CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

FOR

CITY OF GREENFIELD
WASTEWATER TREATMENT PLANT SURFACE AERATOR ADDITION

February 8, 2016

FOR USE WITH THE
STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION,
LATEST EDITION

Prepared by: **WALLACE GROUP**
621 Clarion Court
San Luis Obispo, California 93401

Under the Supervision of: Steven G. Tanaka, PE
RCE C49779, Exp. 09/30/16

REGISTERED PROFESSIONAL ENGINEER
STEVEN G. TANAKA
CO49779
CIVIL
STATE OF CALIFORNIA

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SECTION A BID DOCUMENTS & INFORMATION

IMPORTANT NOTICE

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Failure to complete, sign (where required), and return the above proposal documents with your bid may render it non-responsive.

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A1 INVITATION TO BID

Sealed proposals for the **City of Greenfield Wastewater Treatment Plant Surface Aerator Addition Project** addressed to the City of Greenfield, Civic Center, 599 El Camino Real, Greenfield, CA 93927 ATT: CITY CLERK, will be received at City Hall until **3:30 pm local time on the 17th of March (Thursday), 2016** and then will be publicly opened and read. Any bids received after the time and date specified will not be considered.

The proposed project consists of providing 90 horsepower of surface aeration to the existing three wastewater oxidation ponds, general pond embankment improvements, pond lining, yard piping and hydraulic conveyance improvements, sludge management/disposal, maintaining plant operations in compliance with the waste discharge requirements, and electrical power improvements to accommodate the new surface aerators.

A pre-Bid conference will be held at 2:00pm on Wednesday, February 24th, 2016 at the City of Greenfield City Hall, 599 El Camino Real, Greenfield, CA 93927. Representatives of Owner and Engineer will be present to discuss the Project. Immediately following the meeting, a site tour of the wastewater facilities where the work will be performed, will be made available to prospective bidders. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

The Contract Documents may be examined at City Hall, Civic Center, 599 El Camino Real, Greenfield, California. A copy can be obtained through the City Engineer, MNS Engineers, Inc. by contacting (805) 331-3553. There is a $50 charge (non-refundable) for each set of the contract documents, excluding for overnight delivery charges. If any bidder desires delivery service by Federal Express or UPS, an account number for that bidder must be provided to the Owner. Be advised that all express delivery from the City may take two days, depending on time of day shipped.

Each Bid must be submitted on the prescribed form and accompanied by an original bid security executed on the prescribed form, payable to the City of Greenfield, California, in an amount not less than 10 percent of the amount bid. Photocopy or facsimile copy will **NOT** be accepted.

The successful Bidder will be required to furnish the necessary additional bond(s) for the faithful performance of the Contract, as prescribed in the Contract Documents.

The Contractor may elect to receive 100 percent of payments due under the contract documents from time to time, without retention from any portion of the payment by the Owner in accordance with the provisions of Section 22300 of the Public Contract Code (previous Section 4590 of the California Government Code). Such securities, if deposited by the Contractor, shall be valued by the Owner, whose decision on valuation of the securities shall be final. Securities eligible for investment under this provision shall be limited to those listed in Section 22300 of the Public Contract Code and Section 16430 of the California Government Code.

In accordance with the provisions of California Public Contract Code Section 3300, the Owner has determined that the Contractor (and/or subs as required) shall possess a valid Class A – General Engineering Contractor license at the time that the Bid Proposal is submitted. Failure to possess the specified license shall render the bid as non-responsive and shall act as a bar to award of the Contract to any Bidder not possessing said license at the time of award.

Before a Contract will be awarded for the work contemplated herein, the Owner will conduct such investigation as is necessary to determine the performance record and ability of the apparent low Bidder to perform the size and type of work specified under this Contract.

The award will be made by the Owner on the basis of that Proposal from the lowest responsive, responsible Bidder which, in the Owner's sole and absolute judgment, will best serve the interest of the Owner. The Owner reserves the right to accept or reject any or all Proposals, and to waive any informalities and irregularities in said Proposals.

The Owner has obtained from the Director of the Department of Industrial Relations the prevailing rate of per diem wages for workers to be used on the job. Copies are available on the Internet at http://www.dir.ca.gov/DLSR/PWD/index.htm. The Contractor shall post a copy at the jobsite.

No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this

requirement for bid purposes only under Labor Code section 1771.1(a)].

The right is reserved to reject all Bids or any Bid not conforming to the intent and purpose of the Contract Documents, and to postpone the award of the Contract for a period of time which, however, shall not extend beyond 28 days from the bid opening.

SUSAN STANTON, CITY MANAGER

A2 INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

A. FORMAT

The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into work performed by the various building trades, work by separate subcontractors, or work required for separate facilities in the project.

B. DOCUMENT INTERPRETATION

The separate sections contained within these Contract Documents are intended to be mutually cooperative and to provide all details reasonably required for the execution of the proposed work.

Should there be any doubt as to the meaning or intent of said Contract Documents, the Bidder should request of the Engineer, in writing (at least 6 working days prior to bid opening) an interpretation thereof. Any interpretation or change in said Contract Documents will be made only in writing, in the form of Addenda to the Documents which will be furnished to all registered holders of Bidding Documents. Bidders shall submit with their PROPOSALS, or indicate receipt of, all Addenda. The Owner will not be responsible for any other explanation or interpretations of said Documents.

2. GENERAL DESCRIPTION OF THE PROJECT

A general description of the work to be done is contained in the Invitation to Bid. The scope is indicated on the accompanying Drawings and specified in applicable parts of these Contract Documents.

3. LICENSING REQUIREMENTS FOR CONTRACTORS

Bidders and their proposed subcontractors shall hold such licenses as may be required by the laws of the State for the performance of the work specified in the Contract Documents, and as indicated in Section A1, Invitation to Bid.

