G. Bonding agent or epoxy adhesive
- H. Joint fillers

1.5 QUALITY ASSURANCE

- A. Source Quality Control: Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with (ASTM International) ASTM C 94 requirements for production facilities and equipment.
- B. Manufacturer certified according to (National Ready-Mixed Concrete Association) NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").
- C. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- D. Personnel conducting field tests shall be qualified as (American Concrete Institute) ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- E. Concrete Testing Service: Engage a qualified testing agency to perform material evaluation tests and to design concrete mixtures.

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2.1 CONCRETE MATERIALS

- A. Shall comply with Division 3, Cast-In-Place Concrete. Proportioning of ingredients shall be in accord with an Engineer approved mix design. Minimum compressive strength shall be 4000 psi at 28 days.
- B. Cementitious Material: Use cementitious materials, of same type, brand, and source throughout Project:
- C. The cementitious materials shall be in accordance with the approved mix designs
- D. Normal-Weight Aggregates: Aggregates shall be in accordance with Local and State Standard Specifications.
 - 1. Water: Potable and complying with ASTM C 94.
 - 2. Air-Entraining Admixture: ASTM C 260.
- E. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
 - 1. Water-Reducing Admixture: [ASTM C 494](#), Type A.
 - 2. Retarding Admixture: ASTM C 494, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.2 CURING MATERIALS

- A. Absorptive Cover: (American Association of State Highway and Transportation Officials) AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry or cotton mats.
- Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- Water: Potable.
- Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
- Provide evaporation retarders by:
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- BASF Construction Chemicals, LLC; Confilm.
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- Conspec by Dayton Superior; Aquafilm.
- Dayton Superior Corporation; Sure Film (J-74).
- Edoco by Dayton Superior; BurkeFilm.
- Euclid Chemical Company (The), an RPM company; Eucobar.
- Kaufman Products, Inc.; VaporAid.
- Lambert Corporation; LAMBCO Skin.
- L&M Construction Chemicals, Inc.; E-CON.
- Meadows, W. R., Inc.; EVAPRE.
- Metalcrete Industries; Waterhold.
- Nox-Crete Products Group; MONOFILM.
- Sika Corporation, Inc.; SikaFilm.
- SpecChem, LLC; Spec Film.
- Symons by Dayton Superior; Finishing Aid.
- TK Products, Division of Sierra Corporation; TK-2120 TRI-FILM.
- Unitex; PRO-FILM.
- Vexcon Chemicals Inc.; Certi-Vex EnvioAssist.
- Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- Provide curing compounds by:
- Anti-Hydro International, Inc.; A-H Curing Compound #2 DR WB.
- ChemMasters; Safe-Cure Clear.
- Conspec by Dayton Superior; D.O.T. Resin Cure.
- Dayton Superior Corporation; Day-Chem Rez Cure (J-11-W).
- Edoco by Dayton Superior; DSSCC Clear Resin Cure.
- Euclid Chemical Company (The), an RPM company; Kurez W VOX.
- Kaufman Products, Inc.; Thinfilm 420.
- Lambert Corporation; AQUA KURE - CLEAR.
- L&M Construction Chemicals, Inc.; L&M CURE R.
- Meadows, W. R., Inc.; 1100-CLEAR SERIES.
- Nox-Crete Products Group; Resin Cure E.
- SpecChem, LLC; PaveCure Rez.

Symons by Dayton Superior; Resi-Chem Clear.
Tamms Industries, Inc., Euclid Chemical Company (The); TAMMSCURE WB 30C.
TK Products, Division of Sierra Corporation; TK-2519 WB.
Vexcon Chemicals Inc.; Certi-Vex Enviocure 100.
White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.
Provide curing compounds by:
Anti-Hydro International, Inc.; A-H Curing Compound #2 WP WB.
ChemMasters; Safe-Cure 2000.
Conspec by Dayton Superior; D.O.T. Resin Cure White.
Dayton Superior Corporation; Day-Chem White Pigmented Cure (J-10-W).
Edoco by Dayton Superior; Resin Emulsion Cure V.O.C. (Type II).
Euclid Chemical Company (The), an RPM company; Kurez VOX White Pigmented.
Kaufman Products, Inc.; Thinfilm 450.
Lambert Corporation; AQUA KURE - WHITE.
L&M Construction Chemicals, Inc.; L&M CURE R-2.
Meadows, W. R., Inc.; 1100-WHITE SERIES.
SpecChem, LLC; PaveCure Rez White.
Symons by Dayton Superior; Resi-Chem White.
Vexcon Chemicals Inc.; Certi-Vex Enviocure White 100.

2.3 RELATED MATERIALS

- A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:
- D. Types I and II, non-load bearing or Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- E. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.
- F. Provide surface retarders by:
 - 1. ChemMasters; Exposee.
 - 2. Conspec by Dayton Superior; Delay S.
 - 3. Dayton Superior Corporation; Sure Etch (J-73).
 - 4. Edoco by Dayton Superior; True Etch Surface Retarder.
 - 5. Euclid Chemical Company (The), an RPM company; Surface Retarder Formula S.
 - 6. Kaufman Products, Inc.; Expose.

7. Meadows, W. R., Inc.; TOP-STOP.
8. Metalcrete Industries; Surfard.
9. Nox-Crete Products Group; CRETE-NOX TA.
10. Scofield, L. M. Company; LITHOTEX Top Surface Retarder.
11. Sika Corporation, Inc.; Rugasol-S.
12. SpecChem, LLC; Spec Etch.
13. TK Products, Division of Sierra Corporation; TK-6000 Concrete Surface Retarder.
14. Unitex; TOP-ETCH Surface Retarder.
15. Vexcon Chemicals Inc.; Certi-Vex Envioset.

2.4 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience. Mix designs must be a State approved mix.
- B. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
- C. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that meet or exceed requirements.
- D. Proportion mixtures to provide normal-weight concrete with the following properties:
 1. Compressive Strength (28 Days): 3,500 psi for cast in place concrete and 4,500 psi for precast concrete unless stated otherwise on the plans.
 2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.32 to 0.42 based on State Standard Specifications.
 3. Slump Limit: 2 inches to 4 inches plus or minus 1 inch.
 4. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
 5. Air Content: 5 percent to 8 percent for $\frac{3}{4}$ inch and 1-inch nominal maximum aggregate size.
- E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
 1. Use water-reducing admixture high-range, water-reducing admixture high-range, water-reducing and retarding admixture, and plasticizing and retarding admixture in concrete as required for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Do not exceed 95 degrees F concrete temperature at time of placement.
- F. Cementitious Materials: Use fly ash or ground granulated blast-furnace slag to reduce the total amount of portland cement, which would otherwise be used.

Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 15 percent for Class F Fly Ash and 20 percent for Class C Fly Ash.
2. Ground Granulated Blast-Furnace Slag: 25 percent.

2.5 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94 and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.
- B. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- C. When the anticipated temperature of the concrete is 95 degrees or higher, the materials shall be cooled at the batch plant using ice or cold water. Adjustments must be made for water/cement ratio to keep the slump within specifications.

2.6 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
- B. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less.
- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.7 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from steel wire into flat sheets.
- B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.
- C. Reinforcing Bars: ASTM A 615, Grade 60; deformed.
- D. Epoxy-Coated Reinforcing Bars: ASTM A 775 or ASTM A 934; with ASTM A 615, Grade 60 deformed bars.
- E. Joint Dowel Bars: ASTM A 615, Grade 60 plain-steel bars; zinc coated (galvanized) after fabrication according to ASTM A 767, Class I coating. Cut bars true to length with ends square and free of burrs.

- F. Epoxy-Coated, Joint Dowel Bars: ASTM A 775; with ASTM A 615, Grade 60, plain-steel bars.
- G. Tie Bars: ASTM A 615, Grade 60, deformed.
- H. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- I. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to (Concrete Reinforcing Steel Institute) CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
- J. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
- K. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
- L. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.
- M. Zinc Repair Material: ASTM A 780.

2.8 EXPANSION JOINTS

- A. Shall be premolded expansion joint filler complying with ASTM Specification D1751 for resilient bituminous types and ASTM Specification D1752 for resilient non-bituminous types.

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

- A. Seasonal Restrictions:
 - 1. Concrete pavements may not be placed after November 1 or before April 1 without special permission of Engineer.
- B. Weather Limitations:
 - 1. Temperature must be at least 40 degrees F., but less than 95 degrees F. during placement.

3.2 SUBGRADE

- A. Provide compacted subgrade and specified gravel under all driveways/aprons and other specified concrete per typical sections or plan notes on drawings. Notify Engineer 24 hours prior to concrete placement to allow inspection of subgrade. If required, adjust subgrade elevations by removing excess material.

3.3 FORM WORK

- A. Forms shall meet the approval of the Engineer.
- B. Forms shall be firmly staked and braced in a manner that will not deflect if walked upon nor during concrete placement. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- C. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.
- D. Deflections shall be limited as specified by Section 203.1 of ACI 347. Reuse of wood forms will be permitted, but warped, deflected or kinked forms shall not be used.
- E. Driveways and aprons shall be sloped as indicated on the plans.
- F. Driveway and apron thickness shall be as noted on the plans.

3.4 PLACING

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site unless the required slump and workability cannot be met. If water must be added, the Material Tester II shall immediately call the batch plant and adjust the mix to resolve the problem. Do not add water to fresh concrete after testing. If water is added the test must be repeated.

- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
- H. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.
- I. Screed paving surface with a straightedge and strike off.
- J. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- K. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
 - 4. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
 - 5. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 6. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - 7. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.5 FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Placing shall proceed at such a rate that fresh concrete is integrated with concrete which is still plastic.
- C. All concrete shall be consolidated by vibration, spading, rodding or forking so that the concrete is thoroughly worked into corners of forms, eliminating all air pockets, or stone pockets which may cause honeycombing, pitting or places of weakness.
- D. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
- E. A medium broom finish shall be provided with consistent texture with lines running perpendicular to the length of the curb and gutter section.
- F. Floating shall be performed prior to texturing and shall be done in accordance with Division 3

3.6 JOINTS

- A. Tooled contraction joints shall be spaced as directed by the Engineer. Driveways and aprons shall be separated by one inch (1") preformed expansion joints when they abut curb and gutter and sidewalk.
- B. Expansion Joints:
 - 1. Extend to full depth of concrete.
 - 2. Place doweled connection as per the details on the drawings.
 - 3. Longitudinal Joints at Slabs: Provide keyed construction joints with rebar at longitudinal joints between the gutter section and concrete pavements.
 - 4. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
 - 5. Locate expansion joints at intervals of Insert dimension unless otherwise indicated.
 - 6. Extend joint fillers full width and depth of joint.
 - 7. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 - 8. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 - 9. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 - 10. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
 - 11. Expansion joints shall be sealed in accordance with the plan details.

3.7 CURING AND PROTECTION

- A. The surface shall be protected against mechanical injury.
- B. The concrete shall be cured and protected against premature drying and excessively low or varying temperatures in accordance with Division 3. Membrane curing compound (colorless) must be applied to all exposed surfaces and to formed surfaces immediately after forms are removed.
- C. Comply with ACI 306.1 for cold-weather protection.
- D. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- E. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- F. Curing Methods: Cure concrete by moisture curing moisture-retaining-cover curing, curing compound or a combination of these as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water using misters or soaker hoses.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period. If forms are stripped within the curing period, spray the exposed surfaces.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: The Contractor shall engage a qualified testing agency to perform Quality Control tests and inspections. The owner will engage a qualified testing agency to perform Quality Assurance tests and inspections.

- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
- C. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or 5000 sq. ft. or fraction thereof of each concrete mixture placed each day.
- D. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
- E. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
- F. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture. Air meters shall be calibrated at least yearly.
- G. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
- H. Compression Test Specimens: ASTM C 31; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
- I. Compressive-Strength Tests: ASTM C 39; test one specimen at seven days and two specimens at 28 days.
 - 1. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
 - 2. If the Contractor wishes to make extra test specimens to be broken at less than 28 days he may. If the test specimens indicate that design strength has been achieved the Contractor may proceed with the work.
 - 3. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 - 4. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

- J. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Owner but will not be used as sole basis for approval or rejection of concrete.
- K. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Owner.
- L. Concrete paving will be considered defective if it does not pass tests and inspections.
- M. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- N. If compressive strength tests fail, the Contractor shall have representative core samples taken and delivered to the laboratory. These samples shall be tested independently. If these samples fail then the work must be replaced.

3.9 REPAIRS AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Owner.
- B. Drill test cores, where directed by Owner, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

3.10 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

- A. A specified Concrete Cleanout Area shall be maintained by the Contractor as described in the SWPPP and Erosion Control Plan. Concrete waste shall be removed whenever the cleanout area is full. Spillage shall be reported in accordance with the NPDES Permit.

3.11 BACKFILL

- A. After the curing period (min. 72 hrs.), the area behind the curb and gutter shall be filled to the required elevations with embankment material salvaged from excavation work.
- B. Compact material to required density and place topsoil to required thickness where applicable.
- C. Backfilling of curb and gutter must precede paving operations.

END OF SECTION

SECTION 32 17 23 - PAVEMENT MARKINGS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Traffic Paint.
- B. Thermoplastic Reflectorized Pavement Markings.
- C. Permanent Marking Tape.
- C. Preformed Polymer Marking Material

1.2 RELATED REQUIREMENTS

Section 32 12 16 - Asphalt Paving
Section 32 13 13 - Concrete Paving
Section 32 16 13 - Curb and Gutter

1.3 DESCRIPTION OF WORK

1.4 TRAFFIC PAINT

- A. Work involves the furnishing and installing of permanent traffic paint in accordance with the Contract Documents.

1.5 THERMOPLASTIC REFLECTORIZED PAVEMENT MARKINGS

- A. Work involves the furnishing and installing of thermoplastic reflectorized pavement markings in accordance with the Contract Documents.

1.6 PERMANENT MARKING TAPE

- A. Work involves the furnishing and installing of permanent marking tape in accordance with the Contract Documents.
Preformed Polymer Marking Material - Work involves the furnishing and installing of preformed polymer marking material in accordance with the Contract Documents.

1.7 SUBMITTALS

- A. Submit detailed catalog cuts, manufacturer's specifications and test data of products proposed for use demonstrating conformance to requirements of this Section in accordance with the requirements of the Contract General Conditions.

1.8 SPECIAL REQUIREMENTS

- A. The completed thermoplastic reflectorized pavement marking installation shall be warranted to the Owner, from the date of final payment, against peeling, chipping, flaking, delamination, and shoving for a period of one year or until the markings are normally worn away by traffic.
- B. Thermoplastic material shall be accepted on the basis of sampling and inspection at the place of manufacture or in warehouse lots as determined by the Engineer. In addition, all samples shall be accompanied with the manufacturer's certified

identification of the binder formulation (e.g. “formulated as a hydrocarbon resin”). Any unauthorized tampering, opening, or breaking of seals on the containers between the time of sampling and delivery to the construction site shall be cause for rejection of the material.

- C. The minimum batch size of thermoplastic material when tested shall not be less than 3000 lbs. unless the total order is less than that amount.
- D. Reflective glass spheres may be approved at the construction site on the basis of the manufacturer’s certification.
- E. Type III primers will be subject to approval by the Engineer prior to use. Requests for approval shall be accompanied with technical data including brand name, instructions for use, hazard warnings, and 1-quart sample of the primer material.
- F. Upon prior approval by the Engineer of the Type III primer, the product may then be accepted at the construction site on the basis of the brand name labeled on the container.
- G. Any materials found to not meet these requirements shall be immediately replaced with materials meeting requirements of this Section.

PART 2 - PRODUCTS

1.1 TRAFFIC PAINT

- A. Traffic paint shall meet the requirements STATE OF CALIFORNIA Department of Transportation Specification PTWB-01R2 For Paint, Rapid Dry Waterborne Traffic Line, White, Yellow and Black, only waterborne paint shall be used.
- B. Thermoplastic Reflectorized Pavement Markings
- C. White and Yellow Reflectorized Thermoplastic

1.2 COMPOSITION REQUIREMENTS

- A. The thermoplastic material composition shall be specifically formulated for application at temperatures greater than 400 degrees F true*; and shall show no significant breakdown, or deterioration at a true temperature of 475 degrees Fahrenheit. (*True temperature as referenced above is measured with high precision laboratory grade equipment.)
- B. The binder component shall be formulated as hydrocarbon resin or formulated as alkaloid base product as shown on the Contract Drawings. The pigment, beads, and filler shall be uniformly dispersed in the binder resin.
- C. The thermoplastic material shall be free from all skins, dirt and foreign objects and shall comply with the following requirements:

% by Weight

Component	White	Yellow
Binder	17.0 Min.	17.0 Min.
Titanium Dioxide	10.0 Min.	---
Glass Beads	20.0 Min.	20.0 Min.
Calcium Carbonate & Inert	49.0 Min.	**
Fillers		
Yellow Pigments	---	**

** Amount and type of yellow pigment, calcium carbonate and inert fillers shall be at the option of the manufacturer, providing the other composition requirements of this specification are met.

1.3 PHYSICAL PROPERTIES OF COMPOSITION.

- A. Colors: White thermoplastic composition, as placed, shall be white, free from dirt or tint. Yellow thermoplastic composition, as placed, shall be yellow, free from dirt or tint, and shall be a reasonable visual match to Munsell book notation 10YR8/14 in accordance with ASTM D 1535.
- B. Drying Time: When installed on pavement at air temperature of 70 degrees F, and in thickness between 1/8 inch and 3/16 inch, the thermoplastic material shall be completely solid and shall show no damaging effect from traffic after 10 minutes.
- C. Color Retention: The thermoplastic material shall not change color during the warranty period.
- D. Yellowness Index: White thermoplastic material shall not exceed a yellowness index of 0.12 when tested in accordance with AASHTO Designation T 250.
- E. Softening Point: The thermoplastic material shall have a softening point of not less than 194 degrees Fahrenheit true when tested in accordance with ASTM E 28.
- F. Specific Gravity: The specific gravity of the thermoplastic material as determined by a water displacement method at 25 degrees Celsius shall be between 1.8 and 2.2 (referred to water at 25 degrees Celsius true).
- G. Fumes: The thermoplastic material shall not exude fumes which are toxic or obnoxious or injurious to persons or property when it is heated during applications.

1.4 THERMOPLASTIC REFLECTORIZED PAVEMENT MARKINGS EQUIPMENT

- A. Thermoplastic application equipment shall be subject to approval by the Engineer prior to the start of Work.
- B. The equipment used for the placement of thermoplastic pavement markings shall be of two general types: mobile applicator and portable applicator.

- C. Unless otherwise approved by the Engineer, all longitudinal pavement-marking lines shall be striped using only mobile applicator equipment. Longitudinal pavement marking lines include broken lines (skipline), edge lines, barrier lines, and solid lines as defined by the FHWA Manual on Uniform Traffic Control Devices.
- D. Portable applicator equipment will be acceptable for placing all other markings; and for longitudinal marking where use of mobile applicator equipment is impractical, as approved by the Engineer.
- E. Thermoplastic material shall be applied to the primed pavement surface by the extrusion method, wherein one side of the shaping die is the pavement and the other three sides are contained by, or are part of, suitable equipment for maintaining the temperature and controlling the flow of the material.
 - 1. Applicators shall be equipped and constructed in such a manner as to satisfy the requirements of the National Board of Fire Underwriters.
 - 2. For heating the thermoplastic material, the applicator equipment shall include melting kettle(s) of such capacity as to allow for continuous marking operations. The melting kettle(s) may be mounted on a separate "supply" vehicle or included as part of the application equipment. The kettle(s) shall be capable of automatically heating the thermoplastic material to, and maintaining it at an indicated gauge temperature of 420 degrees Fahrenheit to 430 degrees Fahrenheit. The heating mechanism shall be by means of thermostatically controlled indirect heat transfer medium. Direct heating of the melting kettle by flame will not be allowed.
 - 3. Thermoplastic material temperature gauges accurate to plus or minus 15 degrees Fahrenheit shall be provided at both ends of each kettle and reservoir, and in each extrusion shoe, in such a manner as to be visible and capable of monitoring the thermoplastic material temperature throughout the marking operation.
 - 4. Applicator equipment including separate "supply" kettles shall be constructed to provide continuous mixing and agitation of the thermoplastic material. Conveying parts of the equipment between the main material reservoir and the extrusion shoe(s) shall be so constructed as to prevent accumulation and clogging. All parts of the equipment that come into contact with material shall be so constructed as to be easily accessible and exposable for cleaning and maintenance. The equipment shall be constructed so that mixing and conveying parts, up to and including the extrusion shoe(s), maintain the material at the required application temperature.
 - 5. The applicator equipment shall be so constructed as to insure continuous uniformity in the dimensions of the stripe; shall provide a means for cleanly cutting off stripe ends squarely; shall provide a method of applying "skip" lines; and shall be capable of applying various widths of traffic markings from 3 to 12 inches wide.