4. BIDDER'S UNDERSTANDING

Each Bidder must inform himself of the conditions relating to the execution of the work, and it is assumed that he will inspect the site and make himself thoroughly familiar with all the Contract Documents. Failure to do so will not relieve the successful Bidder of his obligation to enter into a Contract and complete the contemplated work in strict accordance with the Contract Documents. It shall be the Bidder's obligation to verify for himself and to his complete satisfaction all information concerning site and subsurface conditions.

Information derived from inspection of site will not in any way relieve the Contractor from any risk, or from properly examining the site and making such additional investigations as he may elect, or from properly fulfilling all the terms of the Contract Documents.

Each Bidder shall inform himself of, and the Bidder awarded a Contract shall comply with, federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, nondiscrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and non-burning requirements, permits, fees, and similar subjects.

5. TYPE OF PROPOSAL

The Proposal includes work items that are each submitted on a unit price or lump sum basis, as indicated on the Bid Schedule. Prices shall be submitted in the appropriate places, including unit prices and extended prices based on unit price and quantity of bid item. The total amount to be paid the Contractor shall be the sum of these items as shown on the bid schedule in the total amount of the total price as adjusted for additions or deletions resulting from Owner-authorized changes in the project.

6. PREPARATION OF PROPOSALS

All blank spaces in the Proposal form must be filled in, as required, in BLACK ink. All price information will be shown in both words and figures where required. No changes shall be made in the phraseology of the forms. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures. In case of discrepancy between unit prices and totals, unit prices will prevail.

Any Proposal shall be deemed informal which contains omissions, erasures, alterations, or additions of any kind, or prices uncalled-for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the published Invitation to Bid.

The Bidder shall sign his Proposal in the blank space provided thereon. If Bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation. If Bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign Contracts in behalf of the partnership. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized power of-attorney must be on file with the Owner prior to opening of Proposals or submitted with the Proposal, otherwise the Proposal will be regarded as not properly authorized.

A. CHANGES IN QUANTITIES

The Owner reserves the right to increase or decrease the amount of any contract item of work shown in the Proposal that may be deemed necessary, except that such increases or decreases in amounts shall not be more than 25 percent of the quantities shown on the Drawings and Specifications without a Change Order.

If the total pay quantity of any item of work required under the Contract varies from the Drawings and Specifications by more than 25 percent, in the absence of an executed Change Order specifying the compensation to be paid, the compensation payable to the Contractor will be determined in accordance with the Standard Specifications, Sections 4-1.03B(1), 4-1.03B(2), or 4-1.03B(3), as the case may be.

7. SALES AND OTHER TAXES

All taxes, as required by the laws and statutes of the state and its political subdivisions, shall be paid by the Contractor. Prices quoted in the Proposal shall include all taxes, unless provision is made in the Proposal form to separately itemize the taxes.

8. COMPLIANCE WITH LABOR STANDARDS AND RATE OF WAGE REQUIREMENTS.

The work under this Contract is to be paid for by public funds; therefore, minimum prevailing wage rates published by the State Director of Industrial Relations are applicable. The Owner has obtained from the Director of Industrial Relations the Prevailing Wage Rates. Copies are available on the Internet at: http://www.dir.ca.gov/DLSR/PWD/index.html.

The Owner does not guarantee that labor can be procured for the minimum wages shown on the referenced schedules.

The rates of wages listed are minimum only, below which the Contractor cannot pay, and they do not constitute a representation that labor can be procured for the minimum listed.

No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

9. SUBMISSION OF PROPOSALS

All Proposals must be submitted not later than the time prescribed, at the place, and in the manner set forth in the Invitation to Bid. Proposals must be made on the Proposal forms provided herewith, and submitted intact with the volume of specifications containing the Bidding Requirements, Contract Forms, and Conditions of the Contract.

Each Proposal must be submitted in a sealed envelope, so marked as to indicate the Bidder's name and its contents without being opened, and addressed in conformance with the instructions in the Invitation to Bid.

10. NAMING OF SUBCONTRACTORS

Bidder shall submit with his Proposal the names and business addresses of each subcontractor who will perform work under this Contract in excess of 1/2 of 1 percent of the amount of the total Proposal, and shall list the portion of the work which will be done by such subcontractor. If the Bidder fails to specify a subcontractor for any portion of the work to be performed under the Contract, the Bidder agrees to perform that portion of the work himself, and further agrees that he is qualified to perform that portion of the work himself.

11. MODIFICATION OR WITHDRAWAL OF PROPOSALS

Prior to the time and date designated for receipt of Proposals, any Proposal submitted may be modified or withdrawn by notice to the party receiving Proposals at the place designated for receipt of Proposals. Such notice shall be in writing over the signature of the Bidder or by telegram. If by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Proposals, and it shall be so worded as not to reveal the amount of the original Proposal. No Proposal may be withdrawn after the time scheduled for opening of Proposals, unless the time specified in paragraph AWARD OF CONTRACT of these Instructions to Bidders shall have elapsed.

12. BID SECURITY

Proposals must be accompanied by a certified check, or cashier's check drawn on a bank in good standing, or a Bid Bond issued by a Surety authorized to issue such bonds in the State where the work is located, in an amount not less than 10 percent of the total amount of the Proposal submitted. This bid security shall be given as a guarantee that the Bidder will not withdraw his Proposal for a period of 60 days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance Bond and Payment Bond in the full amount of the Contract price within the time specified.

The Attorney-in-Fact who executes this bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

If the Bidder elects to furnish a Bid Bond, he shall use the Bid Bond form bound herewith, or one conforming substantially thereto in form and content.

13. RETURN OF BID SECURITY

Within 15 days after the award of the Contract, the Owner will return checks given as bid securities to Bidders whose Proposals are not to be further considered in awarding the Contract. Retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and any guarantees which have been forfeited, will be returned.

14. AWARD OF CONTRACT

Within 28 calendar days after the opening of Proposals, the Owner will accept one of the Proposals or will act in accordance with BASIS OF AWARD, below. The acceptance of the Proposal will be by written notice of award, mailed to the office designated in the Proposal, or delivered to the Bidder's representative. In the event of failure of the lowest responsive, responsible Bidder to sign the Contract and provide an acceptable Performance Bond, Payment Bond, Maintenance and Warranty Bond, and insurance certificate(s), the Owner may award the Contract to the next lowest responsible Bidder. Such award, if made, will be made within 60 days after the opening of Proposals. **Note that to expedite this work, the City may award within 5 days of receipt of bids.**

15. BASIS OF AWARD

The award will be made by the Owner on the basis of that Proposal from the lowest responsive, responsible Bidder which, in the Owner's sole and absolute judgment, will best serve the interest of the Owner.

The Owner reserves the right to accept or reject any or all Proposals, and to waive any informalities and irregularities in said Proposals.

If, at the time this Contract is to be awarded, the total of the lowest acceptable Proposal exceeds the funds then estimated by the Owner as available, the Owner may reject all Proposals or take such other action as best serves the Owner's interests.

16. EXECUTION OF CONTRACT

The successful Bidder shall, within 10 working days after receiving notice of award, sign and deliver to the Owner a Contract in the form hereto attached together with the acceptable bonds and insurance certificates as required in these Documents. Within 10 working days after receiving the signed Contract with acceptable bonds from the successful Bidder, the Owner's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract. **Note that to expedite this work, the City requires execution by the contractor within 3-5 days of award and City shall immediately execute it upon receipt.**

17. CONTRACT BONDS

A. PERFORMANCE BOND

The successful Bidder shall file with the Owner, at the time of execution of the Contract, a Performance Bond on the form bound herewith in the full amount of the Contract, as security for the faithful performance of the Contract for the construction of the work, and to cover all guarantees against defective workmanship or materials, or both, for a period of 1 year after the date of the final acceptance of the work by the Owner.

B. PAYMENT BOND

The successful Bidder shall file with the Owner, at the time of execution of the Contract, a Payment Bond of the form bound herewith in the amount of 50 percent of the Contract, as security for the payment of all persons supplying labor and materials for the construction of the work.

C. POWER-OF-ATTORNEY

The Attorney-in-Fact (Resident Agent) who executes the Performance Bond or Payment Bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety of the date of execution of the bonds.

D. **SURETY**

The Surety furnishing these bonds shall have a sound financial standing, have a record of service satisfactory to the Owner, and shall be authorized to do business in the state.

18. FAILURE TO EXECUTE CONTRACT AND FURNISH BOND

The Bidder who has a Contract awarded to him and who fails to promptly and properly execute the Contract or furnish the required Bonds shall forfeit the bid security that accompanied his bid, and the bid security shall be retained as liquidated damages by the Owner, and it is agreed that this said sum is a fair estimate of the amount of damages the Owner will sustain in case the Bidder fails to enter into a Contract or furnish the required Bonds. Bid security deposited in the form of cash, a certified check, or cashier's check shall be subject to the same requirement as a Bid Bond.

19. TIME OF COMPLETION

The time of completion of the work to be performed under this Contract is the essence of the Contract. Delays and extensions of time may be allowed in accordance with the provisions stated in the General Conditions. The time allowed for the completion of the work is stated in the Proposal.

END OF SECTION

A3 PROPOSAL

NOTE TO BIDDER: Use **BLACK** ink for completing this Proposal form.

To: City of Greenfield
Civic Center, 599 El Camino Real
Greenfield, CA 93927

Telephone: 831-674-5591
Facsimile: 831-674-3149

Project Title: City of Greenfield Wastewater Treatment Plant Surface Aerator Addition Project

From: _____
Company Name

Address: _____, _____, _____, _____
Street City State Zip

Bidder's person to contact for additional information on this Proposal:

Name: _____
Title

Telephone: _____ Facsimile: _____

E-mail:

BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Proposal are those named herein, that this Proposal is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Proposal is made without any connection or collusion with any person submitting another Proposal on this Contract.

The Bidder further agrees that he has exercised his own judgment regarding the review of the site and has utilized all data which he believes pertinent from the Engineer, Owner, and other sources in arriving at his conclusions.

The Bidder further declares that he has carefully examined the Contract Documents for the performance of the work of the project, that he has personally inspected the site, that he has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved, including the fact that the description of the quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the Contract Documents, and that this Proposal is made according to the provisions and under the terms of the Contract Documents, which Documents are hereby made a part of this Proposal.

CONTRACT EXECUTION AND BONDS

The Bidder agrees that if this Proposal is accepted, he will, within 10 days, not including Sundays and legal holidays, after notice of award, sign the Contract in the form annexed hereto, and will at that time, deliver to the Owner the Performance Bond and Payment Bond required herein, and will, to the extent of his bid, furnish all machinery, tools, apparatus, and other means of construction and do the work and furnish all the materials necessary to complete all work as specified or indicated in the Contract Documents.

CERTIFICATES OF INSURANCE

The Bidder further agrees to furnish the Owner, before commencing the work under this Contract, the certificates of insurance as specified in these Documents.

START OF CONSTRUCTION AND CONTRACT COMPLETION TIME

The Bidder further agrees to begin work within 10 calendar days after the date of the Notice to Proceed and to complete the construction, in all respects, within **180 Calendar days** after receiving the Notice to Proceed. **Note: to expedite this work, the contractor shall make his first order of work the procurement of long-lead delivery equipment such as surface aerators, electrical panels. Also, as a first item of work, the contractor shall coordinate power service upgrade at the site through PG&E. See Technical Specifications.**

LIQUIDATED DAMAGES

In the event the Bidder is awarded the Contract and shall fail to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid to the Owner at the rate of **$1,000 per day** for all work awarded under one contract until the work shall have been satisfactorily completed as provided by the Contract Documents. Sundays and legal holidays shall be excluded in determining days in default.

ADDENDA

The Bidder, hereby acknowledges that he has received Addenda No's.

_____, _____, _____, _____, _____, _____, _____, _____.

(Bidder shall insert No. of each Addendum received) and agrees that all addenda issued are hereby made part of the Contract Documents, and the Bidder further agrees that his Proposal(s) includes all impacts resulting from said addenda.