6. The applicator equipment shall be equipped with a drop-on type bead dispenser capable of uniformly dispensing reflective glass spheres at controlled rates of flow up to 10 pounds per 100 square feet of thermoplastic material. The bead dispenser shall be automatically operated in such a manner that it will only dispense beads while the thermoplastic material is being applied.
7. Applicator equipment shall be mobile and maneuverable to the extent that straight lines can be followed, and normal curves can be made in a true arc.

F. Mobile Applicator Equipment

1. The mobile applicator shall be defined as a truck mounted, self-contained pavement marking machine that is capable of hot applying thermoplastic by the extrusion method. The unit shall be equipped to maintain and apply the thermoplastic material at an indicated gauge temperature of 420 degrees Fahrenheit, and at the widths and thicknesses specified herein. The mobile unit shall be capable of operating continuously and of installing a minimum of 20,000 linear feet of longitudinal markings in an 8-hour day.
2. The mobile applicator shall be equipped with melting kettle(s) or materials storage reservoir(s) and glass bead hopper of such capacity as to allow for continuous marking operations. The kettle(s) or reservoir(s) shall be capable of heating and/or holding the thermoplastic material at an indicated gauge temperature of 420 degrees Fahrenheit.
3. The mobile applicator shall be equipped with an extrusion shoe(s), and shall be capable of marking edge-line and centerline stripes. The extrusion shoe(s) shall be closed, heat jacketed, or suitably insulated units; shall apply the molten thermoplastic at an indicated gauge temperature greater than 415 degrees Fahrenheit; shall be capable of extruding a uniform line pre-set at 3 to 12 inches wide at a thickness of not more than 1/8 inch nor more than 3/16 inch.
4. The mobile applicator shall be equipped with an electronic and programmable line pattern control system, or mechanical control system, so as to be capable of applying skip or solid lines in any sequence, and through any extrusion shoe in any cycle length.

G. PORTABLE APPLICATOR EQUIPMENT

1. The portable applicator shall be defined as hand operated equipment, specifically designed for placing hot extruded thermoplastic installations such as crosswalks; stop bars; legends; arrows; and short lengths of lane, edge, and centerlines. It is intended that the portable applicator reservoir will be loaded with hot thermoplastic material from the supply vehicle melting kettle(s).
2. The portable applicator shall be equipped with all the necessary components, including the material storage reservoir, glass bead hopper, temperature gauges, bead dispenser, extrusion shoe, and heating

accessories, so as to be capable of holding and applying the molten thermoplastic at indicated gauge temperatures greater than 415 degrees F; of extruding a line of generally uniform cross-section, pre-set at 3 to 12 inches in width at a thickness of not less than 1/8 inch nor more than 3/16 inch.

H. Reflective Glass Spheres (Pre-Mix and Drop-On)

1. Reflective glass spheres for use in the composition and for drop-on shall conform to the following requirements:
2. The glass spheres shall be colorless, clean, and transparent, free from milkiness or excessive air bubbles, and essentially free from surface scarring or scratching. They shall be spherical in shape and at least 70% of the glass beads shall be true spheres when tested in accordance with ASTM D 1155.
3. The refractive index of the spheres shall be a minimum of 1.50 as determined by the liquid immersion method at 25 degrees Celsius true.
4. The silica content of the glass spheres shall not be less than 60%.
5. The crushing resistance of the spheres shall be as follows: A 40-lb dead weight, for 20 to 30 mesh spheres, shall be the average resistance when tested in accordance with ASTM D 1213.
6. The glass spheres shall have the following grading when tested in accordance with ASTM D 1214.

U.S. Standard Sieve Mass	% Passing
No. 20	100
No. 30	79-95
No. 50	15-60
No. 80	0-15

7. Glass spheres for drop-on shall be treated with a moisture-proof coating meeting the flow requirements of AASHTO M 247 Section 4.4.2, shall not absorb moisture during storage, shall remain free from clusters, and shall flow freely from dispensing equipment.

I. Permanent Marking Tape

1. Permanent marking tape shall have a nominal width of 4 inches and shall consist of a yellow or white, weather and traffic resistant film on a conformable, metallic foil backing precoated with a pressure sensitive adhesive. The tape shall be flexible and formable, and following application, shall remain conformed to the texture of the pavement surfaces.

1.5 THICKNESS

- A. The average thickness of the film, including glass spheres, shall be not less than 15 mils or more than 50 mils.

1.6 RETROREFLECTANCE

- A. The white or yellow tapes shall have the following initial minimum retroreflectance values at 1.05-degree observation angle and 88.76-degree entrance angle, measured by a Retrolux Model 1500 retroreflectometer:

	White	Yellow
Specific luminance, med/sq.ft./ft.- cdl.	550	325

Permanent marking tape materials shall conform to Iowa Department of Transportation (IDOT) IM 483.06.

B. Preformed Polymer Marking Material

1. The preformed polymer marking material shall consist of glass beads imbedded in a white or yellow, polymer film precoated with a pressure sensitive adhesive. The Contract 2. Documents will specify precut symbols and legends or tape to be made of preformed polymer marking material. The preformed polymer marking tape shall be a nominal width of 4 inches.

1.7 COLOR

- A. The color shall be white or yellow, conforming to standard highway markings.
- B. Thickness
1. The thickness of the marking film shall be from 60 mils to 90 mils, as measured to include adhesive and glass beads.

1.8 RETROREFLECTANCE

- A. The white or yellow tapes shall have the following initial minimum retroreflectance values at 1.0-degree observation angle and 88.76-degree entrance angle, measured by a Retrolux Model 1500 retroreflectometer.

	White	Yellow
Specific luminance, med/sq.ft./ft.- cdl.	325	150

Preformed polymer marking material shall conform to IDOT IM 483.06.

1.9 PRIMER

- A. Type III primer for use on both bituminous and Portland cement concretes shall be of the type recommended by the manufacturer of the thermoplastic material and shall be designed to dry track free in under 5 minutes.
- B. Packaging and Shipment

1. The thermoplastic material shall be manufactured in block form and packaged in suitable corrugated containers to which it will not adhere during shipment or storage. Each container shall weigh approximately 50 pounds and shall consist of blocks approximately 14 inches x 28 inches x 2¼ inches in size. Each container shall be sealed at the point of manufacture and plainly marked with the color, basic resin type (either hydrocarbon or alkaloid), manufacturer's name, batch number and date of manufacture. Each batch manufactured shall have its own separate number. The label shall warn the user that the material shall not be heated in excess of 440 degrees Fahrenheit gauge.
2. The reflective glass spheres for drop-on application shall be shipped in strong moisture resistant bags containing approximately 50 pounds. Each bag shall be marked with the name and address of the manufacturer, and the name and weight of the material, date of manufacture and batch number.
3. Type III primer shall be shipped in pails, drums or other strong substantial containers. Each container shall be plainly marked with the brand name of the product, the name and address of the manufacturer, the date of manufacture, the quantity of material, the date of expiration or shelf life, and appropriate hazard warnings. Type III primers shall be shipped to the construction site with instructions for use affixed to each container.

PART 2 - EXECUTION

2.1 PAVEMENT CLEANING

- A. Prior to executing the Work of this specification section, the pavement surface shall be cleaned by brooming, use of air hoses, or other methods, as necessary. At the time of placing permanent pavement markings, the entire pavement shall be made free of foreign material. The Contractor shall determine the amount of cleaning effort required to achieve desired results.
- B. Sufficient time shall elapse after rain, sleet, snow, ice, dew or frost to permit the surface to become thoroughly dry both internally and externally.
- C. Pavement markings shall not be applied to any surface until the Engineer has inspected the surface and approved as being satisfactory for the application of striping materials.
- D. Pavement markings shall be applied at the locations and in accordance with the patterns and dimensions shown on the Contract Drawings and the FHWA Manual on Uniform Traffic Control Devices.
- E. Before any pavement marking work is begun, a schedule of operations shall be submitted to the Engineer for approval.

- F. When pavement markings are applied under traffic conditions the Contractor shall provide all necessary qualified personnel, flags, markers, signs, etc. to maintain and protect traffic, and to protect marking operations and the new markings until thoroughly set. Short duration lane and work area closures shall be done in accordance with specification section 01 55 26.
- G. The application of pavement markings shall be done in the general direction of traffic. Striping against the direction of traffic flow shall not be allowed.
- H. The Contractor shall be responsible for removing, to the satisfaction of the Engineer, all tracking marks, spilled thermoplastic, and thermoplastic applied in unauthorized areas.
- I. When necessary, the Contractor shall establish marking alignment points at 25-foot intervals throughout the length of the marking area or as otherwise approved by the Engineer.
- J. Unsatisfactory lines, resulting from the presence of dirt, scale, moisture or where pavement striping has been erroneously applied due to mistakes, spillage or drippage, shall be removed by the Contractor at his own expense to the approval of the Engineer.
- K. On all sections of a primary road open to traffic, the Contractor shall place temporary or permanent pavement markings on any part where construction operations have obliterated the existing marking.
- L. If, due to unavoidable circumstances, the Contractor is not able to complete the temporary or permanent pavement marking or removal specified for that day, the Contractor shall provide or continue to provide traffic control until the pavement marking work is completed.
- M. When the installation of preformed polymer pavement marking material is in conjunction with placement of hot mix asphaltic mixtures, the performed polymer shall be inlaid by positioning on the hot mixture prior to the final rolling. Install preformed polymer marking material in accordance with the manufacturer's recommendations.
- N. When permanent markings are placed on newly completed Portland cement concrete pavements, the existing curing compound film shall be removed from horizontal surfaces. Curing compound film need not be removed from curbs or other vertical surfaces. Removal shall not damage the underlying Portland cement concrete pavement.

2.2 TRAFFIC PAINT

- A. Waterborne traffic paint materials shall not be applied when air or surface temperature is below 40°F.
- B. Volatile Organic Content (VOC) compliant solvent borne paint shall not be applied when air or surface temperature is below 32°F.
- C. The application of the traffic paint, including mixing and thinning of traffic paint, equipment pressures and operating speed of equipment shall be in accordance with the material manufacturer's instructions and recommendations.
- D. The Contractor shall apply 4-to-6-inch-wide line striping, at the locations and of the color specified on the Contract Drawings or required by the Engineer. Included in this area are letters or traffic arrows and symbols as shown on the Contract Drawings.
- E. The traffic paint shall be applied at a coverage rate of not less than 100 square feet, and not more than 110 square feet of surface per gallon of binder, yielding a film thickness of 0.015 inch.
- F. The Contractor shall schedule striping operations so as to permit the paint to have set and hardened (generally 1 hour after application) before the roadway is opened to traffic.
- G. Striping machines shall be cleaned at the end of each day and more frequently if necessary to ensure the application of lines the specified quality and physical requirements.

2.3 THERMOPLASTIC REFLECTIVE PAVEMENT MARKINGS

- A. All pavement surfaces (new and existing) to be marked shall be primed with Type III primer applied to bituminous concrete and/or Portland Cement concrete pavements at the rates and in accordance with the recommendations of the manufacturer of the thermoplastic material. The primer shall dry tack-free in less than 5 minutes.
- B. Thermoplastic pavement markings shall be placed upon dry pavement surfaces. At the time of installation the pavement surface temperature shall be a minimum of 55 degrees Fahrenheit and the ambient temperature shall be a minimum of 49 degrees Fahrenheit and rising. The Engineer will determine when atmospheric conditions are such as to produce satisfactory results.
- C. The thermoplastic material shall be applied at an indicated gauge temperature no lower than 415 degrees Fahrenheit at the point of deposition. For purposes of these Specifications, the point of deposition shall be defined as within the extrusion shoe.

- D. Immediately following application, reflective glass spheres shall be dropped onto the molten thermoplastic marking at the rate of 5 lb per 100 square feet of composition.
- E. Upon cooling to ambient pavement temperature, the resultant marking shall be an adherent reflectorized strip of the specified thickness and width, capable of resisting deformation by traffic.

2.4 REMOVAL OF PAVEMENT MARKINGS

- A. Existing pavement markings in the newly marked traffic lanes that are confusing, conflicting, or misleading to traffic shall be removed. The Engineer may designate other pavement markings for removal to maximize the effectiveness of the traffic control plan.
- B. Pavement markings remaining after the removal process is completed shall not be visible during daytime or nighttime. Tape markings shall be removed in accordance with manufacturer's recommendations. Removal process shall not cause functional damage to the transverse or longitudinal joint sealant materials.
- C. Pavement marking removal operations shall be conducted in a manner so that the finished pavement surface is not damaged or left in a pattern that may mislead or misdirect the motorist.
- D. When the operations are completed, the pavement surface shall be power broomed and any marking removal debris shall be removed from the pavement surface before the pavement is open to public traffic. The limits of pavement marking removal shall be not less than the width of the existing or new pavement markings plus 1 inch. When symbols or legends are removed, the area of removal shall cover the entire area of the existing symbol or legend.
- E. Removal will not be required prior to being covered by a construction process unless specified in the Contract Documents. Removal of pavement markings may be by vacuum blasting, vacuum dry grinding, wet grinding, shot blasting, or high-pressure water blasting. Open abrasive blasting or dry grinding without containment will not be allowed.
- F. Pavement marking removal equipment shall provide the following:
 - 1. Operate without the release of dust.
 - 2. Recover all removed material.
- G. Include a waste collection and transfer system. For dry wastes, the system shall incorporate High Efficiency Particulate Absolute (HEPA) methods and equipment.
- H. Removal operations may be halted if the process and final result is not acceptable to the Engineer.

- I. Material collected shall be removed and disposed of in accordance with all applicable Federal and State regulations.

END OF SECTION

SECTION 33 42 11 - STORMWATER GRAVITY PIPING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Furnishing labor, materials, services, equipment, incidentals, and other necessary items to construct storm sewers and pipe culverts (including couplings, fittings and cleanouts) with connections to manholes, inlets and appurtenances in accordance with these Specifications and in conformity with the lines and grades shown on the Plans. Construction also includes surface preparation, trench excavation, shoring, dewatering, laying pipe and joining pipe to appurtenances, bedding and backfilling, preparation for surface restoration and other related work.
- B. Set lines, elevations, and grades for storm sewer work and control system for duration of work, including careful maintenance of benchmarks, property corners, monuments or other reference points.

1.2 RELATED REQUIREMENTS

Section 31 10 00 - Site Clearing
Section 31 22 00 - Grading
Section 31 23 23 - Excavation, Backfill and Compaction for Utilities
Section 31 25 00 - Erosion and Sedimentation Controls
Section 31 37 00 - Site Clearing
Section 33 05 13 - Various Manholes and Structures
Section 33 14 11 - Water Utility Transmission Piping
Section 33 31 00 - Sanitary Sewerage Piping

1.3 REFERENCES

The following is a list of standards, which may be referenced in this section:

ASTM International (ASTM):

ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

ASTM C76 Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.

ASTM C150 Standard Specification for Portland cement.

ASTM C260 Standard Specification for Air-Entraining Admixtures for Concrete.

ASTM C361 Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.

ASTM C443 Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.

ASTM C506 Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe.

ASTM C507 Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.

ASTM C655 Standard Specification of Reinforced D-Load Culvert, Storm Drain and Sewer Pipe.

ASTM C827 Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures.

ASTM C990 Standard Specifications for Joints in Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

ASTM C1417 Standard Specification for Reinforced Concrete Sewer, Storm Drain and Culvert Pipe for Direct Design.

ASTM C1479 Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installation.

ASTM C1619 Standard Specifications for Elastomeric Seals for Joining Concrete Pipe.

ASTM C1628 Standard Specifications for Joints for Concrete Gravity Flow Sewer Pipe, Using Rubber Gaskets.

ASTM F794 Standard Specifications for PVC Profile, gravity sewer pipe with bell-and-spigot ends for gasketed joints.

ASTM D3034 Standard Specifications for PVC Fittings with Bell Ends

ASTM F477 Standard Specifications for Elastomeric Seal Gaskets

ASTM D3034 Standard Specifications for SDR 35 PVC Type PSM Sewer Pipe and Fittings with bell-and-spigot ends for gasketed joints.

ASTM D2751 Standard Specifications for ABS Pipe and Fittings with bell-and-spigot ends for gasketed joints

NPS 3 to NPS 6: SDR 35

NPS 8 to NPS 12: SDR 42

ASTM A760 or AASHTO M 274 Standard Specifications for Aluminized “Ultra-Flo” Pipe, to be manufactured with 3/4”x3/4”x7-1/2” external ribs. Aluminized Steel Type 2 coils shall conform to the applicable requirements of ASTM A929 or AASHTO M 274.

ASTM F2306 or AASHTO M 294 Standard Specifications for Corrugated Smooth Interior High Density Polyethylene Pipe (HDPE)(12” - 60”).

AASHTO M252 Standard Specifications for Corrugated Smooth Interior High Density Polyethylene Pipe (HDPE) (4” - 10”).

1.4 DEFINITIONS

FRP: Fiberglass-reinforced plastic.

RCP: Reinforced Concrete Pipe

HDPE: High Density Corrugated Polyethylene Pipe

PVC: Polyvinyl Chloride Pipe

CMP: Corrugated Metal Pipe

1.5 SUBMITTALS

- A. Submit catalog materials, shop drawings on pipe, fittings, and special accessories to Engineer.
- B. Submittals shall include ASTM designations, labeling, and certifications.
- C. Unless otherwise specified, the shop drawings shall show the exact dimension of the joints including the permissible tolerances for each size of pipe being furnished and the size, type and locations of gasket materials. Approval of the

joint detail drawings shall not relieve contractor of any responsibilities to meet all of the requirements of these specifications, or of the responsibility for correctness of contractor's details.

- D. Contractor shall cooperate with Owner's Representative in obtaining and providing samples of all specified materials.
- E. Contractor shall submit certified laboratory test certificates for all items required in this section.
- F. Reports and calculations for design mixes for each class of cast-in-place concrete.
- G. Coordination drawings showing structures, pipe sizes, locations, and elevations. Include details of underground structures and connections. Show other piping in same trench. Indicate interface and spatial relationship between piping and proximate structures.
- H. Inspection and test reports as specified herein.

1.6 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Responsibility for Material:
 - 1. Contractor shall be responsible for all materials intended for the work that are delivered to the construction site and accepted by contractor. Payment shall not be made for materials found to be defective or damaged in handling after delivery and acceptance. Defective or damaged materials shall be removed and replaced with acceptable materials at contractor's expense.
 - 2. Contractor shall be responsible for the safe and proper storage of such materials.
- B. Pipe Acceptance:
 - 1. In addition to any deficiencies not covered by ASTM C76 for non-pressurized pipe, ASTM C361 for low head pipe or ASTM C507 for elliptical pipe, concrete pipe, which has any of the following visual defects, will not be accepted.
 - 2. Porous spots on either the inside or the outside surface of a pipe having an area of more than ten (10) square inches and a depth of more than one-half (1/2) inch.
 - 3. Pipe, which has been patched to repair porous spots, cracks, or other defects, when such patching was not approved by Owner's Representative.
 - 4. Exposure of the reinforcement when such exposure would indicate that the reinforcement is misplaced.

5. Pipe that has been damaged during shipment or handling even previously approved before shipment.
6. Acceptance of the pipe at point of delivery shall not relieve Contractor of full responsibility for any defects in materials due to workmanship.

C. Pipe Handling:

1. Pipe and accessories furnished by contractor shall be delivered to, unloaded, and distributed at the site by contractor. Each pipe shall be unloaded adjacent to or near the intended laying location.
2. Pipe fittings, specials, valves, and appurtenances shall be unloaded and stored in a manner that precludes shock or damage. Such materials shall not be dropped.
3. Pipe shall be handled in a manner intended to prevent damage to the pipe ends or to any coating or lining. Pipe shall not be skidded or rolled against adjacent pipe. Damaged coatings or lining shall be repaired by contractor, at contractor's expense in accordance with the recommendations of the manufacturer and in a manner satisfactory to Owner's Representative. Physical damage to the pipe or accessory shall be repaired by contractor at contractor's expense, and in a manner satisfactory to Owner's Representative.
4. Materials delivered to the site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. Gasket materials and plastic materials shall be protected from exposure to the direct sunlight over extended periods.
5. Materials shall be handled in such a manner as to insure delivery to the trench in sound, undamaged condition. Pipe shall be carried to the trench, not dragged.
6. Gasket storage: all gaskets shall be stored in a cool place, preferably at a temperature of less than 70°F, and in no case shall the gaskets be stored in the open, or exposed to the direct rays of the sun.
7. Do not store plastic pipe or fittings in direct sunlight.
8. Protect pipe, pipe fittings, and seals from dirt and damage.

1.8 QUALITY ASSURANCE

- A. Environmental Agency Compliance: Comply with regulations pertaining storm drainage systems.
- B. Utility Compliance: Comply with regulations pertaining to storm drainage systems. Include standards of water and other utilities where appropriate.
- C. Product Options: Drawings indicate sizes, profiles, connections, and dimensional requirements of system components and are based on specific manufacturer types indicated. Other manufacturers' products with equal performance characteristics may be considered. Refer to Section "Product Requirements."

- D. Pipe materials shall bear label, stamp, or other markings of specified testing agency.

1.9 PROJECT CONDITIONS

- A. Site Information: Perform site survey, research public utility records, and verify existing utility locations. Notify architect of potential utility conflicts prior to installation of pipe system.
- B. Locate existing structures and piping to be closed and abandoned.
- C. Prior to commencing construction in public right-of-way and connecting to any public storm drain systems, contractor shall contact the agency of authority and obtain necessary permits.
- D. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted under the following conditions and then only after arranging to provide acceptable temporary utility services.
- E. Notify Architect not less than 48 hours in advance of proposed utility interruptions.
- F. Do not proceed with utility interruptions without receiving Architect's written permission.

PART 2 - PRODUCTS

2.1 PIPES AND FITTINGS

- A. General: Provide pipes of the following material, of weight/class indicated. Provide pipe fittings and accessories of same material and weight/class as pipes with joining method as indicated.
- B. PVC Storm Drainpipe and Fittings, NPS 15 and Smaller: ASTM D 3034, SDR 35, with bell-and-spigot ends for gasketed joints with ASTM F 477, elastomeric seals.
- C. ABS Pipe and Fittings: ASTM D2751 Standard Specifications for ABS Pipe and Fittings with bell-and-spigot ends for gasketed joints:
- D. NPS 3 to NPS 6: SDR 35
- E. NPS 8 to NPS 12: SDR 42
- F. High Density Polyethylene Pipe: ASTM F2306 or AASHTO M 294 Standard Specifications for Corrugated Smooth Interior High Density Polyethylene Pipe (HDPE) (12" - 60").

- G. High Density Polyethylene Pipe, Small Diameter: ASTM M252 Standard Specifications for Corrugated Smooth Interior High Density Polyethylene Pipe (HDPE) (4" - 10").

2.2 UNDERDRAINS

- A. General: Provide corrugated polyethylene perforated pipe underdrains with filter fabric trench envelope, and granular backfill as indicated.
- B. Pipe: ADS N-12 or approved equal.
- C. Fittings: ADS N-12 or approved equal.
- D. Filter Fabric: As per Section 02200, Earthwork.
- E. Granular Backfill: Class 1B materials per ASTM D2321.

2.3 NONPRESSURE-TYPE PIPE COUPLINGS

- A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined and corrosion-resistant-metal tension band and tightening mechanism on each end.
- B. Sleeve Materials:
 - 1. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
 - 2. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.
 - 3. For Concrete Pipes: ASTM C-443, rubber.
 - 4. For Cast-Iron Soil Pipes: ASTM C-564, rubber.
 - 5. For Fiberglass Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
 - 6. Unshielded Flexible Couplings: Elastomeric sleeve with stainless-steel shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.
 - 7. Source Limitations: Obtain shielded, flexible couplings from single manufacturer.
Description: ASTM C1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.
 - 8. Shielded Flexible Couplings: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.
 - 9. Source Limitations: Obtain shielded, flexible couplings from single manufacturer.
 - 10. Description: ASTM C1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

11. Ring-Type Flexible Couplings: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.
12. Source Limitations: Obtain ring-type, flexible couplings from single manufacturer.
13. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.4 CLEANOUTS

- A. Plastic Cleanouts:
 1. Description: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.

PART 3 - EXECUTION

3.1 INSTALLATION OF PIPE & PIPE FITTINGS

- A. General: Install piping in accordance with governing authorities having jurisdiction, except where more stringent requirements are indicated.
- B. General: Precautions shall be taken to prevent foreign material from entering the pipe before or while it is being placed in the line. During laying operations, no debris, tools, clothing or other materials shall be placed in the pipe. The open ends of pipe shall be closed with a watertight plug, or with other devices approved by Owner's Representative, at times when pipe laying is not in progress.
- C. General Locations and Arrangements: Drawings (plans and details) indicate the general location and arrangement of underground sewerage and drainage systems piping. Location and arrangement of piping layout take into account many design considerations. Install piping as indicated, to extent practical.
- D. Inspect piping before installation to detect apparent defects. Mark defective materials with white paint and promptly remove from site.
- E. The pipe and pipe coatings shall be inspected by Owner's Representative for damage or defects before being placed in the trench. Damaged or defective pipe shall not be installed.
- F. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed. Verify existing elevations prior to extensive excavating and notify Architect of any discrepancies. Contractor shall be liable for any premature construction which must be modified due to unforeseen existing conditions.

- G. Install gravity-flow-systems piping at constant slope between points and elevations indicated. Install straight piping runs at constant slope, not less than that specified, where slope is not indicated.
- H. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- I. Contractor shall install storm sewer pipe of the type, diameter, load class, wall thickness and protective coating that is shown on the drawings.
- J. Extend drainage piping and connect to building's storm drains, of sizes and in locations indicated. Terminate piping as indicated.
- K. Proper equipment, implements, tools and facilities shall be provided and used by Contractor for safe and convenient installation of the type of pipe being installed.
- L. Lay piping beginning at low point of system, true to grades and alignment indicated, with unbroken continuity of invert.
- M. Place bell ends of piping facing upstream.
- N. Install gaskets in accordance with manufacturer's recommendations for use of lubricants, cements, and other special installation requirements.
- O. Gaskets: No gaskets that show signs of deterioration, such as surface cracking or checking, shall be installed in a pipe joint. The neoprene gaskets used, when the air temperature is ten degrees Fahrenheit (10°F) or lower shall be warmed to temperature of sixty degrees Fahrenheit (60°F) for a period of thirty (30) minutes before being placed on the pipe.
- P. Concrete Pipe: Install in accordance with applicable provisions of ACPA "Concrete Pipe Installation Manual".
- Q. Plastic Pipe: Install in accordance with manufacturer's installation recommendations, and in accordance with ASTM D 2321.
- R. Gravity-flow, non-pressure drainage piping according to the following:
 - 1. Install piping pitched down in direction of flow, at minimum slope of 1 percent, unless otherwise indicated.
 - 2. Install PVC sewer piping according to ASTM D 2321 and ASTM F 1668.
- S. Pipe:
 - 1. Storm sewer pipe shall be installed in accordance with the manufacturer's recommendations for installing the type of pipe used, unless otherwise shown on the drawings.

2. Pipe lines shall be laid to the grades and alignment shown on the drawings or staked by Owner's Representative. Variation from the prescribed grade and alignment shall not exceed one-tenth (0.10) foot, and the rate of departure from, or return to, the established grade or alignment shall be not more than one (1) inch in ten (10) feet, unless approved by Owner's Representative. No deviation from grade shall cause a depression in the sewer invert that could retain fluids or solids.
3. Pipe with lifting holes shall be installed such that the lifting holes are in the crown of the pipe. All lifting holes shall be properly grouted with cement mortar immediately after the pipe is installed and prior to commencement of backfilling.
4. Pipe with lifting anchors shall be installed such that the lifting anchors are in the crown of the pipe. All lifting anchor recesses in the wall of the pipe at the lifting anchors need not be grouted.

T. Pipe Fittings:

1. Pipe fittings shall be laid so as to form a close concentric joint with the adjoining pipe to avoid sudden offsets of the flow line. Pipe sections shall be joined together in accordance with the manufacturer's recommendations.
2. Pipe fittings and appurtenances shall be carefully lowered into the trench with suitable tools or equipment to prevent damage to the pipe and protective coatings and linings; pipe and accessory materials shall not be dropped or dumped into the trench.

U. Flexible Plastic Joint Sealing Compound:

1. All surfaces of the tongue and groove or bell and spigot shall be primed with an approved priming compound prior to the installation of the sealing compound. The installation of the priming compound and the sealing compound shall be accomplished in strict accordance with the manufacturer's instructions, as to the method of application, quantity of material, the grade of the materials, and the application temperatures.
2. Gaskets installed on both male and female joint surfaces (double gasketing) shall be required for all deflected pipe joints, as well as arch or elliptical pipe joints.
3. Obstructions not shown on the drawings may be encountered during the progress of the WORK. Should such an obstruction require an alteration to the pipe alignment or grade, Owner's Representative will have authority to order a deviation from the drawings, or Owner's Representative may arrange for the removal, relocation, or reconstruction of any structure, which obstructs the pipeline.
4. Joints of precast concrete boxes and precast concrete pipe shall be grouted in accordance with the manufacturer's recommendations or as designated on the drawings.

- V. Cleaning Piping: Clear interior of piping of dirt and other superfluous material as work progresses. Maintain swab or drag in line and pull past each joint as it is completed.
 - 1. In large, accessible piping, brushes and brooms may be used for cleaning.
 - 2. Place plugs in ends of uncompleted conduit at end of day or whenever work stops.
 - 3. Flush lines between manholes if required to remove collected debris. Collect and dispose of debris removed from pipe legally off site.
 - 4. Install manholes for changes in direction if shown on plan, otherwise use fittings. Use fittings for branch connections unless direct tap into existing storm drain is indicated.
- W. Joint Adaptors: Make joints between different types of pipe with approved standard manufactured adaptors and fittings intended for that purpose.

3.2 STORM SEWER ABANDONMENT

- A. Plug:
 - 1. Prior to placing the sewer plug, verify the sewer line is not in use.
 - 2. Construct sewer plug by completely filling the end of the pipe with concrete. Force concrete into the end of the pipe for a distance of 16 inches, or one-half the pipe diameter, whichever is greater.
- B. Fill:
 - 1. Prior to filling the sewer, verify the sewer is not in use.
 - 2. If specified in the contract documents, fill the line to be abandoned with flowable mortar by gravity flow or pumping.

3.3 SURFACE PREPARATION

- A. Within Easement, Cultivated, Landscaped, or Agricultural Area:
- B. Topsoil shall be removed to a depth of eight (8) inches or the full depth of the topsoil, whichever is less. Topsoil shall be removed from the area to be excavated and stockpiled, or, Contractor may elect to import topsoil to replace that lost during excavation.
- C. Within Unpaved Roadway Areas: Contractor shall strip the cover material from graveled roadways or other developed, but unpaved traffic surfaces to the full depth of the existing surfacing. The surfacing shall be stockpiled to the extent that it is acceptable and useable for restoration purposes.
- D. Within Paved Areas:
 - 1. The removal of pavement, sidewalks, driveways, or curb and gutter shall be performed in a neat and workmanlike manner. Concrete pavement, asphalt, sidewalks, driveways, or curb and gutter shall be cut with a power saw to a depth of two (2) inches prior to breaking. The concrete shall be cut vertically in straight lines and avoiding acute angles.

2. Bituminous pavement, sidewalks, driveways, or curb and gutter shall be cut with a power saw, pavement breaker, or other approved method of scoring the mat prior to breaking or excavation. The bituminous mat shall be cut vertically, in straight lines and avoiding acute angles.
3. Any overbreak, separation, or other damage to the existing bituminous or concrete outside the designated cut lines shall be replaced at Contractor's expense.
4. Excavated paving materials shall be removed from the job site and shall not be used as fill or backfill.

3.4 DEWATERING

- A. All pipe trenches and excavation for structures and appurtenances shall be kept free of water during pipe laying and other related work. The method of dewatering shall provide for a dry foundation at the final grades of excavation. Water shall be disposed of in a manner that does not inconvenience the public or result in a menace to public health. Pipe trenches shall contain enough backfill to prevent pipe flotation before dewatering is discontinued. Dewatering shall continue until such time as it is safe to allow the water to rise in the excavation.

3.5 BEDDING AND BACKFILL

- A. Select bedding and backfill material may be required and shall be so shown on the drawings.
- B. Bedding material shall be placed under and around all pipes as shown on the drawings. Bedding shall be placed in a manner that will minimize separation or change in its uniform gradation. Bedding shall be distributed in eight-inch (8") maximum layers over the full width of the trench and simultaneously on both sides of the pipe. Special care shall be taken to ensure full compaction under the haunches and joints of the pipe.
- C. The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe or pipe arch. When necessary, the bedding shall be tamped.
- D. Backfill compaction shall not be attained by inundation or jetting, unless approved in writing by Owner's Representative. Backfill material shall be uniformly compacted the full depth of the trench.

3.6 CONCRETE CUTOFF COLLARS

- A. Concrete cutoff collars shall be placed around pipes as shown on the drawings or as directed by the Owner's Representative.

3.7 SURFACE RESTORATION

- A. All streets, alleys, driveways, sidewalks, curbs or other surfaces broken, cut or damaged by Contractor shall be replaced in kind or as shown on the drawings.

3.8 CLEAN UP

- A. All rubbish, unused materials, and other non-native materials shall be removed from the job site. All excess excavation shall be disposed of as specified, and the right-of-way shall be left in a state of order and cleanliness.

3.9 EXCAVATION FOR STORM SEWERS

- A. Excavation of trenches and for appurtenances and backfilling for culverts and storm sewers shall be in accordance with the applicable portions of Section 31 23 23 - Excavation, Backfilling, and Compaction for Utilities and the following requirements:
 - 1. The width of trenches at any point below the top of the pipe shall not be greater than the outside diameter of the pipe plus sufficient width to permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Sheeting and bracing where required shall be placed within the trench width as specified. Care shall be taken not to over excavate. Where trench widths are exceeded, redesign with a resultant increase in cost of stronger pipe or special installation procedures shall be necessary. Cost of this redesign and increased cost of pipe or installation shall be borne by the Contractor without additional cost to the Owner.
- B. Trenching:
 - 1. The width of trenches at any point below the top of the pipe shall not be greater than the outside diameter of the pipe plus sufficient width to permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Sheeting and bracing where required shall be placed within the trench width as specified. Care shall be taken not to over excavate. Where trench widths are exceeded, redesign with a resultant increase in cost of stronger pipe or special installation procedures shall be necessary. Cost of this redesign and increased cost of pipe or installation shall be borne by the Contractor without additional cost to the Owner.
- C. Removal of Rock:
 - 1. Rock in either ledge or boulder formation shall be replaced with suitable materials to provide a compacted earth cushion having a thickness between unremoved rock and the pipe of at least 8 inches or 1/2 inch for each foot of fill over the top of the pipe, whichever is greater, but not more than three-fourths the nominal diameter of the pipe.
- D. Removal of Unstable Materials:
 - 1. Where wet or otherwise unstable soil incapable of properly supporting the pipe, as determined by the Engineer, is unexpectedly encountered in the bottom of a trench, such material shall be removed to the depth required and replaced to the proper grade with select granular material, and compacted as directed by the Engineer. When removal of unstable material is due to the fault or neglect of the Contractor in his performance of shoring and sheeting, water removal, or other specified requirements, resulting material shall be excavated and replaced at the Contractor's expense.

3.10 BACKFILLING

- A. Backfilling Pipe in Trenches:
 - 1. After the pipe has been properly bedded, selected material from excavation or borrow, at a moisture content that will facilitate compaction, shall be placed along both sides of pipe in layers not exceeding 8 inches in compacted depth. The backfill shall be brought up evenly on both sides of

the pipe for the full length of pipe. Care shall be taken to insure thorough compaction of the fill under the haunches of the pipe. Each layer shall be thoroughly compacted with mechanical tampers or rammers. This method of filling and compacting shall continue until the fill has reached an elevation of at least 12 inches above the top of the pipe. The remainder of the trench shall be backfilled and compacted by spreading and rolling or compacted by mechanical rammers or tampers in layers not exceeding the equipment used. Tests for density will be made as necessary to ensure conformance to the compaction requirements specified elsewhere in this paragraph.

B. Compaction:

1. General:

- a. Cohesionless materials include gravels, gravel-sand mixtures, sands, and gravelly sands. Cohesive materials include clayey and silty gravels, gravel-silt mixtures, clayey and silty sands, sand-clay mixtures, clays, silts, and very fine sands. When results of compaction tests for moisture-density relations are recorded on graphs, cohesionless soils will show straight lines or reverse-shaped moisture-density curves, and cohesive soils will show normal moisture-density curves.

C. Minimum Density:

1. Backfill over and around the pipe and backfill around and adjacent to drainage structures shall be compacted at the approved moisture content to the following applicable minimum density (densities) which will be determined as specified in Section 31 2322 - Trenching, Backfilling, and Compacting.

D. Determination of Density:

1. Testing shall be performed by an approved commercial testing laboratory or by the Owner at no cost to the Contractor. Tests shall be performed in sufficient number to insure that specified density is being obtained. Laboratory tests for moisture-density relations shall be made in accordance with ASTM D 698 Standard Proctor.

3.11 SEPARATION OF WATER MAINS AND SEWERS

- A. The Contractor shall install all water lines and/or sanitary sewer lines in accordance with the following. This Work will be absorbed into other bid items unless there is a specific bid item for this Work.
- B. Water Supply Interconnections: There shall be no physical connection between a public or private potable water supply system and a sewer, or appurtenance thereto, which would permit the passage of any sewage or polluted water into the potable water system. Water main bleeders into sanitary sewers are prohibited.

No water pipe shall pass through or come in contact with any part of a sewer manhole.

- C. Relation to Sanitary and Storm Sewer Mains: Maintain separation of water main from sewer piping in accordance with City of Duarte requirements.
- D. Horizontal Separation: Sewers shall be laid at least 10 feet horizontally from any existing or proposed water main, measured edge to edge of piping. In cases where it is not practical to maintain a 10 foot separation, SDDENR may allow deviation on a case-by-case basis, if supported by data from the Engineer. Such deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer.
- E. If it is impossible to obtain proper horizontal separation as described above, both the water main and sewer shall be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of SDDENR and be pressure tested to 150 psi to assure water tightness before backfilling.
- F. Vertical Separation: Minimum 18 inches between water main and sewer pipe measured edge to edge of piping.
- G. Sewers Crossing Under Water Mains: The sewer shall be laid to provide a minimum of 18 inches from the top of the sewer to the bottom of the water main. The crossing shall be arranged so the sewer joints will be equidistant and as far as possible from the water main.
- H. Sewers Crossing Over Water Mains: Either the water main or the sewer main must be encased in a watertight carrier pipe that extends 10 feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be PVC, ABS, or HDPE and the ends sealed with a rubber gasket or boot.
- I. Special Conditions: When it is impossible to obtain the proper horizontal and vertical separation as stipulated above, one of the following methods shall be specified:
- J. Water Pipe: The sewer shall be designed and constructed equal to water pipe and shall be pressure tested at 150 psi prior to backfilling to assure water tightness; or,
- K. Carrier Pipe: Either the water main or the sewer main may be encased in a watertight carrier pipe that extends 10 feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be PVC, ABS, or HDPE and the ends sealed with a rubber gasket or boot.

- L. Where water mains are to be installed in parallel with a sewer or a sewer manhole that is less than 10 feet away horizontally and is not at least 18 inches below the water main, the water main shall be encased in PVC or cast iron for the entire distance that the sewer is too close to the water main. If PVC, ABS, or HDPE is used as encasement material, the ends shall be adequately sealed with a rubber boot.

3.12 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
- C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.
- D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.
- F. Install gravity-flow, nonpressure drainage piping according to the following:
- G. Install piping pitched down in direction of flow.
- H. Install ductile-iron piping (if used) and special fittings according to AWWA C600 or AWWA M41.
- I. Install PVC sewer piping according to ASTM D 2321 and ASTM F 1668.
- J. Install PVC profile gravity sewer piping according to ASTM D 2321 and ASTM F 1668.