SALES AND USE TAXES

The Bidder agrees that all sales and use taxes are included in the stated bid prices for the work, unless provision is made herein for the Bidder to separately itemize the estimated amount of sales tax.

+ + + + + + +

A4 BID SCHEDULE

CITY OF GREENFIELD
WASTEWATER TREATMENT PLANT SURFACE AERATOR ADDITION

Wastewater Treatment Plant Surface Aerator Addition Project CITY OF GREENFIELD BID SCHEDULE						
Item	**Description**	**Units**		**Quantity**	**Unit Cost (Figures)**	**Total Cost (Figures)**
DIVISION 01 - GENERAL REQUIREMENTS						
1	Mobilization, Demobilization and Cleanup		LS	1		
2	Stormwater Pollution Control		LS	1		
DIVISION 02 - EXISTING CONDITIONS						
3	Construction Survey		LS	1		
4	Site Demolition		LS	1		
DIVISION 03 - CONCRETE						
5	Influent Splitter Structure		LS	1		
6	Intermediate Control Structures (3)		LS	1		
7	Effluent Control Structures (2)		LS	1		
DIVISION 26 - ELECTRICAL						
8	Electrical Work		LS	1		
DIVISION 31 - EARTHWORK						
9	Site Work for Pond Upgrades	F	CY	14,766		
10	Earthwork - Export Volume	F	CY	14,081		
11	Sheeting, Shoring and Bracing		LS	1		
DIVISION 32 - EXTERIOR IMPROVEMENTS						
12	Class 2 Aggregate Base	F	CY	1,365		
13	Rock Slope Protection	F	CY	5		
DIVISION 33 - UTILITIES						
14	12" SDR 35 PVC Pipe	F	LF	420		
15	18" SDR 35 PVC Pipe	F	LF	20		
16	24" SDR 35 PVC Pipe	F	LF	890		
17	Pond Liner	F	SF	308,000		
18	Sludge Dewatering, Hauling and Disposal		DT	250		
DIVISION 40 - PROCESS INTEGRATION						
19	Fiberglass Reinforced Plastic Slide Gates		EA	13		
DIVISION 46 - INDUSTRY SPECIFIC MFG/EQPT.						
20	Floating Mechanical Aerators		EA	18		
TOTAL BASE BID						$ -
TOTAL BASE BID (IN WORDS)						

NOTE: See Technical Specification Section 01 20 00, Price and Payment Procedures for definition of “F” designation for bid items shown on the bid schedule.

The Contractor shall be responsible for calculating and providing totals for the schedule. The proposal schedule shall include all costs for services, labor, materials, equipment, removal, and installation associated with completing the work in place per the plans, specifications and details. In case of conflict or error in calculation, the bid may be considered irregular and may be subject to rejection. The order of precedence shall be: (1) written total (in words); (2) figures; (3) item cost; (4) item unit price.

NAME OF BIDDER: _____

CONTRACTOR'S LICENSE NO.: _____

AUTHORIZED SIGNATURE: _____

TITLE: _____

DATE: _____

STATEMENT OF EXPERIENCE OF BIDDERS

The Bidder is requested to state below what project (s) of similar magnitude or character the bidder has completed. Include references with the name and telephone number of a contact person. This statement of experience will enable the City Council to evaluate the Bidders experience, skill and business standing and ability to conduct the proposed project as rapidly and completely as required under the terms of the contract.

SEE APPENDIX E, "CRITERIA FOR ESTABLISHING RESPONSIBLE BIDDERS"A5 LISTING OF SUBCONTRACTORS

As required under the provisions of Section 4104 et seq of the California Public Contract Code, any person making a bid or offer to perform the work, shall in his or her bid or offer, set forth: (a) 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 primary 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 contractor's total bid; (b) The portion of the work which will be done by each such subcontractor under this act. The prime contractor shall list only one subcontractor for each such portion as defined by the prime contractor in his or her bid.

SUBCONTRACTORS

The Bidder further proposes that the following subcontracting firms or businesses will be awarded subcontracts in the event that the Bidder is awarded the Contract:

Name		
Street	City	State/Zip
Portion of Work:		

Name		
Street	City	State/Zip
Portion of Work:		

Name		
Street	City	State/Zip
Portion of Work:		

Name		
Street	City	State/Zip
Portion of Work:		

(Note: Attach additional sheets as required.)

A6 SURETY

If the Bidder is awarded a construction Contract on this Proposal, the Surety who provides the Performance Bond and Payment Bond will be:

_____ whose address is

_____

Street City State Zip

A7 BIDDER

The name of the Bidder submitting this Proposal is:

_____ doing business at

_____

Street City State Zip

which is the address to which all communications concerned with this Proposal and with the Contract shall be sent.

The names of the principal officers of the corporation submitting this Proposal, or of the partnership, or of all persons interested in this Proposal as principals are as follows:

_____ _____

_____ _____

_____ _____

If Sole Proprietor or Partnership

IN WITNESS hereto the undersigned has set his (its) hand this _____ day of _____, 20____.

_____
Signature of Bidder

_____
Title

If Corporation

IN WITNESS WHEREOF the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this _____ day of _____, 20____.

(SEAL)

_____
Name of Corporation

By _____

Title _____

Attest _____
Secretary

END OF SECTION

SECTION B CONTRACT INFORMATION & DOCUMENTS

IMPORTANT NOTICE

Forms B1 through B4 do not need to be complete at the time of bid submittal. It is required that the bidder to whom the contract is awarded completely fill out these documents and submit them within the time period specified.