3.13 PIPE JOINT CONSTRUCTION

- A. General: Join and install pipe and fittings according to the following.
- B. Install with top surfaces of components, except piping, flush with final finished surface.

- C. Polyvinyl Chloride (PVC) Plastic Pipe and Fittings: As follows:
1. Join solvent-cement-joint pipe and fittings with solvent cement according to ASTM D 2855 and ASTM F 402.
 2. Join pipe and gasketed fittings with elastomeric seals according to ASTM D 2321.
 3. Join profile pipe and ribbed drain pipe and gasketed fittings with elastomeric seals according to ASTM D 2321 and manufacturer's written instruction.
 4. Install according to ASTM D 2321.
 5. System Piping Joints: Make joints using system manufacturer's couplings, except where otherwise specified.
 6. System Piping Joints: Make joints using system manufacturer's couplings, except where otherwise specified.
 7. Join gravity-flow, nonpressure drainage piping according to the following:
 8. Join ABS sewer piping according to ASTM D 2321 and ASTM D 2751 for elastomeric-seal joints.
 9. Join PVC corrugated sewer piping according to ASTM D 2321 for elastomeric-seal joints.
 10. Join PVC sewer piping according to ASTM D 2321 and ASTM D 3034 for elastomeric-seal joints or ASTM D 3034 for elastomeric-gasketed joints.
 11. Join PVC profile gravity sewer piping according to ASTM D 2321 for elastomeric-seal joints or ASTM F 794 for gasketed joints.
 12. Join dissimilar pipe materials with nonpressure-type flexible couplings.

3.14 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
- B. Submit separate reports for each system inspection.
- C. Defects requiring correction include the following:
- D. Alignment: Less than full diameter of inside of pipe is visible between structures.
- E. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
- F. Damage: Crushed, broken, cracked, or otherwise damaged piping.
- G. Infiltration: Water leakage into piping.
- H. Exfiltration: Water leakage from or around piping.

- I. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified:
 - 1. Reinspect and repeat procedure until results are satisfactory.\
 - 2. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
 - 3. Do not enclose, cover, or put into service before inspection and approval.
 - 4. Test completed piping systems according to requirements of authorities having jurisdiction.
 - 5. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
 - 6. Submit separate report for each test.
 - 7. Hydrostatic Tests: Test storm drain according to requirements of authorities having jurisdiction and the following:
 - 8. Allowable leakage is maximum of 50 gal./inch of nominal pipe size per mile of pipe, during 24-hour period.
 - 9. Close openings in system and fill with water.
 - 10. Purge air and refill with water.
 - 11. Disconnect water supply.
 - 12. Test and inspect joints for leaks.
 - J. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
 - 1. Exception: Piping with soiltight joints unless required by authorities having jurisdiction.
 - 2. Option: Test plastic piping according to ASTM F 1417.
 - 3. Option: Test concrete piping according to ASTM C 924.
 - 4. Force-Main Storm Drainage Piping: Perform hydrostatic test after thrust blocks, supports, and anchors have hardened. Test at pressure not less than 1-1/2 times the maximum system operating pressure, but not less than 150 PSIG.
 - K. PVC Piping: Test according to AWWA M23, "Testing and Maintenance" Chapter.
 - L. Air Tests: Test storm drainage according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
 - 1. Option: Test plastic gravity sewer piping according to ASTM F 1417.
 - 2. Leaks and loss in test pressure constitute defects that must be repaired.
 - 3. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.
- 3.15 FLUSHING AND TESTING STORM SEWER PIPELINES
- A. Visual Inspection:
 - 1. As work progresses, each section of pipe shall be examined for interior damage to the pipe or the lining and all joints shall be checked for smoothness and continuity.

2. Any chips, cracks, faulty joints, or other defects shall be corrected by the Contractor at his expense.
 - B. Pipeline Flushing:
 1. If, through inspection, it is determined the pipeline has debris, the Contractor, at the end of the job, shall flush the pipelines by means that are in accordance with good practice to insure that earth, sand, rocks or other foreign materials are removed from the interior of the pipeline.
 - C. Alignment and Deflection (PVC Storm Sewer):
 1. Sewer pipelines will be checked by the Engineer to determine whether any displacement of the pipe has occurred after backfilling.
 2. Deflection tests shall be performed by the Contractor on all PVC storm sewers. Deflection tests shall be conducted after the final backfill has been in place at least 30 days, but not more than 45 days after the final backfill has been in place.
 3. Deflection tests shall be made using a deflection gauge (mandrel) device or other rigid go-no-go approved device. The diameter of the deflection gauge device shall be 95 percent of the undeflected inside diameter of the flexible pipe. The Contractor shall be required to install the pipe in such a manner so that the diametric deflection of the pipe shall not exceed 5 percent. All pipes exceeding the 5 percent deflection shall be re-laid or replaced by the Contractor at no additional cost to the Owner.
 - D. Alignment and Grade (Concrete Storm Sewer):
 1. Pipelines will be checked by the Engineer to determine whether any displacement of the pipe has occurred after the trench has been bedded to an elevation 12 inches above the pipe and tamped as specified.
 - E. The test will be as follows:
 1. A light will be flashed between manholes, or, if the manholes have not as yet been constructed, between the locations of the manholes by means of a flashlight or by reflecting sunlight with a mirror.
 2. If the illuminated interior of the pipeline shows poor alignment, displaced pipe, earth or other debris in the pipe or any other kinds of defects, the defects, determined by the Engineer, shall be remedied by the Contractor at his own expense. Test will be repeated after completion of backfilling and any poor alignment, displaced pipe or other defects, as determined by the Engineer, shall be corrected by the Contractor at his own expense.
- 3.16 CLEANOUT INSTALLATION
- A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Install piping so cleanouts open in direction of flow in sewer pipe.
 - B. Use Light-Duty, top-loading classification cleanouts in earth or unpaved foot-traffic areas.

- C. Use Heavy-Duty, top-loading classification cleanouts in vehicle-traffic service areas.
- D. Set cleanout frames and covers in earth in cast-in-place concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding earth grade.
- E. Set cleanout frames and covers in concrete pavement and roads with tops flush with pavement surface.

3.17 DRAIN INSTALLATION

- A. Install type of drains in locations indicated.
- B. Use Light-Duty, top-loading classification drains in earth or unpaved foot-traffic areas.
- C. Use Heavy-Duty, top-loading classification drains in vehicle-traffic service areas.
- D. Embed drains in 4-inch minimum concrete around bottom and sides.
- E. Fasten grates to drains if indicated.
- F. Set drain frames and covers with tops flush with pavement surface.
- G. Assemble trench sections with flanged joints.
- H. Embed trench sections in 4-inch minimum concrete around bottom and sides.
- I. Install manufactured PE dry wells according to manufacturer's written instructions and the following:
 - 1. Assemble and install panels and cover.
 - 2. Backfill bottom of inside of unit with filtering material to level at least 12 inches above bottom.
 - 3. Extend effluent inlet pipe 12 inches into unit and terminate into side of tee fitting.
 - 4. Install filter fabric around outside of unit.
 - 5. Install filtering material around outside of unit.

3.18 CLEANING

- A. Clean interior of piping of dirt and superfluous materials. Flush with potable water.

END OF SECTION

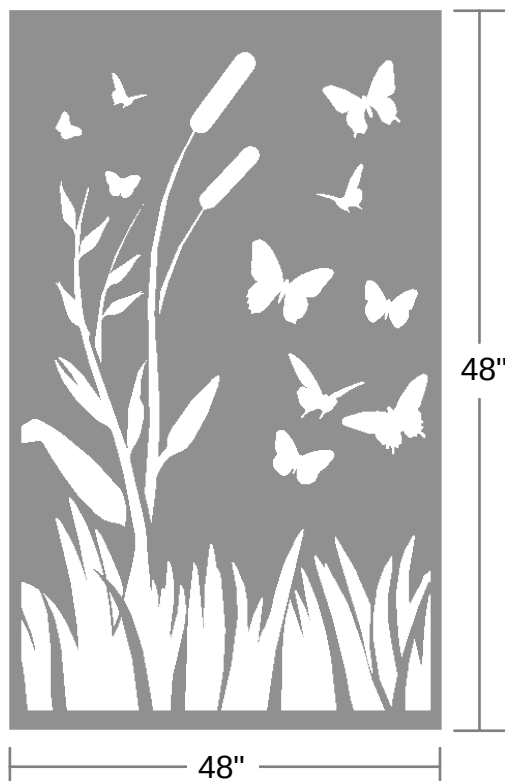
APPENDIX B – CUT SHEETS



ARTISAN
PANELS INC
FACTORY & SHOWROOM

Document Control Page 396 of 449
4900 E. Hunter Ave.
Anaheim, CA 92807
(714) 351-3234
sales@artisanpanels.com
www.artisanpanels.com
Instagram: /artisanpanels
Facebook: /artisanpanels

47 - Cattails & Butterfly's



% Openness:	24.50 %
Largest Opening:	Ø 5.780"
Smallest Opening:	Ø 0.250"
Border Dimension:	1.000" In.
Panel Size:	Any, up to 72"x144"
Scalable:	Yes
Thickness:	1/16", 1/8", 3/16", 1/4", 3/8" & 1/2"
Material Options:	Aluminum, Steel & Corten.
Color Options:	Any RAL or specialty finish available.
Mounting Options:	See below.

Mounting Options:



1/4" mounting holes around edge of panel



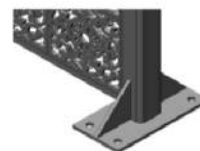
1/4" countersunk mounting holes around edge of panel



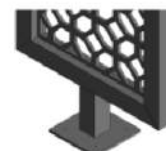
Cap head standoffs



Bolt on angle tabs



Welded square tube frame with floor mounts



Welded square tube frame with pedestal mounts



Hidden standoffs with tab mounts



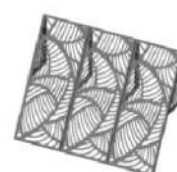
Welded on angle tabs



Welded square tube frame with extended tubes for concrete inset



Welded square tube frame



Welded square tube frame slanted awning



Cantilever awning

ULINE H-1662, H-2897 H-2898, H-3491 **SYSTÈME POUR DÉCHETS DE CHIENS**

1-800-295-5510
uline.ca

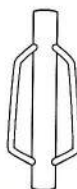
OUTILS RECOMMANDÉS



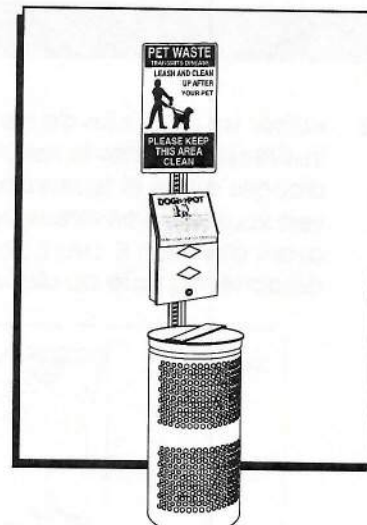
Niveau à bulles
(Optionnel)



Clé de 7/16 po



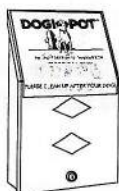
Dispositif d'insertion
de poteau



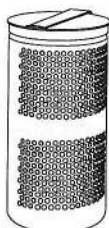
PIÈCES



Enseigne pour
système pour
déchets de chien
H-2898 x 1



Dévidoir pour
système pour
déchets de chien
H-2897 x 1



Récipient pour
système pour
déchets de chien
H-3491 x 1



Clé x 2
(inclus avec H-2897)



Échantillon de
sacs à déchets de
chien S-15585 x 2
(inclus avec H-2897)

MATÉRIEL D'INSTALLATION POUR H-1662-HDWR (Inclus avec H-2898 et H-3491)



Écrou x 2



Rondelle x 2



Boulon de 2 x 5/6
po x 2

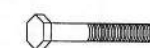
MATÉRIEL D'INSTALLATION POUR H-2897



Écrou de
blocage x 2



Rondelle x 4



Boulon de
2 1/2 x 1/4 po x 2

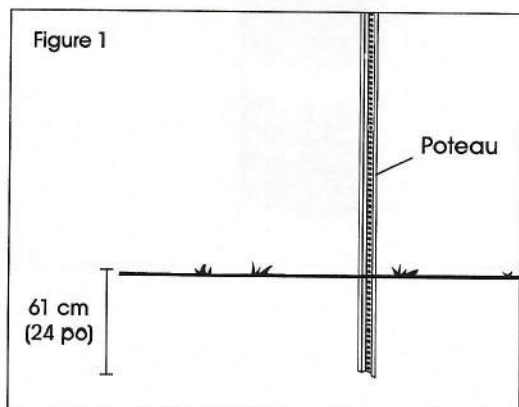
Poteau profilé en U pour système pour déchets de chien
H-1662 x 1

MONTAGE

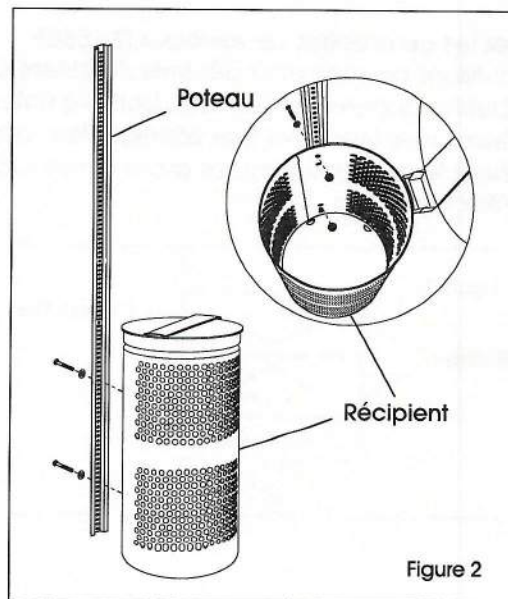


REMARQUE : Le système pour déchets de chien est conçu pour être installé sur un poteau carré ou profilé en U en acier de 2 x 2 po (matériel d'installation inclus). Il est recommandé d'effectuer l'installation sur un poteau profilé en U de 8 pi H-1662. Le système peut également être installé au mur, ou à une clôture ou un poteau en bois (matériel d'installation non inclus).

1. Enfoncez le poteau H-1662 à environ 61 cm (24 po) dans le sol à l'emplacement désiré. (Voir Figure 1)

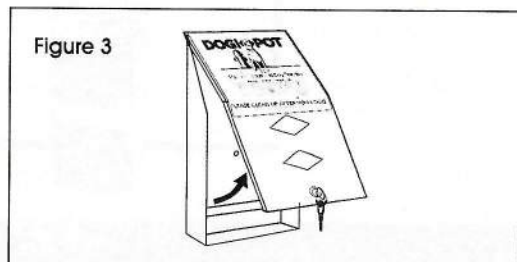


2. Installez le récipient pour déchets sur la section inférieure du poteau en utilisant les trous et le matériel d'installation H-1662-HDWR. (Voir Figure 2)

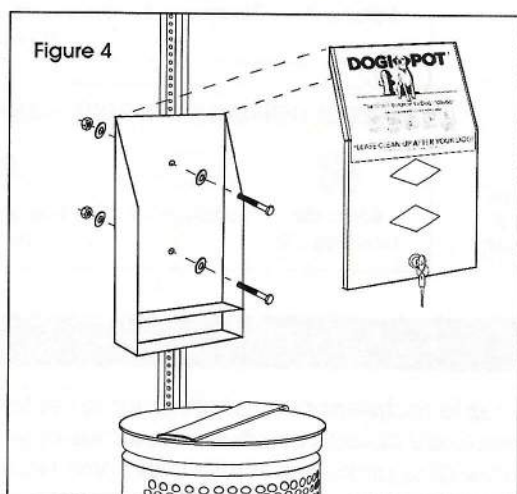


MONTAGE SUITE

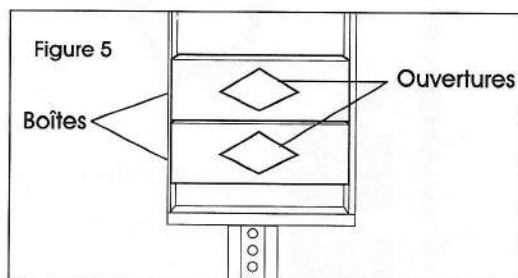
- Retirez les deux clés de l'arrière du distributeur. Insérez la clé dans la serrure située sur le panneau d'accès avant et tournez pour déverrouiller. Tirez vers vous la partie inférieure du panneau d'accès avant d'environ 5 cm (2 po) et soulevez-la pour la détacher du reste du distributeur. (Voir Figure 3)



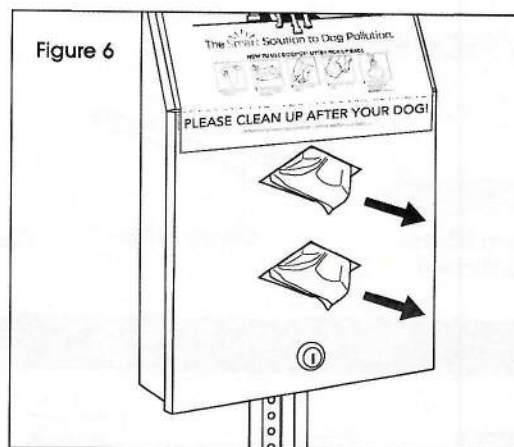
- Le panneau arrière du distributeur est doté de deux trous prépercés. Installez le panneau arrière du distributeur au poteau en acier à l'aide du matériel d'installation H-2897. (Voir Figure 4)



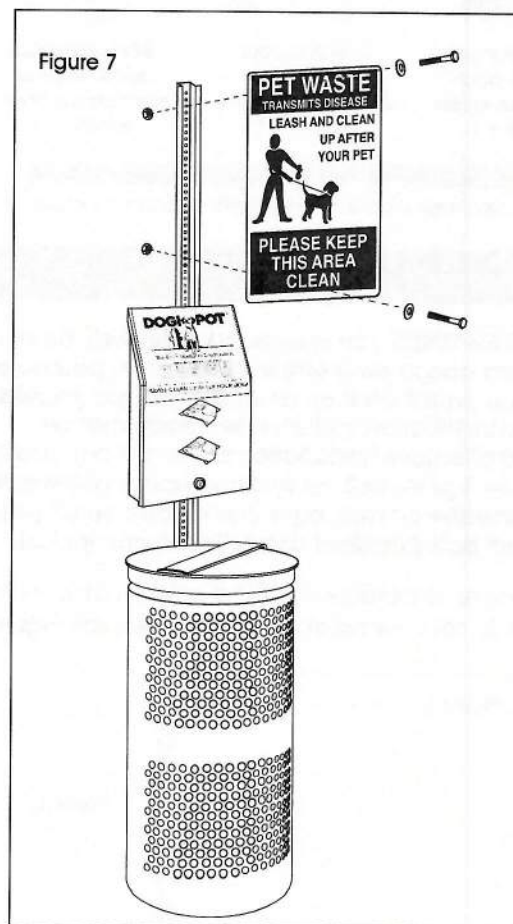
- Placez les deux boîtes de rouleaux (S-15585 échantillons de sacs pour déchets de chien) dans le distributeur. Superposez les deux boîtes à l'intérieur du distributeur, leur ouverture orientée vers l'avant. Remplacez le panneau d'accès avant et verrouillez à clé. (Voir Figure 5)



- Plongez la main à travers les deux ouvertures en losanges pour saisir le bord des sacs. Tirez les sacs jusqu'à ce qu'ils sortent du distributeur. (Voir Figure 6)



- Installez l'enseigne optionnelle en haut du poteau à l'aide du matériel d'installation H-1662-HDWR. (Voir Figure 7)



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ULINE H-1662, H-2897
H-2898, H-3491

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SISTEMA PARA DESECHOS

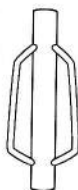
HERRAMIENTAS SUGERIDAS



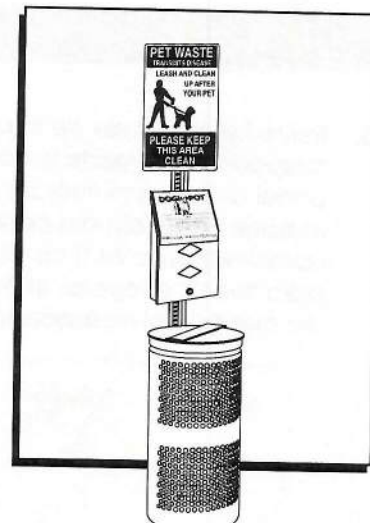
Nivel (opcional)