B1 - CONTRACT
B2 - CALIFORNIA BIDDERS BOND
B3 - CALIFORNIA PAYMENT BOND

CITY OF GREENFIELD

CONTRACT FOR

[Name of Contractor]

WASTEWATER TREATMENT PLANT SURFACE AERATOR ADDITION

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CONTRACTOR SERVICES AGREEMENT

FOR THE

CITY OF GREENFIELD

[NAME OF CONTRACTOR]

THIS AGREEMENT is made and entered into this ___ day of _____, 2016, by and between the City of Greenfield, a Municipal Corporation ("City") and [Name of Contractor], ("Contractor"), for the **Wastewater Treatment Plant Surface Aerator Addition Project** ("Project"). City and Contractor agree as follows:

1. **SCOPE OF SERVICES**

Contractor shall do all work, attend all meetings, produce all reports and carry out all activities necessary to complete the services as set forth in Exhibit A, entitled "Scope of Services," attached hereto and incorporated herein by reference, as requested by the City. This Agreement and its exhibits shall be collectively known as the "Agreement." Terms set forth in any section, part, or exhibit of this Agreement shall be deemed to be incorporated in all sections, parts, or exhibits of this Agreement as if set forth in full therein.

2. **CHANGES TO SCOPE OF SERVICES**

- CITY REQUEST. The City may at any time, and from time to time, upon a minimum of ten (10) days written notice, modify the scope of services to be provided under this Agreement. Contractor shall, upon receipt of said notice, determine the impact on both time and compensation of such change in scope and notify the City in writing.

- APPROVAL OF CHANGES. Upon agreement between the City and Contractor of such change in scope, including any increase or decrease in the amount of Contractor's compensation and/or changes in the schedule or time of performance, an amendment to this Agreement shall be prepared describing such changes. Any increase in the amount of Contractor's compensation and/or changes in Exhibit A and/or Exhibit B must be approved in advance by the City Manager, and if the increase in compensation exceeds $25,000.00, the change shall also be approved by the City of Greenfield City Council.

3. COMPENSATION

- TERMS. Compensation to the Contractor shall be as set forth in Exhibit B, attached hereto and incorporated herein by reference.

- NO PAY FOR ADDITIONAL SERVICES WITHOUT WRITING. City shall not pay any additional sum for any expense or cost whatsoever incurred by Contractor in rendering services or providing work pursuant to this Agreement unless this Agreement is modified by a properly executed change order or amendment prior to the time any such additional expense or cost is incurred by Contractor. Contractor shall be compensated for any additional services in the amounts and in the manner as agreed to by the City and Contractor at the time City's express written authorization signed by the City Manager, or the City Manager's designee, is given to Contractor for the performance of said services.

- PAYMENT. Amounts due to Contractor from City for services rendered shall be evidenced by the submission to City by Contractor of an invoice, prepared in a form satisfactory to City, setting forth the amount of compensation due for the period covered. All such invoices shall be in full accordance with any and all applicable provisions of this Agreement. City will make payment on each such invoice within thirty (30) days of its receipt, provided, however, that if Contractor submits an invoice which is incorrect, incomplete, or not in accordance with the provisions of this Agreement, then City shall not be obligated to process any payment to Contractor until a correct and complying invoice has been submitted.

- DISALLOWED EXPENDITURE. An expenditure which is not authorized by this Agreement or which cannot be adequately documented shall be disallowed and must be reimbursed to the City by the Contractor. Absent fraud or mistake on the part of the City, the determination by the City of the allowability of any expenditure shall be final.

- ADDITIONAL PERSONNEL. With the approval of City, Contractor may use and bill for additional personnel not specifically named in this Agreement, except such use shall not exceed the amount of compensation named herein without the express written consent of City in accordance with the requirements of this Agreement.

4. TIME OF PERFORMANCE

The services of Contractor are to commence upon execution of this Agreement by City, and shall be undertaken and completed in a prompt and timely manner, in accordance with the Scope of Work referenced in Exhibit A. Except as provided in Sections 12 below, this Agreement shall terminate no later than [insert date], unless extended by the mutual agreement of both parties.

5. RESPONSIBILITY OF CONTRACTOR

By executing this Agreement, Contractor warrants to City that Contractor possesses, or will arrange to secure from others, all of the necessary professional, technical, and trade capabilities, experience, resources, staffing, and facilities necessary to provide to City the services contemplated under this Agreement. Contractor further warrants that it and its

employees, agents, and any subcontractors have all licenses, permits, qualifications, and approvals of whatsoever nature that are legally required to practice their respective professions or trades and will maintain same during the term of this Agreement. In addition to the foregoing, Contractor and any subcontractor providing services under this Agreement shall obtain and maintain during the term of this Agreement a valid Business License issued by City.

6. RESPONSIBILITY OF CITY

The City hereby agrees to:

- Assist Contractor by placing at its disposal all available information pertinent to the Project, including previous reports, studies, drawings, specifications, and other relevant data or documents.

- Guarantee access to and make all provision for Contractor to enter upon public and private property as required for Contractor to perform its services required by this Agreement.

- Examine all studies, reports, drawings, specifications, proposals and other documents prepared and presented by Contractor, and render verbally or in writing as may be appropriate, decisions pertaining thereto within a reasonable time so as not to delay the progress of the work by Contractor.

- Designate in writing a person to act as City's representative with respect to work to be performed under this Agreement. Such person shall have complete authority to transmit instructions, receive information, interpret and define City's policies and decisions with respect to materials, equipment, elements and systems pertinent to Contractor's services.

7. INSPECTION OF WORK, CORRECTION

The City shall have the right to inspect any work or services performed hereunder to verify that the work or services are being and/or have been performed in accordance with the applicable federal, state and local requirements and this Agreement. The Contractor shall correct all work or services found by such inspections not to conform to the applicable requirements. The City will withhold payment to the Contractor and any subcontractor, respectively, until it is so corrected.

8. INDEPENDENT CONTRACTOR

- Contractor enters into this Agreement as, and shall at all times remain as to the City, an independent contractor and not as an employee of the City. Nothing in this Agreement shall be construed to be inconsistent with this relationship or status. Any persons employed by Contractor for the performance of services pursuant to this Agreement shall remain employees of Contractor, shall at all times be under the direction and control of Contractor, and shall not be considered employees of City. All persons employed by Contractor to perform services pursuant to this Agreement shall be entitled solely to the right and privileges afforded to Contractor employees and shall not be entitled, as a result of providing services hereunder, to any additional rights or privileges that may be afforded to City employees.