Llave de 7/16"



Conductor de Perforación para Poste



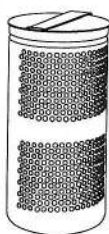
PARTES



1 Letrero del Sistema para Desechos Caninos H-2898



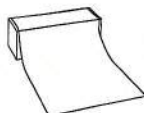
1 Despachador del Sistema para Desechos Caninos H-2897



1 Despachador del Sistema para Desechos Caninos H-3491



2 Llaves (Incluidas con H-2897)



2 Muestras de Bolsas para Desechos Caninos S-15585 (Incluidas con H-2897)

KIT DE TORNILLERÍA DEL H-1662-HDWR (Incluido con H-2898 y H-3491)



2 Tuercas



2 Rondanas



2 Pernos de 2" x 5/6"

KIT DE TORNILLERÍA DEL H-2897



2 Tuercas de Seguridad Medianas



4 Rondanas



2 Pernos de 1/2" x 1/4"

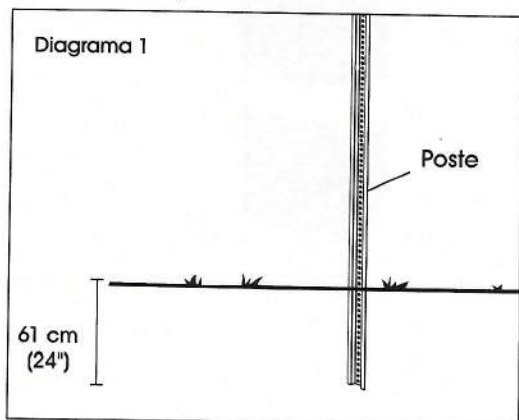
1 Poste Canal del Sistema para Desechos Caninos H-1662

ENSAMBLE

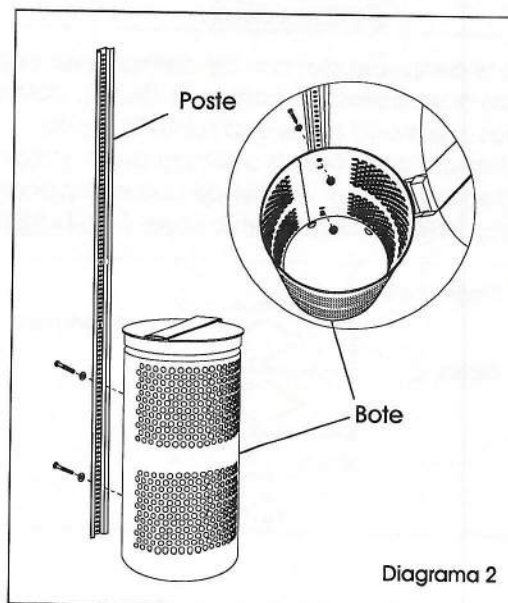


NOTA: El Sistema para Desechos Caninos está diseñado para instalarse en un poste cuadrado o poste canal de 2 x 2" (incluye tornillería). Se sugiere instalarlo al poste canal en u de 8 pies H-1662. Puede también instalar el sistema en una cerca, pared o poste de madera (no incluye la tornillería).

1. Introduzca el poste H-1662 aproximadamente 61 cm (24") en el suelo de la ubicación deseada. (Vea Diagrama 1)

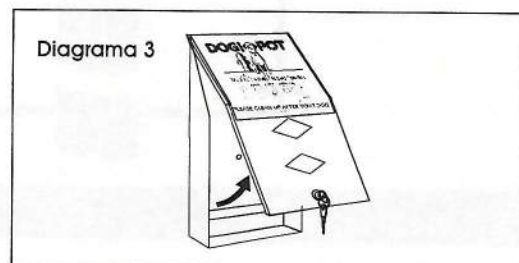


2. Instale el bote para desechos en la sección más baja del poste utilizando los orificios preperforados y el kit tornillería H-1662-HDWR. (Vea Diagrama 2)

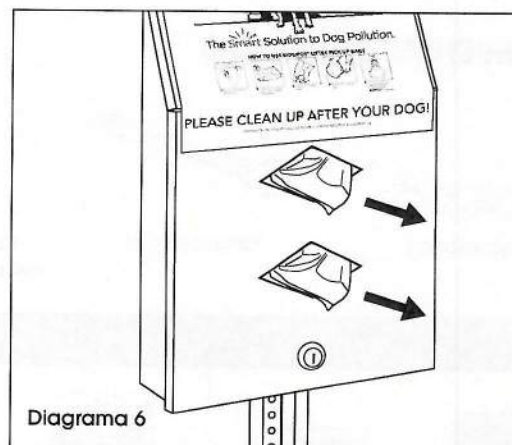


CONTINUACIÓN DEL ENSAMBLE

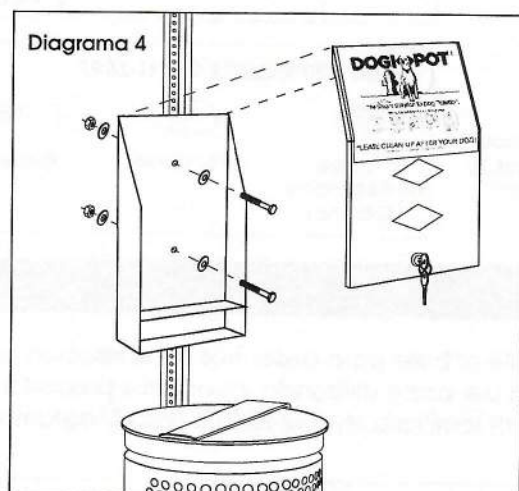
3. Retire las dos llaves de la parte posterior del despachador. Inserte la llave en la chapa en el panel del acceso frontal y gírela para abrir. Jale la parte más baja del panel del acceso frontal aproximadamente 5 cm (2") hacia usted y levante para liberar y separar el panel del acceso frontal del cuerpo del despachador. (Vea Diagrama 3)



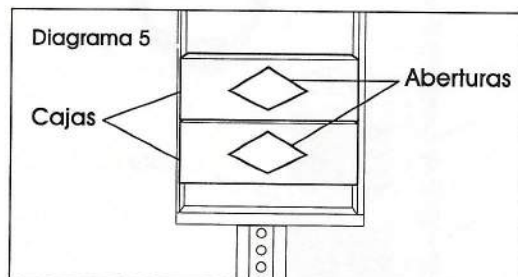
6. Busque a través de las aberturas con forma de diamante y encuentre la punta de las bolsas. Jale hasta sacar las bolsas del despachador. (Vea Diagrama 6)



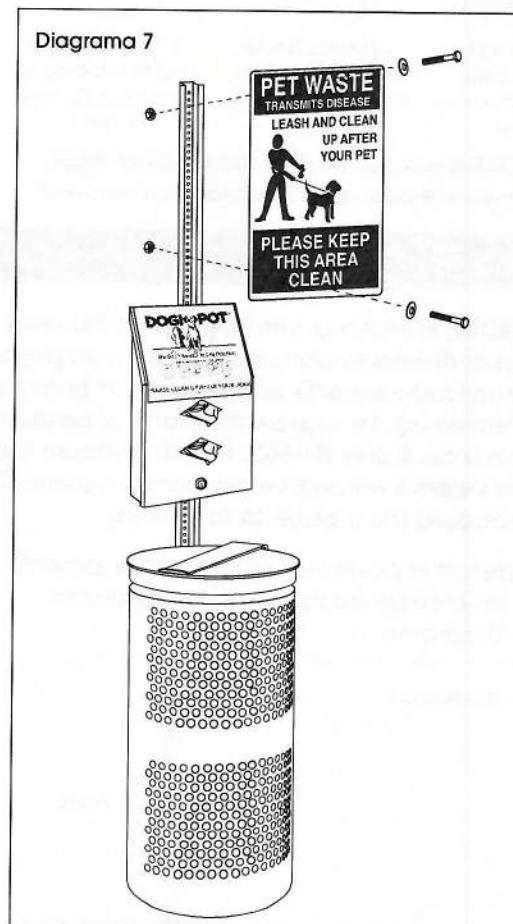
4. El despachador tiene dos orificios preperforados a través de la pared posterior. Instale la pared posterior del despachador al poste de acero utilizando el kit de tornillería H-2897. (Vea Diagrama 4)



5. Llene el despachador con los dos rollos en caja (bolsas para desechos caninos S-15585). Coloque las dos cajas una sobre otra sobre la repisa del despachador con la abertura de las cajas orientadas al frente. Instale de nuevo el panel del acceso frontal y cierre con la llave. (Vea Diagrama 5)



7. Instale el letrero opcional en la parte superior del poste utilizando el kit de tornillería H-1662-HDWR. (Vea Diagrama 7)



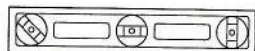
ULINE

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ULINE **H-1662, H-2897** **H-2898, H-3491** **DOG WASTE SYSTEM**

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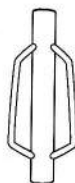
RECOMMENDED TOOLS



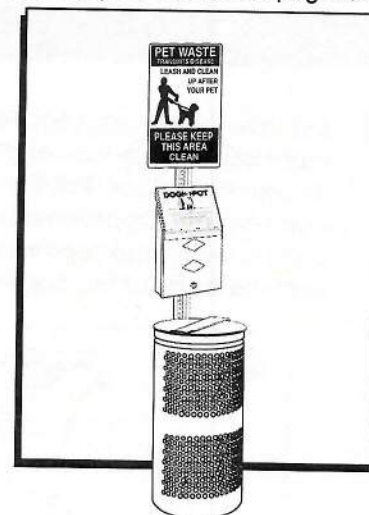
Level (optional)



7/16" Wrench



Post Hole Driver



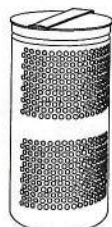
PARTS



Dog Waste System Sign, H-2898 x 1



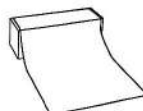
Dog Waste System Dispenser, H-2897 x 1



Dog Waste System Receptacle, H-3491 x 1



Key x 2
(Included with H-2897)



S-15585 Dog Waste Sample Bags x 2
(Included with H-2897)

H-1662HDWR HARDWARE KIT (Included with H-2898 and H-3491)



Nut x 2



Washer x 2



2 x 5/8" Bolt x 2

H-2897 HARDWARE KIT



Lock Nut x 2



Washer x 4



2 1/2 x 1/4" Bolt x 2

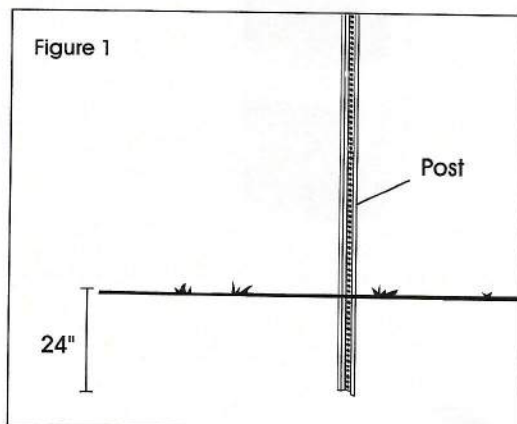


Dog Waste System Channel Post, H-1662 x 1

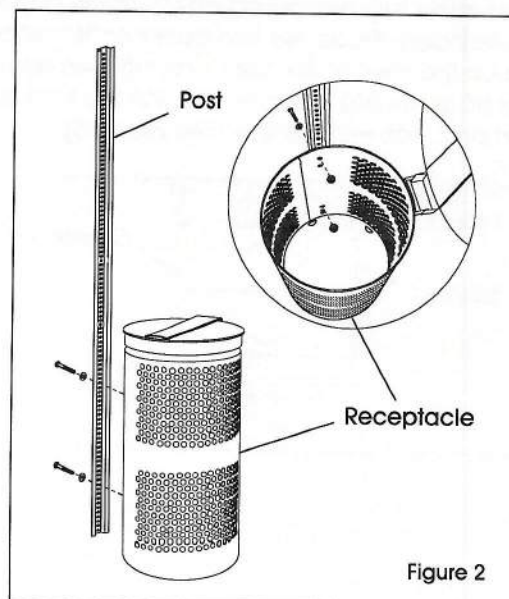
ASSEMBLY

NOTE: Dog Waste System is designed to mount to 2 x 2" steel square or channel post (hardware included). Recommend mounting to H-1662 8 ft. u-channel post. System can also be mounted to fence, wall or wood post (hardware not included).

1. Drive H-1662 post approximately 24" into ground at desired location. (See Figure 1)

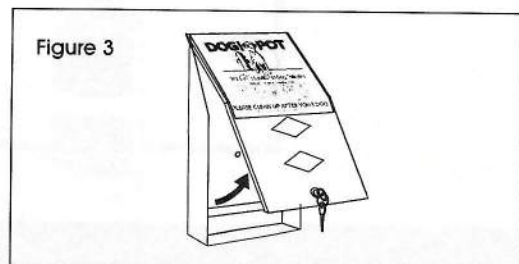


2. Mount waste receptacle to the lower section of post using the receptacle's pre-drilled holes and H-1662-HDWR hardware kit. (See Figure 2)

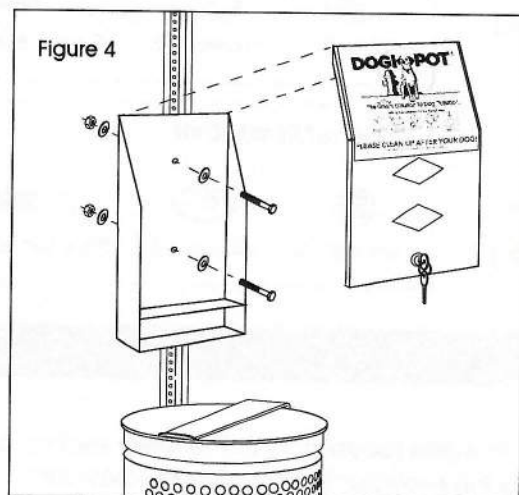


ASSEMBLY CONTINUED

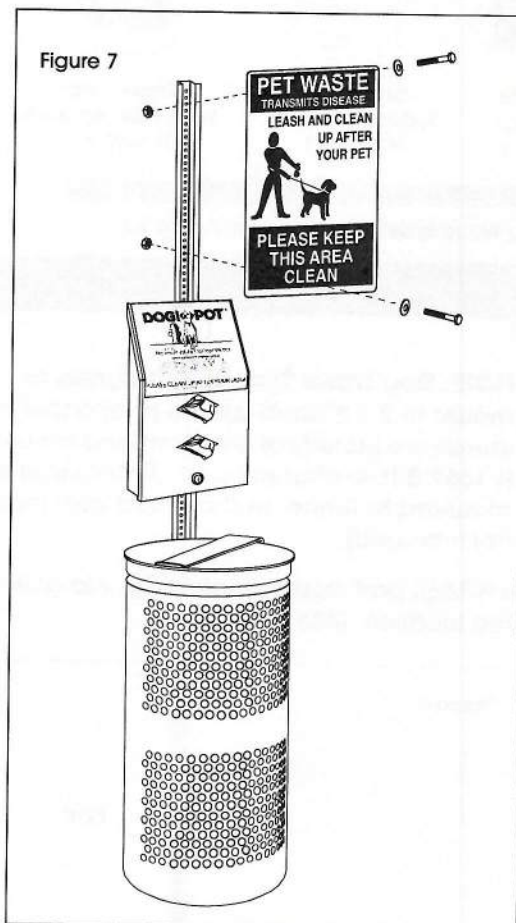
3. Remove the two keys from the back of the dispenser. Insert key into the lock on the front access panel and turn to unlock. Pull the lower part of the front access panel approximately 2" towards you and lift up to release and separate the front access panel from the body of the dispenser. (See Figure 3)
6. Reach through the two diamond-shaped openings and find the edges of the bags. Pull until the bags exit the dispenser. (See Figure 6)



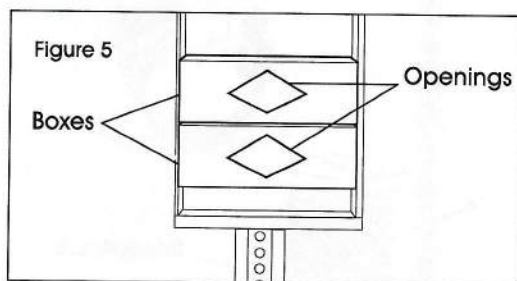
4. The dispenser has two pre-drilled holes through the back wall. Mount back wall of dispenser to steel post using the H-2897 hardware kit. (See Figure 4)



7. Mount optional sign to the top of the post using H-1662-HDWR hardware kit. (See Figure 7)



5. Fill dispenser with two boxed rolls (S-15585 dog waste sample bags). Place the two boxes on top of each other on the shelf of the dispenser with the opening of the boxes facing the front. Reinstall the front access panel and lock with the key. (See Figure 5)



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PRODUCT: Q1-TW108-B

WEIGHT: 1,7771 lbs.
(CUSTOMER TO OFFLOAD IF OVER 6000 Lbs.)

CONCRETE COLOR: ☐ NATURAL ☐ FRENCH GREY ☐ MISSION WHITE ☐ LATTE ☐ CUSTOM

CONCRETE TEXTURE: ☐ CRAFTSMANS ETCH ☐ HONED ☐ STRATA ☐ SMOOTH

QUANTITY: ____

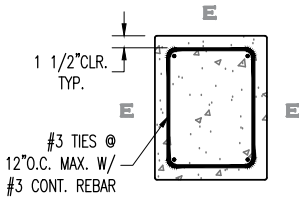
SEALER: PERMASHIELD 4200 SEALER

Authorized Signature

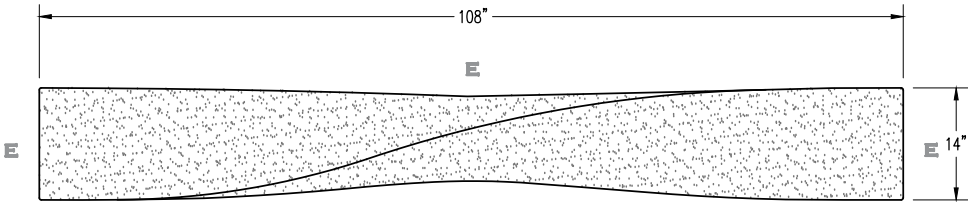
Date

By signing above or stamping this drawing "approved" or "no exception taken" authorization is give to QCP to produce this drawing as shown within a 1/4" tolerance.