- Contractor shall be solely responsible for the conduct and control of the work performed under this Agreement, for supervising the services and work provided under this Agreement, hiring of personnel, establishing standards of performance, assignment of personnel, determining and affecting discipline, determining required training, maintaining personnel files, and other matters relating to the performance of services and control of personnel. The City may use any reasonable means to monitor performance and the Contractor shall comply with the City's request to monitor performance.

- Contractor shall be free to render work and services to others during the term of this Agreement, so long as such activities do not interfere with or diminish Contractor's ability to fulfill the obligations established herein to City.

9. PROVISION OF LABOR, EQUIPMENT AND SUPPLIES

- CONTRACTOR PROPERTY. Contractor shall furnish all necessary labor, supervision, equipment, communications facilities, and supplies necessary to perform the services required by this Agreement except as set forth in Exhibit D. City acknowledges that all equipment and other tangible assets used by Contractor in providing these services are the property of Contractor and shall remain the property of Contractor upon termination of this Agreement.

- SPECIAL SUPPLIES. City shall be responsible for supplying any special supplies, stationary, notices, forms or similar items that it requires to be issued with a City logo. All such items shall be provided at City's sole cost and expense.

10. APPROVAL OF SUBCONTRACTORS AND KEY PERSONNEL

The staff and subcontractors specified in Exhibit C, entitled "Listing of Subcontractors and Key Personnel," attached hereto and incorporated herein by reference, shall provide the services set forth herein, and shall be the subcontractors and persons primarily in charge of and responsible for performing such work. Contractor shall notify City of any changes in Contractor's staff or subcontractors to be assigned to perform the services required under this Agreement and shall obtain the approval of the City prior to any such changes.

11. TERMINATION AND SUSPENSION

- TERMINATION FOR CONVENIENCE. The City, upon thirty (30) days written notice, may, in its sole discretion, terminate this Agreement at any time for convenience, and without cause. In the event of such termination, Contractor shall be entitled to compensation for all necessarily and reasonably incurred expenses and costs for services rendered and work performed for City under the terms of this Agreement to the date of termination.

- TERMINATION FOR CAUSE. The City may terminate this Agreement and be relieved of any payments to Contractor hereunder should the Contractor negligently or willfully fail to perform the requirements of this Agreement at the time and in the manner herein provided. The City shall provide written notice of such termination for cause to the Contractor, and the Contractor shall stop all work and services provided under this

Agreement on the date and under the terms specified in such written notice of termination. Such termination shall not, however, take effect until Contractor has been given a ten-day (10) opportunity to cure any such default in the performance of duties under this Agreement. In the event Contractor is unable or refuses to cure the breach or default within the specified period, the City may proceed with the work in any manner deemed proper by the City. All costs to the City in terminating this Agreement and proceeding with the work as the City deems proper, shall be deducted from any sum due the Contractor under this Agreement and the balance, if any, shall be paid to the Contractor upon demand. If any balance due Contractor is insufficient to reimburse the City for its costs incurred hereunder, the Contractor shall pay to the City the amount of those remaining costs upon demand.

- TERMINATION UPON MUTUAL CONSENT. The City and Contractor may terminate this Agreement upon mutual consent upon such termination terms and conditions as the parties agree, including the effective date and in the case of partial termination, the portion to be terminated.

- OBLIGATIONS SURVIVE TERMINATION. Notwithstanding any termination of this Agreement, Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any breach of this Agreement by Contractor, and the City may withhold any payments due to Contractor until such time as the exact amount of damages, if any, due the City from Contractor is determined. All of the indemnification, defense and hold harmless obligations in this Agreement shall survive termination.

- SUSPENSION. The City may order Contractor, in writing, to suspend, delay, or interrupt all or any part of the work under this Agreement for such reasonable period of time that City determines appropriate for the convenience of the City. If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted by the City, the costs of Contractor resulting from such unreasonable suspension, delay, or interruption (excluding profit), shall be allowed, and if this results in an increase in the total amount payable under this Agreement, this Agreement shall be modified in writing accordingly. However, no allowance of costs or adjustment to the amount payable under this Agreement shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this Agreement.

- EFFECTS DURING SUSPENSION AND AFTER TERMINATION. Costs of Consultant resulting from obligations incurred by the Consultant during a suspension or after termination of this Agreement are not allowable unless the City expressly authorizes them in the notice of suspension or termination or subsequently. Other Consultant costs during suspension or after termination which are necessary and not reasonably avoidable are allowed if the costs resulting from obligations which were properly incurred by the Consultant before the effective date of suspension or termination, are not in anticipation of suspension or termination, in the case of a termination are noncancellable, and the costs would be otherwise allowable if this Agreement was not suspended or terminated.

12. ENFORCEMENT FOR NONCOMPLIANCE

- REMEDIES. If the Contractor materially fails to comply with any term or condition of this Agreement, the City may, at its sole discretion, take any of the following enforcement actions:

1. Temporarily withhold cash payments pending correction of the deficiency by the Contractor.
2. Disallow all or part of the cost of the work, service, activity or action not in compliance.
3. Wholly or partly suspend or terminate this Agreement.
4. Withhold further payments to Contractor.
5. Take any other remedies that may be legally available.

- HEARINGS, APPEALS. In taking an enforcement action, the City will provide the Contractor an opportunity for a hearing, appeal or other administrative proceeding to which the Contractor is entitled under any statute or regulation applicable to the action involved.

13. DISPUTES

Should a dispute arise between the Contractor and City regarding any term, condition or provision of this Agreement, or any work or services provided by the Contractor hereunder, or whether the Contractor has or is performing its obligations as required hereunder, Contractor shall continue with its responsibilities under this Agreement during any such dispute, unless the City agrees, in writing, otherwise.