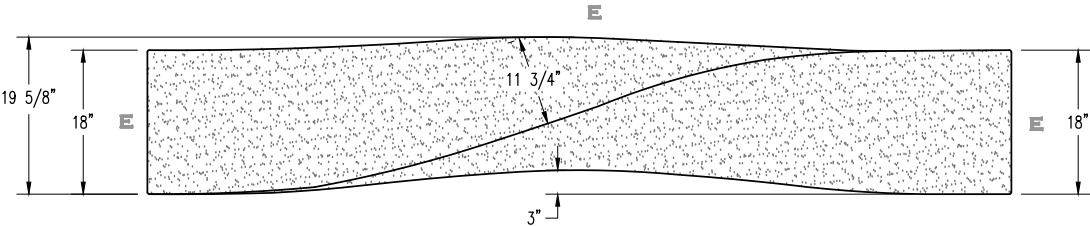
GENERAL PRODUCT NOTES:
E = EXPOSED FINISHED SURFACE
INSTALLATION IS REQUIRED BY OTHERS.
ALL EDGES TO BE EASED.
MANUFACTURING TOLERANCE ±1/4".
ANCHORING METHOD BY OTHERS



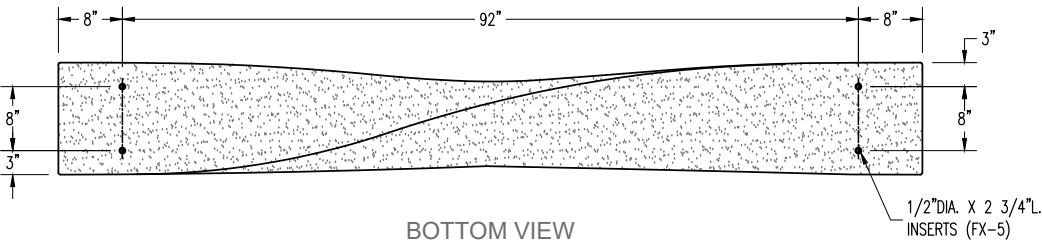
SECTION VIEW



PLAN VIEW



ELEVATION VIEW



BOTTOM VIEW



PLAN TYPE	CONSTRUCTION PLAN	DATE 6/6/23	FILE NO. Q1-TW108-B	SHEET 1
PRODUCT	Q1-TW108-B BENCH TWIST	SCALE 1/2" = 1'	DRAWN BY: ----	OF
PROJECT NAME		PC. NO.	QC ITEM NO.	1



PROJECT:

LOCATION:

BUILDING TYPE: LEF-8x14

ROOF TYPE: MULTI-RIB

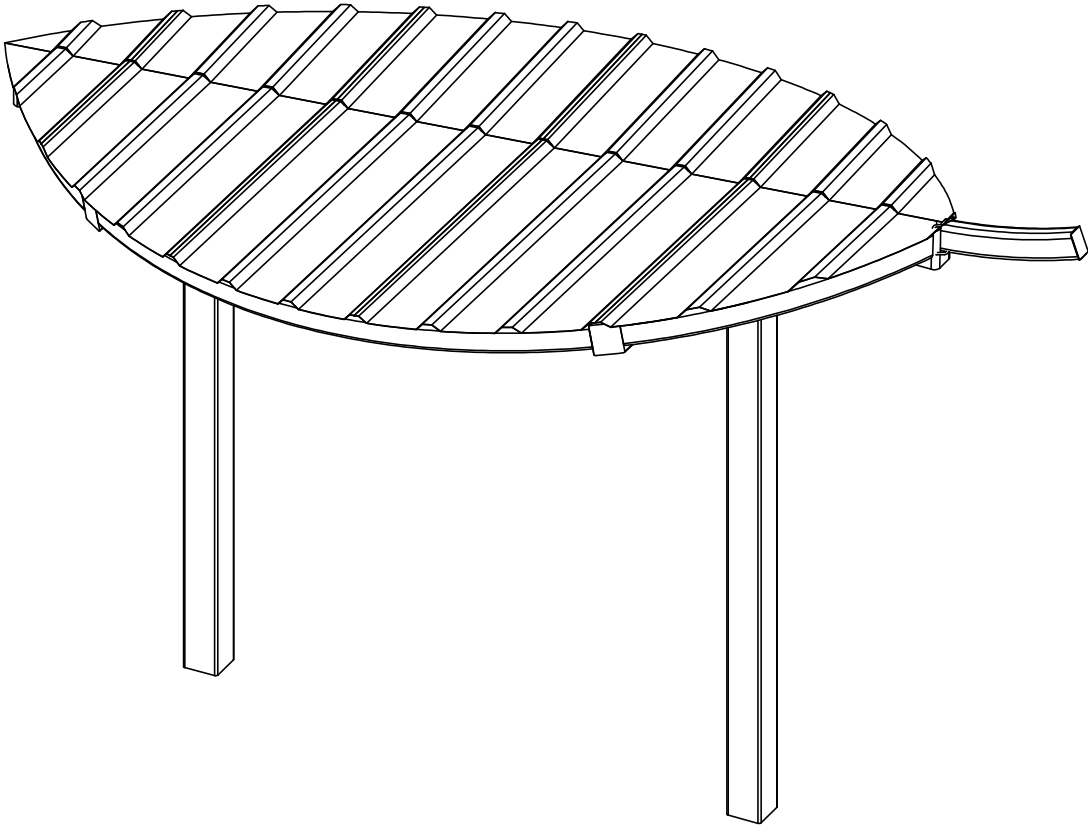
BUILDING NUMBER:

ORDER NUMBER:

QUOTE NUMBER:

DRAWING LIST:

SHEET NUMBER	DRAWING DESCRIPTION
CS	COVER SHEET
1	ARCHITECTURAL ELEVATIONS
2	STRUCTURAL FRAMING PLAN
3	COLUMN LAYOUT



CERTIFICATES:
MIAMI-DADE COUNTY CERTIFICATE OF COMPETENCY NO. 21-0819.13
PCI (POWDER COATING INSTITUTE) 4000 CERTIFIED

FABRICATOR APPROVALS:
CITY OF PHOENIX, AZ APPROVED FABRICATOR #C08-2010
CITY OF LOS ANGELES, CA APPROVED FABRICATOR #FB01596
CITY OF RIVERSIDE, CA APPROVED FABRICATOR #SF_000042
CITY OF HOUSTON, TX APPROVED FABRICATOR #470
CLARK COUNTY, NV APPROVED FABRICATOR #264
STATE OF UTAH APPROVED FABRICATOR 02008-14
AISC APPROVED FABRICATOR C-00018751

DESCRIPTION	ASTM DESIGNATION
TUBE STEEL	A500 (GRADE B)
SCHEDULE PIPE	A53 (GRADE B)
RMT PIPE	A519
LIGHT GAGE COLD FORMED	A1003 (GRADE 50)
STRUCTURAL STEEL PLATE	A36
ROOF PANELS (STEEL)	A653



GENERAL NOTES:
UNLESS NOTED OTHERWISE, THIS STRUCTURE WAS DESIGNED TO ONLY SUPPORT WHAT IS SHOWN ON THESE DRAWINGS. THE MANUFACTURER MUST BE CONTACTED IF ANYTHING ELSE IS TO BE ATTACHED TO THIS STRUCTURE (WALLS, COLUMN WRAPS, RAILINGS, ETC.) SO THE DESIGN OF THIS STRUCTURE CAN BE REVIEWED AND POSSIBLY REVISED.

UNLESS NOTED OTHERWISE, THIS STRUCTURE WAS DESIGNED ASSUMING A 20' SEPARATION BETWEEN ANY ADJACENT STRUCTURE WITH AN EAVE HEIGHT EQUAL TO OR GREATER THAN THE EAVE HEIGHT OF THIS STRUCTURE. IF THAT SEPARATION DOES NOT EXIST, THE MANUFACTURER MUST BE CONTACTED SO THE DESIGN OF THIS STRUCTURE CAN BE REVIEWED AND POSSIBLY REVISED.

STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) SPECIFICATION MANUAL.

ALL WELDING IS PERFORMED BY AMERICAN WELDING SOCIETY (AWS) CERTIFIED WELDERS AND CONFORMS TO THE LATEST EDITION OF AWS D1.1 OR D1.3 AS REQUIRED.

PARTS SHOWN MAY BE UPGRADED DUE TO STANDARDIZED FABRICATION. REFER TO THE SHIPPING BILL OF MATERIALS FOR POSSIBLE SUBSTITUTIONS.

FOR PROPER FIELD INSTALLATION OF THE BUILDING IT IS RECOMMENDED THAT THE PRIMARY FRAME INSTALLER AND THE ROOF INSTALLER HAVE A MINIMUM FIVE (5) YEARS DOCUMENTED EXPERIENCE INSTALLING THIS TYPE OF PRODUCT.

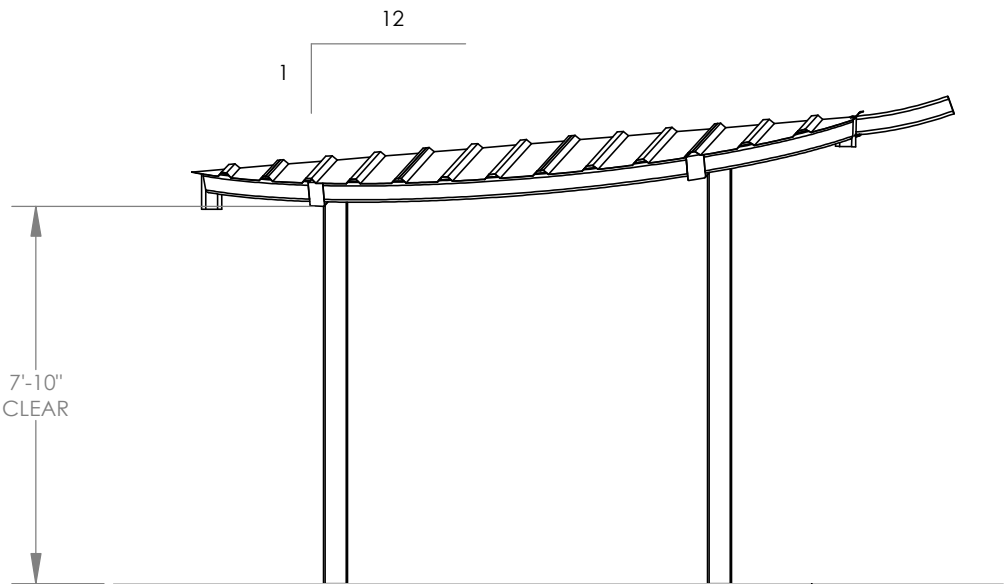
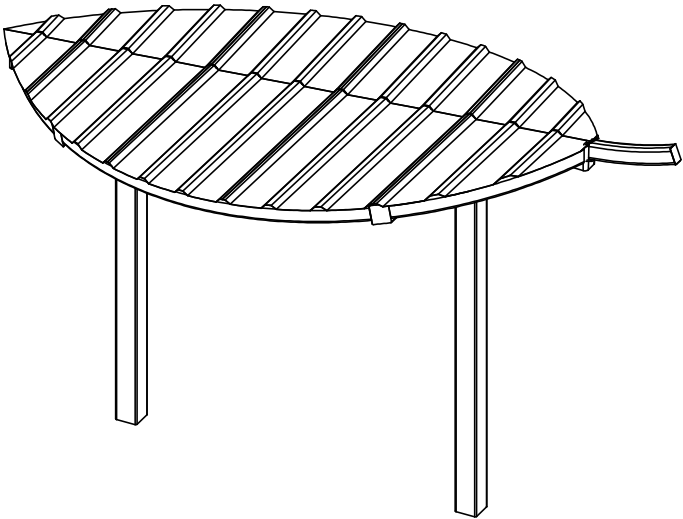
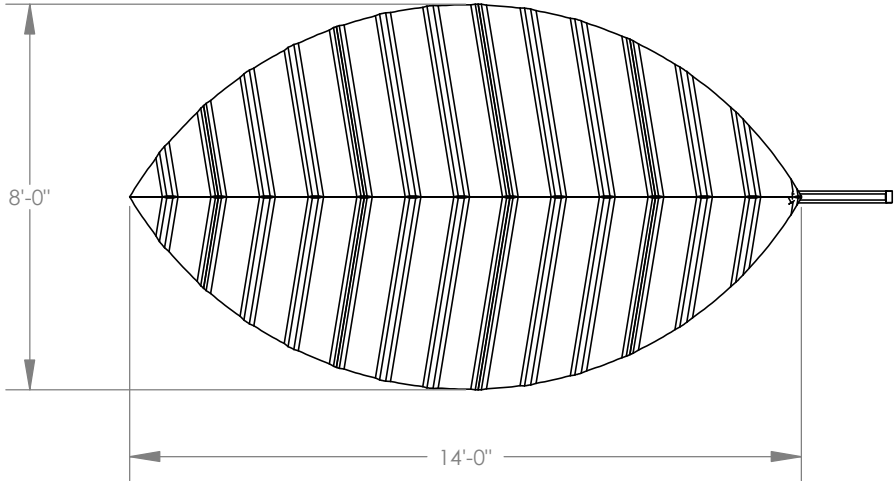
FOR PROPER FIELD INSTALLATION OF THE BUILDING IT IS RECOMMENDED THAT ELECTRIC WIRING, IF REQUIRED, BE RUN THROUGH THE STRUCTURAL MEMBERS BEFORE THE BUILDING IS ERECTED.

STOP!!
NOT FOR CONSTRUCTION

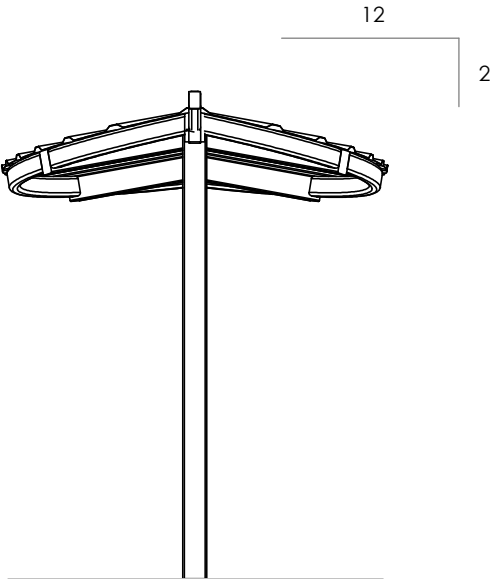
USE FOR PRELIMINARY
PLANNING AND ESTIMATING
ONLY

GENERAL ROOF NOTES:

1.
- METAL ROOFING:
- 24 GAUGE
- GALVALUME COATED
- KYNAR 500 PAINTED
2.
- TRIM COLOR MATCHES ROOF
3.
- SEE [POLIGON.COM](#) FOR COLOR OPTIONS

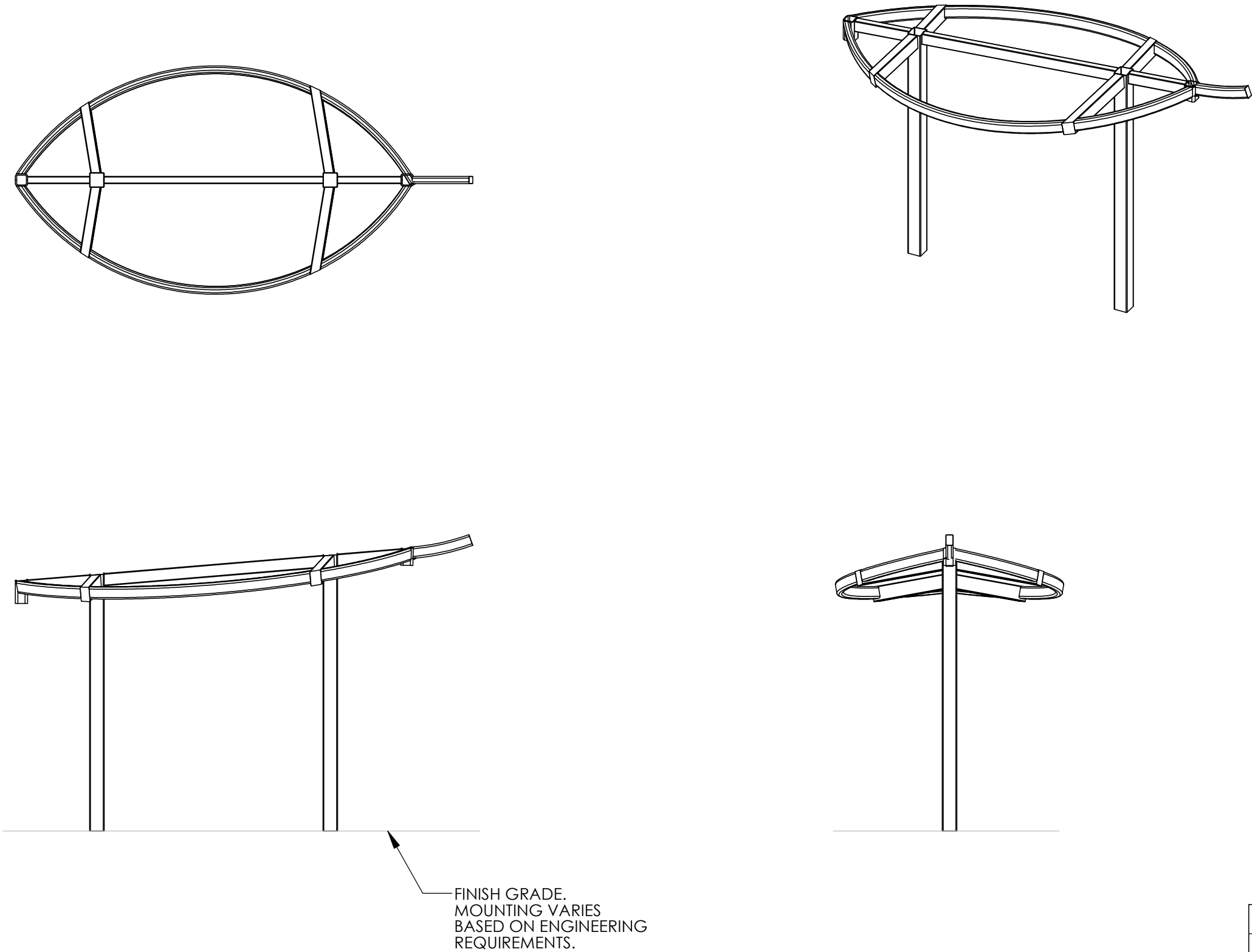


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MOUNTING VARIES
BASED ON ENGINEERING
REQUIREMENTS.



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ONLY

DRAWING: ARCHITECTURAL ELEVATIONS		
SCALE: 1:48	REV LEVEL: A	
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ONLY

DRAWING: STRUCTURAL FRAMING PLAN		
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		SHEET 2

BASEPLATE NOTES:

- 1. POLIGON ENGINEERING WILL DETERMINE REQUIRED BASEPLATE DESIGN AFTER ENGINEERING PACKAGE IS ORDERED.
- 2. CUSTOMER MAY SUGGEST PREFERRED BASEPLATE DESIGN.



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DRAWING: COLUMN LAYOUT		
SCALE: 1:24	REV LEVEL: A	
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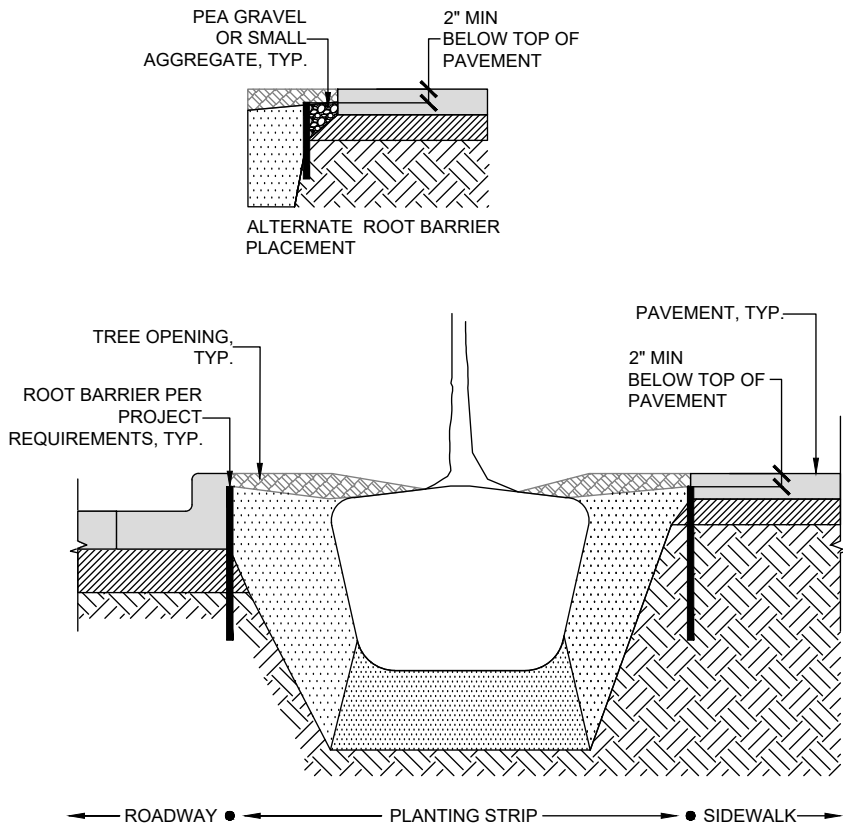


FRAME COLOR: SURREY BEIGE
ROOF COLOR: EVERGREEN
COLORS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOR OTHER
COLOR SELECTIONS, PLEASE SUBMIT AN E1 DRAWING REQUEST.

LEF-8x14



DeepRoot Green Infrastructure, LLC
www.deeproot.com
info@deeproot.com
Toll Free: 800 458 7668



ROOT BARRIER FEATURES

- 90-degree ribs direct roots downward and away from hardscapes.
- Tool-free assembly using sliding zipper joiner panels to achieve the desired length.
- Patented double-top edge improves strength, safety, and appearance while preventing root overgrowth.
- UV inhibitors protect against sun damage.
- Rounded edges allow for safe and easy handling.

ROOT BARRIER MATERIALS

- Constructed from high-quality, 90% post-industrial recycled, injection-molded co-polymer polypropylene.
- Manufactured in ISO 9001-certified facilities.