14. PROPERTY OF CITY

- MATERIALS PREPARED EXCLUSIVE PROPERTY OF CITY. Subject to the Patent and Copyright provisions of this Agreement, it is mutually agreed that all materials prepared by the Contractor under this Agreement are upon creation and shall be at all times the exclusive property of the City, and the Contractor shall have no property right therein whatsoever. City agrees that Contractor shall bear no responsibility for any reuse of the materials prepared by the Contractor if used for purposes other than those expressly set forth in this Agreement. Contractor shall not disseminate any information or reports gathered or created pursuant to this Agreement without the prior written approval of City including without limitation information or reports required by government agencies to enable Contractor to perform its duties under this Agreement and as may be required under the California Public Records Act excepting therefrom as may be provided by court order. Contractor will be allowed to retain copies of all deliverables to the City.

- CONTRACTOR TO DELIVER CITY PROPERTY. Immediately upon termination, or upon the request by the City, the City shall be entitled to, and the Contractor shall deliver to the City, all data, drawings, specifications, reports, estimates, summaries and other such materials and property of the City as may have been prepared or accumulated to said date by the Contractor in performing this Agreement. Contractor will be allowed to retain copies of all deliverables to the City.

15. CONFLICT OF INTEREST

Contractor covenants that neither it, nor any of its officers, principals, employees, agents or subcontractors, has or shall acquire during the term of this Agreement, any interest, directly or indirectly, which would conflict in any manner with the interests of City or which would in any way conflict in any manner with the Contractor's performance of services under this Agreement. Contractor further covenants that in the performance of this Contract, Contractor shall take reasonable care to ensure that no person having any such interest shall be employed by it as an officer, principal, employee, agent or subcontractor without the express written consent of the City Manager. 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. Contractor agrees to include language similar to this section in all contracts with subcontractors and agents for the work contemplated herein.

16. CONFIDENTIAL INFORMATION

All City information disclosed to Contractor and all materials prepared or assembled by Contractor pursuant to performance of this Agreement shall be treated as confidential and shall not be disclosed to any other persons or parties without the prior written approval of the City, except by court order.

17. **COOPERATION**

City and Contractor shall promptly notify the other party should Contractor or City or their officials, 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 hereunder. City and Contractor each retains the right, but has no obligation, to be present at any deposition, hearing or similar proceeding. Contractor and City agree to cooperate fully with the other party and to provide the other party with the opportunity to review any response to discovery requests provided by Contractor or City. However, City's and Contractor's right to review any such response does not imply or mean the right to control, direct, or rewrite said response.

18. COMPLIANCE WITH LAW

A. The Contractor and each of its subcontractors shall comply with all applicable local, state and federal laws, regulations and requirements that pertain to, among others, construction, health and safety, labor standards, fair employment practices, equal opportunity, immigration and naturalization, nondiscrimination, housing and building codes, and all other matters applicable to the City, its contractors or subcontractors, including but not limited to the state and federal provisions set forth herein and in Exhibit F and Exhibit G. Should the City be fined or have sanctions imposed upon it because of Contractor's or its subcontractor's failure to comply with such requirements, Contractor shall reimburse the City for the cost of all such fines or sanctions imposed, together with any and all costs, including without limitation attorney fees, incurred by the City in connection therewith.

B. If Contractor becomes aware of a conflict between such laws, regulations or requirements, Contractor shall notify City, in writing, of such conflict, and City and Contractor shall work together cooperatively to resolve the conflict. Under such circumstances, Contractor shall not be liable to City for any fines or sanctions resulting from Contractor's or its subcontactor's failure to comply with such requirements.

19. NON-DISCRIMINATION, NON-PREFERENTIAL TREATMENT

During the performance of this Agreement, Contractor and its subcontractors shall not unlawfully discriminate against or grant preferential treatment to any employee or applicant for employment because of race, religion, creed, color, national origin, ethnicity, citizenship, disability (mental or physical), age, marital or parental status, genetic information, sex, sexual orientation, gender, gender identification, or any other characteristic protected under applicable federal or state law. Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, creed, color, national origin, ethnicity, national origin, gender, sex, sexual orientation, gender identification, age, or disability. Contractor and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Contractor shall comply to the fullest extent required by law, with all applicable local, state, and federal laws relating to nondiscrimination and preferential treatment. Contractor shall include these nondiscrimination, preferential treatment, and compliance provisions in all subcontracts to perform work or provide services under this Agreement.

20. **PREVAILING WAGES**

A. Where funds provided through this Agreement are used for construction work, or in support of construction work, the Contractor shall ensure that the prevailing wage requirements of California Labor Code, Chapter 1, commencing with Section 1720, Part 7 [California Labor Code Section 1720-1743] (pertaining to the payment of prevailing wages and administered by the California Department of Industrial Relations) are met.

B. For the purposes of this requirement, “construction work” includes but is not limited to rehabilitation, alteration, demolition, installation or repair done under contract and paid for, in whole or in part, through this Agreement. All construction work shall be done through the use of a written contract with a properly licensed building contractor incorporating these requirements. Where the construction contract will be between the City and a licensed building contractor, the City shall serve as the "awarding body" as that term is defined in the Labor Code. Where the City will provide funds to a third party that will enter into the construction contract with a licensed building contractor, the third party shall serve as the "awarding body.” Prior to any disbursement of funds, including but not limited to release of any final retention payment, the City may require a certification from the awarding body that prevailing wages have been or will be paid.

21. ASSIGNMENT AND SUBSTITUTION

This Agreement is binding on the heirs, successors, and assigns of the parties hereto. Contractor shall not assign, transfer or substitute any interest in this Agreement without the prior written consent of the City, which shall not be unreasonably withheld, and any attempt by Contractor to so assign, transfer or substitute this Agreement or any rights, duties or obligations arising hereunder shall be void and of no effect. However, claims for money due or to become due Contractor from the City under this Agreement may be assigned to a financial institution,

but only with prior written consent of the City. Notice of any assignment or transfer whether voluntary or involuntary shall be furnished promptly to the City. The rights and benefits under this agreement are for the sole and exclusive benefit of the City and this Agreement shall not be construed that any third party has an interest in this Agreement.