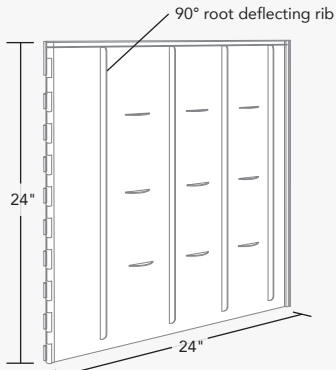
Made in the USA

ROOT BARRIER - UB 24-2
NOT TO SCALE

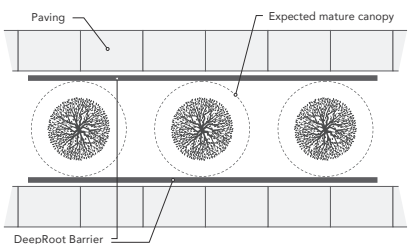
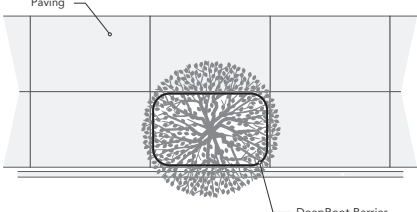
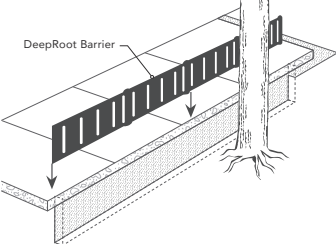
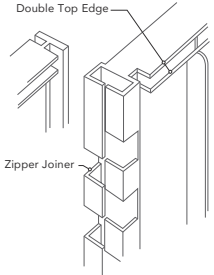
DEEPROOT UB ROOT BARRIER
UB 24-2

UB 24-2 TECH SHEET

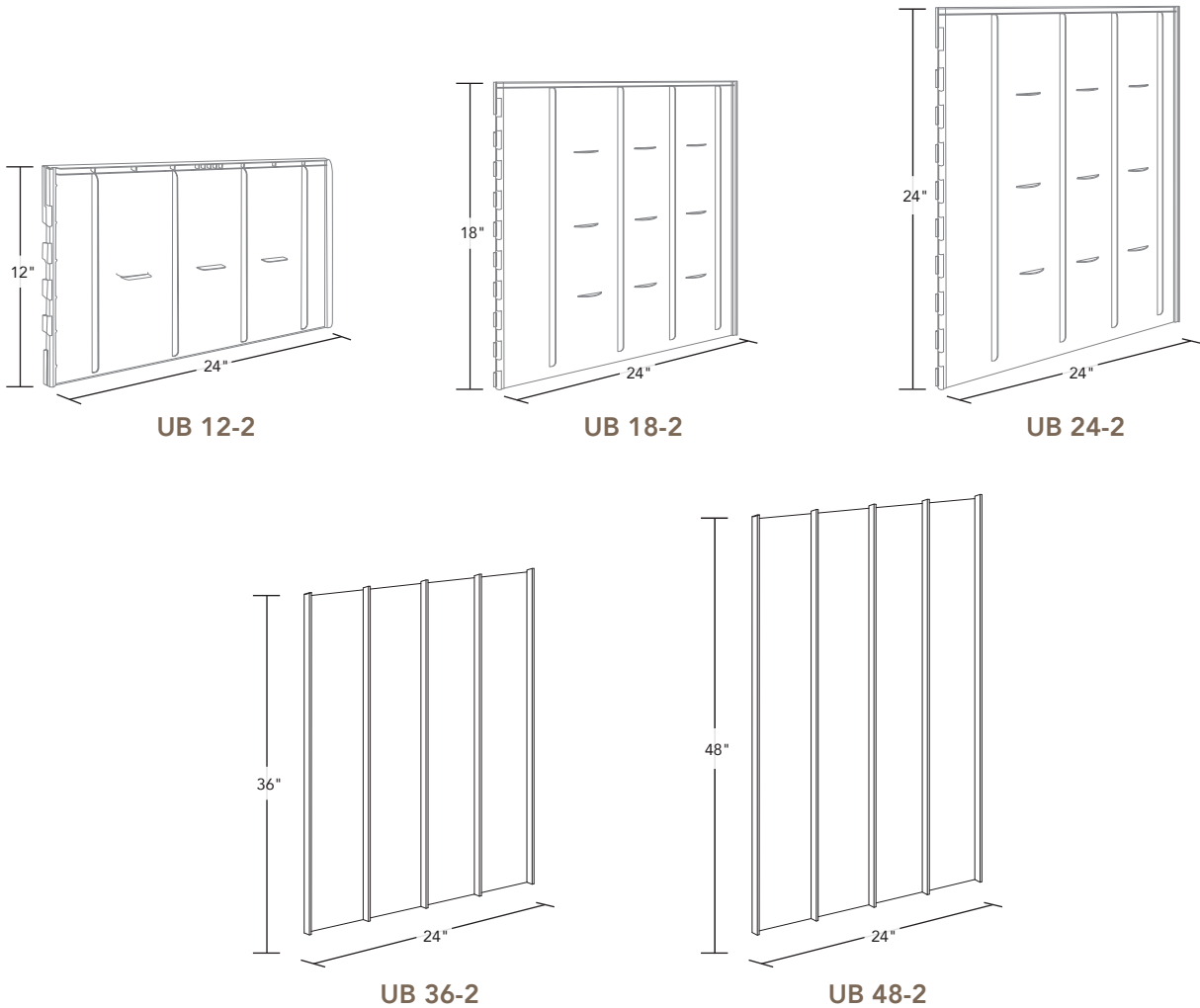
This 24" high by 24" wide barrier is for linear, surround, and root pruning applications. It is ideal for protection from aggressive, invasive roots in sidewalks, curbs and gutters, driveways, and patios, as well as many other planting situations.

UB 24-2	SPECIFICATIONS + FEATURES
	USES Redirect tree roots down and away from hardscapes. MATERIALS Recycled, high-quality 90% post-industrial injection molded co-polymer polypropylene. Manufactured in ISO 9001 certified factories. SIZES & PACKAGING Each panel is 24" x 24" 20 Panels (40 linear feet) per carton, 20 cartons per pallet, approximately 43 lbs. per carton. FEATURES 90° ribs redirect root growth down and away from hardscapes Instant assembly: panels slide together with a zipper joiner system to form length needed Patented double top edge for strength, safety, appearance and root overgrowth protection Added UV inhibitors prevent breakdown from sun exposure Rounded edges for safety in handling Made in the USA

APPLICATIONS

LINEAR 	LINEAR Provide maximum hardscape protection while utilizing all available rooting space for improved tree health by placing guides in a straight line directly along the hardscape to be protected.
SURROUND 	SURROUND Protect hardscapes that surround a planting on all four sides. Plan to line the perimeter of the planting area with the panels—this provides the maximum available uncompacted soil volume for immediate root growth.
ROOT PRUNING 	ROOT PRUNING Root pruning can help save existing trees and prevent future damage to paving. Disruptive roots are cleanly cut and removed; linear Root Barrier is then installed. There are limitations to root pruning and an ISA Certified Arborist should be consulted. HOW TO SPECIFY 1. Determine linear, surround, root pruning or specialty application. 2. Pick appropriate barrier depth for application and site. 3. Calculate number of panels required. 4. For details on these or any other installation instructions, please refer to our Specification and Installation Manual, or visit www.deeproot.com. ZIPPER JOINING SYSTEM Each panel has a built-in zipper joiner along one edge, making assembly of the panels in the field quick and easy. DOUBLE TOP EDGE Patented double top edge adds strength, safety, and root overgrowth protection. 

PRODUCT #	DESCRIPTION	WEIGHT	QUANTITY	TOTAL LINEAR FEET
UB 12-2	12" x 24" panel	43 lbs.	40 panels	80 feet
UB 18-2	18" x 24" panel	43 lbs.	26 panels	52 feet
UB 24-2	24" x 24" panel	43 lbs.	20 panels	40 feet
UB 36-2	36" x 24" panel	45 lbs.	14 panels	28 feet
UB 48-2	48" x 24" panel	45 lbs.	10 panels	20 feet





TREE & SPRINKLER SUPPORT AND PROTECTION PRODUCTS

Cinch-Tie®

SPECIFICATIONS

Tree ties shall be manufactured of virgin flexible vinyl meeting ASTM-D-412 standards for tensile and elongation strength. Material shall be black for ultraviolet resistance. Tree ties shall be manufactured with a double back locking configuration and secured with one galvanized nail to prevent slippage. Tree ties shall elongate with the tree growth preventing damage to the tree.

Location Guideline

Step 1. Cut the nursery provided supports away from the young tree.

Step 2. To determine the best place to install Cinch-Tie, hold the tree trunk at different points to find the spot where the top does not bend over. Install the Cinch-Tie 6" taller than this height.

Step 3. The first Cinch-Tie should be placed 6" higher than the spot on the trunk where your hand previously determined support for the top.

Step 4. Trees should be secured with at least two Cinch-Ties to assure a straight, firm hold.

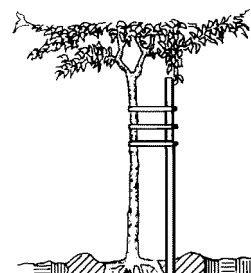
MODELS

Cinch-Tie 18"	5 gal., single stake
Cinch-Tie 24"	15 gal., single or doubles stakes
Cinch-Tie 32"	20" box and larger for single or double stakes.

HOW TO USE CINCH-TIES

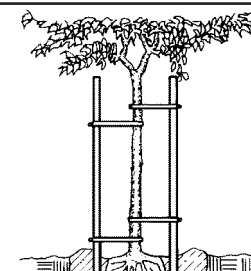
Single Stake

A single stake should be placed on the side of the prevailing wind. The tree should be supported with a minimum of two Cinch-Ties. Use either the Standard or Figure Eight typing method.



Double Stakes

One stake should be placed on the side of the prevailing wind with the other stake on the opposite side of the tree. The tree should be supported with four Cinch-Ties to assure a straight, firm position. Use either the Standard or Figure Eight typing method.



Standard Tie

Wrap Cinch-Tie around the tree trunk and the stake to form a loop. Tie with the double-back locking configuration. Secure with a galvanized nail driven through the Cinch-Tie and into the stake to prevent slippage.

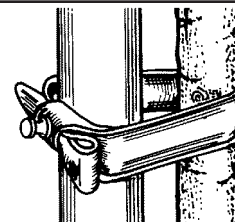
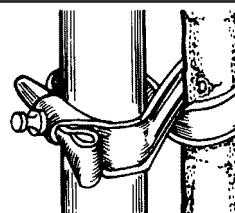


Figure Eight Tie

Wrap Cinch-Tie around the tree trunk and the stake twisting to form a figure eight. Tie with the double-back locking configuration. Secure with a galvanized nail driven through the Cinch-Tie and into the stake to prevent slippage.





TREE & SPRINKLER SUPPORT AND PROTECTION PRODUCTS

Cinch-Belt™

SPECIFICATIONS

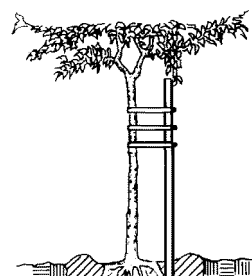
The tree ties shall be manufactured of virgin flexible vinyl meeting ASTM-D412 standards for tensile and elongation strength. Material shall be black for ultraviolet resistance. Tree ties shall be manufactured with a rounded backside to protect the tree and locked into

position with a buckle. The tree tie shall be secured to a wooden post with one galvanized nail, or double wrapped around a metal post to prevent slippage. Tree ties shall elongate with the tree growth preventing damage to the tree.

HOW TO USE CINCH-BELT

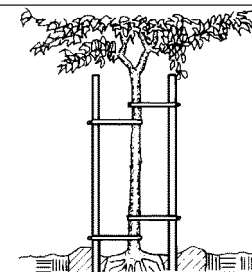
Single Stake

A single stake should be placed on the side of the prevailing wind. The tree should be supported with a minimum of two Cinch-Belts. Use either the Standard or Figure Eight typing method.



Double Stakes

One stake should be placed on the side of the prevailing wind with the other stake on the opposite side of the tree. The tree should be supported with four Cinch-Belts to assure a straight, firm position. Use either the Standard or Figure Eight typing method.



Standard Tie

Wrap Cinch-Belt around the tree trunk and the stake to form a loop. Insert both ends of Cinch-Belt through buckle. Secure with a galvanized nail driven through the Cinch-Belt and into the stake to prevent slippage.

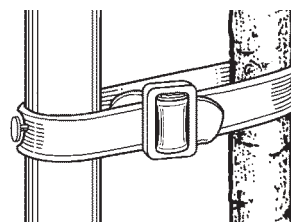
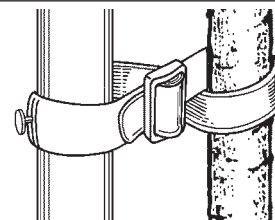


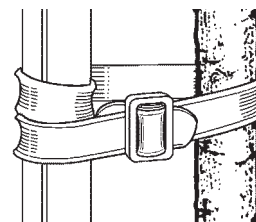
Figure Eight Tie

Wrap Cinch-Belt around the tree trunk and the stake twisting to form a figure eight. Insert both ends of Cinch-Belt through buckle. Secure with a galvanized nail driven through the Cinch-Belt and into the stake to prevent slippage.



Metal Stake Tie

Wrap Cinch-Belt around the tree trunk and double-wrap the stake to prevent slippage. Insert both ends of Cinch-Belt through buckle.



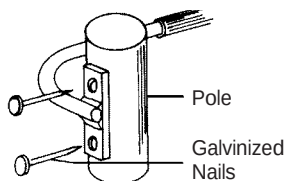


TREE & SPRINKLER SUPPORT AND PROTECTION PRODUCTS

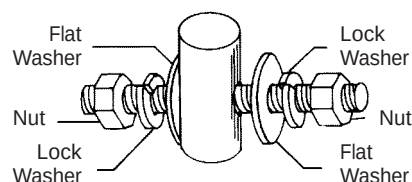
Twist-Brace®

INSTALLATION DETAILS

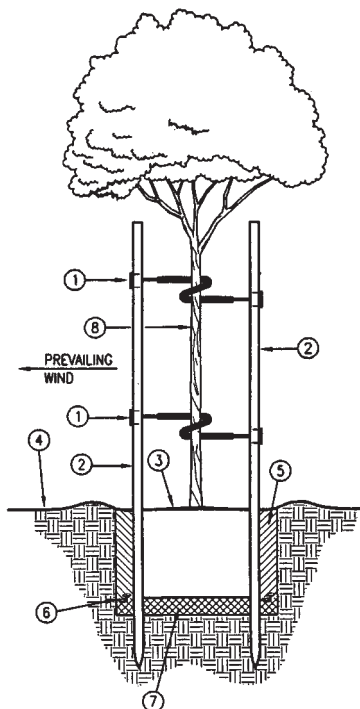
Mounting Methods



Nail Bracket Style is designed to be nailed directly to lodge poles or square stakes. (TB 18, TB 24)



Bolt Style is designed for through pole installation using either galvanized pipe or lodge pole pines. Threaded ends are inserted through drilled holes and bolted securely. (TB 36, TB 42)



NOTES:

- Stake all trees 24" box and smaller. Install V.I.T. Products Model TG-4 Trim Guard on all trees planted in turf.
- Refer to specifications for plant pit size.
- Install Twist-Brace per manufacturer's recommendations.

1. V.I.T. Twist Brace—secure to each pole
2. 2" dia. lodge pole pine tree stake
3. Depressed watering basin remove from turf areas during finish grading
4. Finish grade
5. Backfill mix per specs.
6. Plant packets per specs.
7. Compacted backfill mix per specs.
8. Tree

MODEL	LOOP DIA.	OVERALL LENGTH	SUGGESTED FOR:	SUGGESTED POLE SIZE
TB 18	4-1/2"	18"	5–15 gal. trees	2" x 8'
TB 24	4-1/2"	24"	15 gal. – 24" box trees	2" x 10'
TB 36	4-1/2"	36"	24" – 30" box trees	2" x 10'
TB 42	7-1/2"	42"	30" – 42" box trees	3" x 10'

SPECIFICATIONS–NAIL BRACKET STYLE

The 5/16" round metal rod shall be encased in black U.V. resistant vinyl tubing placed at the center of the rod. The 5/16" rod is to be bent in a 360° circle. The meeting points of the rod shall be spread apart permitting the brace to be

placed on the tree by holding it parallel to the tree trunk with the open part of the circle on either side of the trunk. The tree trunk shall be enclosed in the circle as the brace is twisted at right angles

to the trunk. Mounting plates with nail holes for either square or round stakes, shall be welded at each end of the rod. Exposed metal ends shall be treated with a rust inhibiting coating.

SPECIFICATIONS–BOLT STYLE

The 1/2" round threaded metal rod shall be encased in black U.V. resistant vinyl tubing placed at the center of the rod. The rod is to be bent in a 360° circle. The meeting points of the rod shall be spread

apart permitting the brace to be placed on the tree by holding it parallel to the tree trunk with the open part of the circle on either side of the trunk. The tree trunk shall be enclosed in the circle as

the brace is twisted at right angles to the trunk. The threaded ends shall be inserted through drilled holes in the stakes or poles and secured with nuts, lock washers and flat washers.

SPECIFICATION SHEET

[Shop Now](#)

Project Name: Type: Quantity:

INTENDED USE

The Owen 9024 is a durable and high-quality solution for outdoor well lighting. Crafted from cast brass or 316-grade stainless steel, it seamlessly combines functionality, design, and reliability. Its carefully selected materials and finishes ensure long-lasting performance, making it ideal for illuminating landscapes, pathways, and architectural features in residential and commercial settings.

FEATURES

H7-½" x Dia 3 7⁄8"

Construction: Reversible PVC Sleeve with Flat and Angle-Cut Options

Wiring: Pre-Wired with a 3 FT 18-2 SJT-W Direct Burial Cord

Mounting: In-Ground Direct Burial or Concrete Encasement

Voltage: 12V

Wattage: 5W

Color Temperature: 27/30/40/50K

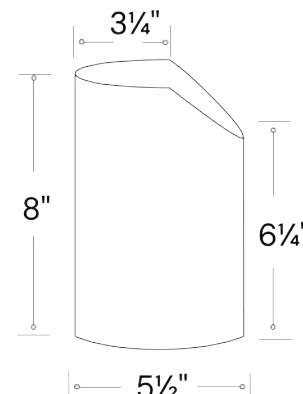
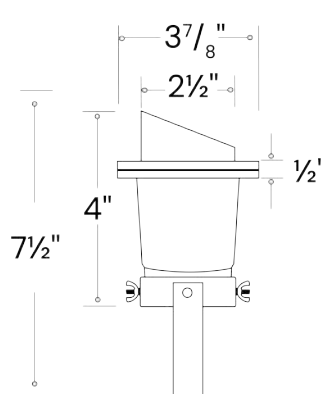
Lumens: 500 lm

CRI: 80+

Life: 50,000 Hrs

Warranty: 5 years Carefree for parts & components (Labor not included)

Listings: cETLus Listed, Wet Location



ORDERING INFORMATION Example: 9024-27K-AB-PCV

Model	Color Temp	Finish	Options
9024	27K 2700K 30K 3000K 40K 4000K 50K 5000K	AB Antique Bronze SS Stainless Steel	PVC PVC Sleeve

Logan-9023	Owen-9024	Cooper-9025

These fixtures are designed for in-ground mounting.

- 1- Remove fixture and its holder from PVC sleeve.
- 2- To install bulb: Unscrew face plate of fixture. Push bulb pins into holes of socket carefully until seated. Then re-place face plate to fixture.
- 3- Insert fixture and its holder into PVC sleeve to required position. Run main cable through bottom of PVC sleeve and hook it to fixture wires. Then insert PVC sleeve into ground about 3" above finish floor.

Warning: TO REDUCE THE RISK OF FIRE OR INJURY TO PERSONS:

- ❖ Turn off/un-plug and allow to cool before replacing lamp.
 - ❖ Lamp gets HOT quickly! Contact only switch/plug when turning on.
 - ❖ Do not touch hot lens, guard or enclosure.
 - ❖ Keep lamp away from materials that may burn.
 - ❖ Do not touch the lamp at any time. Use a soft cloth.
- Oil from skin may damage lamp.
- ❖ Do not operate the luminaire fitting with a missing or damaged shield.

Fixture(s) must be installed in accordance with all local codes and ordinances.
Do not install within 10 feet of a pool, spa or fountain.

Fixture(s) should be used **“ONLY”** with low voltage landscape power units that do not exceed 25A, 15V.
The power units reduce the voltage from 120 volts to 12 volts.
The main cable from power units should be buried for less than 6 inches under the ground level and can be purchased from your local electric supply house.

- 1. Attach fixture(s) wires to main cable with cable connector suitable for direct burial.**

Warning: Fixture(s) wires have to be run in close proximity to fixture(s) and not buried more than 3 inches.

The diagram illustrates the experimental setup for the 1000 Hz condition. It shows a vertical assembly of components. At the top is the 'Face Plate & Lens'. Below it is the 'Housing'. The 'Fixture Holder' is positioned below the housing and contains a small circular component. 'Fixture Wires' are shown extending from the fixture holder down into a large cylindrical container labeled 'PVC Sleeve'.

Finish Floor

Main Cable

Connector
Supplied Separately

INSTRUCTIONS

SAVE THESE INSTRUCTIONS

Limited Warranty

Alcon Lighting warrants its products to be free of defects in material and workmanship under normal use, when installed in accordance with installation instructions, specifications and accepted trade practices as follows:

- ☐ Aluminum and composite components: One year limited warranty from date of sale.
- ☐ Brass, copper, and stainless steel components: Limited lifetime warranty from date of sales.
- ☐ Transformers: Ten years limited warranty from date of sales. One year warranty for timers, photocells, and accessories. Limited life time warranty on stainless steel enclosures.

This warranty excludes:

1. Light bulbs.
2. Products not used in accordance with directions specified in installation instructions and subject to un-authorized repair.
3. Damages caused by accident, alteration, misuse, abuse and exceeding the cost of product.
4. Costs incurred in shipment, repair, replace, remove or install of product by buyer and others.

- ☐ Alcon Lighting reserves the right to issue credit, repair or replace the defective product at our option upon receipt of written notification by original buyer of the alleged defect. Alcon Lighting assumes no responsibility for improper installation of the product and shall not be liable for any incidental or consequential damages resulting from use of this product.
- ☐ The use of other company's products or components in conjunction with Alcon Lighting's products may not be covered by UL classifications and could be hazardous. Such usage, whether covered by UL classifications or not, automatically voids Alcon Lighting product warranty.
- ☐ Alcon Lighting does not authorize any other warranty, verbal or written except as described here.
- ☐ Alcon Lighting reserves the right to make any changes to its products without prior notice.

Visit Alcon Lighting's Web Site @ www.alconlighting.com for complete products information.
Alcon Lighting, Inc.; Los Angeles, California

Pro Series 300W Transformer Stainless Steel
15PR300SS (Stainless Steel)

Project Name: _____
Location: _____
Type: _____
Qty: _____
Comments: _____



Certifications/Qualifications

www.kichler.com/warranty

Electrical

Voltage	12VV

Mounting/Installation

Lead Wire Length	36

Primary Lamping

Lamp Included	Not Included

Product/Ordering Information

SKU	15PR300SS
Finish	Stainless Steel
UPC	783927027175

Specifications

Material	Stainless Steel

Additional Finishes

	Stainless Steel
	Stainless Steel
	Stainless Steel
	Stainless Steel

Kichler
7711 East Pleasant Valley Road Cleveland, Ohio 44131-8010
Toll free: 866.558.5706 or kichler.com

Notes:
1) Information provided is subject to change without notice.
All values are design or typical values when measured under laboratory conditions.
2) Incandescent Equivalent: The incandescent equivalent as presented is an approximate number and is for reference only.



This instruction sheet covers the installation of the following Kichler® Transformers: 15PR100SS, 15PR200SS, 15PR300SS, 15PR600SS, 15PR900SS. Read these instructions carefully before installing this unit.

- This power supply is for use with landscape lighting systems only.
- Do not submerge transformer.
- This device is accepted as a component of a landscape lighting system where the suitability of the combination shall be determined by National Electric Code or local authorities having jurisdiction.
- **WARNING:** Risk of electric shock, use only with low voltage landscape fixtures and accessories. DO not use with swimming pool or spa lighting fixtures.
- Do not connect two or more power supplies in parallel.
- Suitable for indoor or outdoor use.
- For use in dwellings only with provided conduit adapter plate.
- National Electrical Code requires that wiring where concealed or extended through a building wall must be enclosed in conduit.
- Transformer should be mounted close to power source. Extension cords should not be used with this unit.
- **WARNING:** (for Power Supply Cord connected POWER UNIT) RISK OF ELECTRIC SHOCK. Install power unit 5 feet (1.5m) or more from the pool, spa, or fountain where the power unit is installed (a) indoor within 10 feet (3.0m) of a pool, spa, or fountain, or (b) outdoor, connect power to unit to a receptacle protected by a GFCI.
- This outdoor power unit shall be connected to a 115/120 volt covered GFCI receptacle marked "Wet Location" while in use.
- Mount the rain-tight transformer at least one foot above ground level with the wire terminals facing down. **NOTE:** Do not energize transformer until installation of system is complete.
- Direct burial rated wire is to be buried a minimum of 6" (152mm) beneath the surface of the ground.
NOTE: If additional Direct Burial wire is needed, contact your local Kichler® landscape distributor.
 - 8 GA wire can be purchased in length of 250' (76 M), 15503-BK.
 - 10 GA wire can be purchased in length of 250' (76 M), 15504-BK.
 - 12 GA wire can be purchased in lengths of 100' (30 M), 15501-BK; 250' (76 M), 15502-BK; 500' (152M), 15505-BK; and 1000' (304 M), 15506-BK.
- **Finding Transformer Load:** Low voltage systems require the use of a transformer to reduce standard 120-VOLT power from your home to 12-VOLTS. To determine the transformer size you will need, add up the wattages of all lamps you plan to use. Select a transformer that matches as closely as possible to the total lamp wattage. For example, if you have 11 fixtures all rated at 24.4 watts, you will need a 300 watt (VA) transformer (11 x 24.4 = 268.4 watts). Generally, the total lamp load should not be less than one-third the transformers wattage rating, nor exceed its maximum wattage capacity. If your total wattage is too high, either divide the load between two transformers, or use a more powerful transformer.

INSTALLATION INSTRUCTIONS

- Determine desired location for mounting transformer. **NOTE:** When deciding location for mounting consideration should be taken for the requirements listed above.
- Mark position of top portion of the keyhole slot location at top of transformer and the slot located at bottom.
- If mounting to a solid surface such as wood, siding, etc;
 - Drill 1/8" diameter pilot holes at positions marked in Step 2.
 - Drive screws approximately half way into holes.
 If mounting to drywall:
 - Drill 1/4" diameter holes at positions marked in Step 2.
 - Push plastic anchors into holes and tap until flush.
 - Drive screws approximately half-way into plastic anchors.
- Slip large portion of keyhole over head of top screw and allow transformer to slide down, making sure bottom slot is behind head of bottom screw.
- Tighten screws until transformer is secure.
- Split 12/2, 10/2, or 8/2 cable approximately 3", and strip 1/2" insulation off each wire. 12/2, 10/2, and 8/2 cable is the heavy black cable which all Kichler® 12-volt low voltage lighting fixtures will be connected. (Reference above for description and part numbers).
- On the bottom of the terminal block push one bare wire into the hole marked "COM" and tighten the corresponding screw on terminal block face until wire is secure. See chart for terminal screw torque specification.
NOTE: 600W and 900W transformer (15PR600XX and 15PR900XX) is manufactured at 300W per circuit with each terminal block representing one circuit.
See chart for maximum wire sizes and counts.
- Determine the appropriate voltage tap (holes marked 12V, 13V 14V, or 5V) for remaining bare wire.
 - For optimum light output, the voltage at the lamp socket should range between 10.8 and 12 volts.
 For more information on voltage drop, consult the Kichler Landscape Lighting Catalog or contact your local Kichler distributor.
- Push remaining bare wire into the appropriate hole on bottom of terminal block and tighten the corresponding screw on terminal block face until wire is secure. Again refer to torque specifications in chart.
- Above terminal blocks is a receptacle and a short power cord.
 - If using plug-in timer (15556WH/15557BK):
 - Plug timer into receptacle.
 - Plug short power cord into timer
 - Set timer following instructions provided with timer.
 - If not using plug-in timer:
 - Plug short power cord into receptacle.
- Optional Photo control Installations:
 - Make sure power is off and transformer is NOT plugged into an electrical outlet. **NOTE:** No splice is required, transformer is equipped with jumper connector.
 - Open front cover of the transformer case by lifting the cover up. Locate and disconnect the white jumper connector inside the housing. *Save the jumper connector with these instructions for possible future use.
 - Remove one (1) of the 7/8" diameter knockouts on the side of the transformer and push the photo control white connector through the knockout hole. Inside the housing, slide the spacer and star nut over the white connector and thread it on to the photo control and tighten.
 - Plug photo control white connector into the housing connector. Insure that the side latch locks the connectors.
 - Locate transformer and position photo control so that no light will shine on the cell. It will cause the photo control to cycle on and off. *In the unlikely event that the photo control should fail, the lighting fixtures will remain on, even in the daytime. If this should happen, follow these instructions and remove the defective photo control and place the jumper connector in its place.
- Plug power supply cord into standard 115/120 volt receptacle. **NOTE:** The power supply cord must be plugged into a weather tight receptacle equipped with a Ground Fault Interrupter (GFCI).

Wire Sizes	Max. no. of conductors	Tightening Torque
#12	8	3.6-4.0 N-m (32-35 lb-in)
#10	4	3.6-4.0 N-m (32-35 lb-in)
#8	1	4.1-4.5 N-m (36-40 lb-in)

CIRCUIT BREAKER

(SECONDARY SIDE - 12 VOLT SIDE)

- Circuit breaker will trip if there is a short or if total wattage installed exceeds rated wattage per circuit.
- To reset breaker, flip switch to 'OFF' then back to 'ON' position.
- If the unit cycles on and off without regard to the timer setting, it should be checked by a qualified service person.

THERMAL PROTECTION

(PRIMARY SIDE - 120 VOLT SIDE)

- This unit is equipped with a thermal protector and will shut off if overheated.

WARRANTY

WE WARRANT OUR TRANSFORMERS FOR TEN YEARS ON AZT UNITS AND LIFETIME ON STAINLESS STEEL UNITS AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP IF IT IS PROPERLY INSTALLED AND FAILED UNDER NORMAL OPERATING CONDITIONS, PROVIDED IT IS RETURNED TO THE POINT OF PURCHASE, WHERE IT WILL BE REPAIRED OR, AS IT MAY BE DETERMINED, TO REPLACE THE TRANSFORMER.



Polycase Pole Mounting Kit Cross Reference Guide
v16 04/26/2024

METAL ENCLOSURE SERIES

AN Series			SA/SB Series		
Part	Kit (installed along width)	Kit (Installed along length)	Part	Kit (installed along width)	Kit (Installed along length)
AN-00F	N/A	N/A	SA/SB 30	PK-086	PK-163
AN-01F	N/A	N/A	SA/SB 31	PK-125	PK-163
AN-02F	N/A	N/A	SA/SB 32	PK-125	PK-163
AN-03F	N/A	N/A	SA/SB 33	PK-125	PK-163
AN-04F	PK-085	PK-085	SA/SB 34	PK-125	PK-163
AN-05F	PK-085	PK-085	SA/SB 35	PK-125	PK-200
AN-06F	PK-085	PK-124	SA/SB 36	PK-125	PK-200
AN-07F	PK-085	PK-124	SA/SB 37	PK-163	PK-200
AN-08F	PK-085	PK-124	SA/SB 38	PK-086	PK-125
AN-09F	PK-085	PK-085	SA/SB 39	PK-086	PK-125
AN-10F	PK-085	PK-085	SA/SB 40	PK-125	PK-163
AN-11F	N/A	N/A	SA/SB 41	PK-086	PK-163
AN-12F	N/A	N/A	SA/SB 43	PK-163	PK-200
AN-13F	PK-085	PK-085	SA/SB 46	PK-163	PK-240
AN-14F	PK-085	PK-085	SA/SB 49	PK-200	PK-240
AN-15F	N/A	N/A	SA/SB 51	PK-163	PK-280
AN-16F	PK-085	PK-124	SA/SB 52	PK-200	PK-280
AN-17F	PK-085	PK-124	SA/SB 54	PK-240	PK-280
AN-18F	N/A	N/A			
AN-19F	PK-085	PK-085			
AN-20F	N/A	N/A			
AN-21F	PK-085	PK-124			
AN-22F	PK-085	PK-124			
AN-23F	PK-085	PK-162			

Kit (installed along width)



Kit (Installed along length)



PLASTIC ENCLOSURE SERIES

WH Series			WQ Series			ZH/ZQ Series		
Part	Kit (installed along width)	Kit (Installed along length)	Part	Kit (installed along width)	Kit (Installed along length)	Part	Kit (installed along width)	Kit (Installed along length)
WH-02	PK-083	PK-083	WQ-35	PK-083	PK-083	ZH/ZQ 040404	PK-088	PK-088
WH-04	PK-083	PK-083	WQ-38	PK-083	PK-083	ZH/ZQ 060404	PK-087	N/A
WH-06	PK-083	PK-083	WQ-42	PK-083	PK-122	ZH/ZQ 060604	PK-087	PK-087
WH-08	PK-083	PK-122	WQ-44	PK-083	PK-083	ZH/ZQ 080604	PK-087	PK-087
WH-10	PK-083	PK-083	WQ-46	PK-083	PK-083	ZH/ZQ 080804	PK-087	PK-087
WH-14	PK-083	PK-083	WQ-48	PK-083	PK-083	ZH/ZQ 100802	PK-087	PK-126
WH-16	PK-084	PK-123	WQ-50	PK-083	PK-122	ZH/ZQ 100804	PK-087	PK-126
WH-18	PK-084	PK-123	WQ-51	PK-083	PK-122	ZH/ZQ 100806	PK-087	PK-126
WH-22	PK-127	PK-166	WQ-55	PK-083	PK-083	ZH/ZQ 101006	PK-126	PK-126
WH-32	PK-165	PK-201	WQ-57	PK-082	PK-121	ZH/ZQ 121004	PK-126	PK-126
			WQ-59	PK-082	PK-121	ZH/ZQ 121006	PK-126	PK-126
			WQ-62	PK-121	PK-161	ZH/ZQ 121206	PK-126	PK-126
			WQ-64	PK-121	PK-161	ZH/ZQ 141206	PK-126	PK-164
			WQ-66	PK-121	PK-121	ZH/ZQ 141406	PK-164	PK-164
			WQ-68	PK-121	PK-161	ZH/ZQ 161407	PK-164	PK-164
			WQ-70	PK-161	PK-161			
			WQ-73	PK-161	PK-202			
			WQ-76	PK-161	PK-202			
			WQ-77	PK-161	PK-241			
			WQ-80	PK-202	PK-241			
			WQ-81	PK-203	N/A			
			WQ-83	N/A	N/A			

ML Series		
Part	Kit (installed along width)	Kit (Installed along length)
ML-22F	N/A	N/A
ML-24F	N/A	N/A
ML-34F	PK-085	PK-085
ML-36F	PK-085	PK-124
ML-44F	PK-085	PK-085
ML-45F	PK-085	PK-085
ML-46F	PK-085	PK-085
ML-47F	PK-085	PK-124
ML-48F	PK-085	PK-124
ML-57F	PK-085	PK-124
ML-58F	PK-085	PK-124
ML-70F	PK-085	PK-124
ML-92F	PK-124	PK-162

ML Series		
Part	Kit (installed along width)	Kit (Installed along length)
HP-050403	PK-067A	PK-067A
HP-060504	PK-067A	PK-067A
HP-070504	PK-067A	PK-067A
HP-100604	PK-067A	PK-126A

APPENDIX C – RECYCLING MATERIALS

RECYCLING OF MATERIALS

The Contractor shall complete the Construction and Demolition Debris Waste Reduction Recycling Plan by filling the attached Construction and Demolition Debris Form, of these specifications. Contractor is required to obtain the services of WASTE MANAGEMENT under the exclusive franchise agreement with the City and will be responsible to pay any additional charges for the appropriate disposal of Construction and Demolition (C&D) recycling.

Construction & Demolition Debris Waste Reduction & Recycling Plan [WRRP]

This form must be completed for the following types of projects:

- All New Construction (non-residential and residential).
- Demolition (non-residential and apartment house).
- Addition/Alteration (non-residential and apartment house) with construction valuation \$50,000 or greater or 1,000 sq. ft. or greater

NOTE: Building Permits for listed projects will not be issued without an approved WRRP. Allow 3-5 business days for processing your WRRP. A separate WRRP is required for each building permit issued.

Submit with Permit Application to: Department of Community Services, 8650 California Avenue, South Gate or Fax to (323) 563-9571. If you have questions, please call (323) 563-9515.

Permit # _____

Project Address (include floor, suite, etc.): _____

Contact Name: _____ Title: _____

Company Name: _____

Contact Mailing Address: _____

Phone: _____ Fax: _____ Email: _____

1. Type of Project: ☐ New Construction ☐ Addition/Alteration ☐ Demolition

2. Type of Building: ☐ Commercial Single ☐ Family Residence ☐ Apartment

3. Tenant Improvement: ☐ Yes ☐ No

4. Size of Project _____ sq. ft. Construction Valuation
\$ _____

5. Estimated Start Date ____/____/____ Estimated Completion

Date ____/____/____

Briefly state how waste materials will be handled at your job site to ensure salvage/reuse or recycling. Also explain how you will inform your workers/sub-contractors of your Waste Reduction and Recycling Plan requirements and ensure their participation.

For City Use Only

Permit No: _____	Applic. Filed: ____/____/____	WRRP Submitted: ____/____/____
Project Name: _____ Permit Counter Staff Initials: _____		
☐ OT:		
Received: ____/____/____	Approved: ____/____/____	Type of Assistance: _____
DB: ____/____/____	Applicant Contacted: ____/____/____	Time Spent: _____
☐ 50% Diversion: ____/____/____	☐ Good Cause: _____	☐ Non-Attainment Hold Placed: _____
☐ Approved: _____	☐ Condition Approval: ☐ Not Approved Hold Removed: _____	

Requirement: Reduce quantity of materials disposed at landfills by 50% or greater (determined by weight).

Column A: List Actual Quantities of waste for each material type (in tons). To convert yards to tons, use the Materials Conversion Worksheet provided in your packet.

Column B, C, D: List actual quantities reused, recycled, or disposed.

Column E: State the name of all vendors or facilities used to reuse, recycle or dispose of material listed. See example below for cases where more than one facility was used for a particular material type.

Column Totals: Add up all quantities listed in Column A. Do the same for Column B, C and D.

Recycled Mixed Debris: This category is only for mixed debris loads that were taken to a recognized facility for recycling (see list of Mixed Debris Recycling Facilities insert in your C & D Packet). Use the Materials Conversion Worksheet to calculate quantity of materials that can be credited as recycled. Receipts must be provided with your Summary Report to receive recycling credit.

Application/Permit # _____ Project Address: _____

Material Handling Methods - Indicate quantities (in tons only) for each material listed.					
Material Type	A Total Quantity Discarded	B Salvage Or Reuse	C Recycling	D Disposal	E Actual Destination (s)
Example: Cardboard	2 Tons		1.5	0.5	(Recycle) Davis St. Recycling Center (Outdoor) Davis St. Transfer Station
Asphalt & Concrete					
Brick/Masonry/Tile					
Building Materials (doors, windows, fixtures, etc.)					
Carpet					
Carpet Padding/Foam					
Cardboard					
Ceiling Tile (acoustic)					
Drywall (Used)					
Drywall (New, unpainted)					
Landscape Debris (brush, trees, stumps, etc.)					
Scrap Metal					
Unpainted wood & pallets					
Garbage/Trash					
Other (do not include dirt)					
Recycled Mixed Debris (see Instructions above)					
Column Totals					

7. Fill in the blanks below to determine if you met the City's requirement to reduce project waste by 50% or more.
Column Totals B _____ + C _____ - A _____ = _____ x 100 = _____ %

8. Is the percentage listed in question # 7 greater than or equal to 50%?
☐ YES
☐ NO
If NO, explain why:

1. Print Name: _____ Signature: _____
Date: _____