22. SUBCONTRACTING

None of the services covered by this Contract shall be subcontracted without the prior written consent of the City. Contractor shall be as fully responsible to the City for the negligent acts and omissions of its contractors and subcontractors, and of persons either directly or indirectly employed by them, as it is for the negligent acts and omissions of persons directly employed by Contractor. Subcontracts, if any, shall contain a provision making them subject to all provisions contained in this Agreement.

23. LIABILITY OF CONTRACTOR

Contractor shall be responsible for performing the work under this Agreement in a manner which is consistent with the generally accepted standards of Contractor's profession and shall be liable for its own negligence and the negligent acts of its employees, agents, contractors and subcontractors. The City shall have no right of control over the manner in which the work is to be done but only as to its outcome, and shall not be charged with the responsibility of preventing risk to Contractor or its employees, agents, contractors or subcontractors.

24. INDEMNIFICATION

- INDEMNIFICATION FOR PROFESSIONAL LIABILITY. When the law establishes a professional standard of care for Contractor's Services, to the fullest extent permitted by law, Contractor shall indemnify, defend with counsel approved by City, and hold harmless City and any and all of its officers, officials, employees and agents from and against any and all loss, liability, damage, cost and expense (including without limitation, attorney fees, expert fees, court costs, interest, and all other costs and fees of litigation or defense) of every nature arising out of or in connection Contractor's sole negligence, recklessness, or willful misconduct of Contractor, its officers, agents, employees or subcontractors hereunder or its or their failure to comply with any of its or their obligations contained in this Agreement. With respect to the design of public improvements, the Contractor shall not be liable for any injuries or property damage resulting from the reuse of the design on a project other than the subject of this Agreement without the written consent of the Contractor.

- INDEMNIFICATION FOR OTHER THAN PROFESSIONAL LIABILITY. Other than in the performance of professional services and to the full extent permitted by law, Contractor shall indemnify, defend with counsel approved by City, and hold harmless City and any and all of its officers, officials, employees and agents from and against any and all loss, liability, damage, cost and expense (including without limitation, attorney fees, expert fees, interest, and all other costs and fees of litigation or defense) of every nature (including but not limited to court proceedings, arbitration proceedings, regulatory proceedings, or administrative proceedings) arising out of or in connection Contractor's sole negligence, recklessness, or

willful misconduct of Contractor, its officers, agents, employees or subcontractors hereunder or its or their failure to comply with any of its or their obligations contained in this Agreement.

- GENERAL INDEMNIFICATION. Contractor agrees to obtain executed indemnity agreements with provisions identical to those set forth herein for each and every subcontractor or any other person or entity involved by, for, with or on behalf of Contractor in the performance of this Agreement. In the event Contractor fails to obtain such indemnity obligations from others as required herein, Contractor agrees to be fully responsible to City according to the terms of this section. Failure of City to monitor compliance with these requirements imposes no additional obligations on City and will in no way act as a waiver of any rights hereunder. This obligation to indemnify, defend, and hold harmless City as set forth herein is binding on the successor, assigns or heirs of Contractor and shall survive the termination of this Agreement.

- INDEMNITY LIMITATION. Without affecting the rights of City under any provision of this Agreement, Contractor shall not be required to defend, indemnify and hold harmless City of liability attributable to the active negligence of City, provided such active negligence is determined by agreement between the parties or by the findings of a court of competent jurisdiction. In instances where City is shown to have been actively negligent and where City's active negligence accounts for only a percentage of the liability involved, the obligation of Contractor will be for that entire portion or percentage of liability not attributable to the active negligence of City.

25. INSURANCE

Contractor shall have and maintain the insurance policies set forth in Exhibit E, entitled "Insurance Requirements," attached hereto and incorporated herein by reference. All policies, endorsements, certificates and/or binders shall be subject to approval by City as to form and content. These requirements are subject to amendment or waiver only if so approved in writing by City. The insurance policies required herein shall be maintained by the Contractor, at its sole expense, for the time specified in Exhibit E. A lapse in any required insurance coverage during the term of this Agreement shall be a breach of this Agreement.

26. RECORDS

Contractor shall maintain all books, records, documents, drawings, specifications, accounting ledgers, payroll and labor costs, and similar materials relating to work performed for City under this Agreement on file for at least five (5) years following the date of final payment to Contractor by City, or as otherwise specified herein. Any duly authorized representative(s) of City shall have free access to such documents and records for the purpose of inspection, audit and copying at all reasonable times, during Contractor's usual and customary business hours. Contractor shall provide proper facilities to City's representative(s) for access and inspection.

27. PATENT, COPYRIGHT

If this Agreement results in any work or materials, including but not limited to discovery by or invention, writing, data or document developed by the Contractor in the course of or under this Agreement, that is or may be copyrightable or patentable, the Contractor may retain the entire

right, title, and interest therein (patent or copyright as the case may be). With respect to any such patent or copyright interest, the City shall have a royalty-free, nonexclusive, irrevocable and paid-up license to reproduce, publish or otherwise use and to authorize others to use for governmental purposes any such work or materials.

28. LOSS LEADER

It is unlawful for any person engaged in business within this state to sell or use any article or product as a "loss leader" as defined in section 17030 of the Business and Professions Code.

29. EXHIBITS INCORPORATED

All Exhibits referred to in this Agreement and attached to it are hereby incorporated in it by this reference.

30. ENTIRE AGREEMENT

This Agreement represents the entire understanding between the parties relative to the matters contained herein. There are no understandings, agreements, conditions, representations, warranties or promises, whether oral or written, with respect to this Agreement, except those contained in or referred to in this Agreement. This Agreement supersedes all prior understandings, agreements, courses of conduct, prior dealings among the parties and documentation of any kind without limitation.

31. AMENDMENT

This Agreement may be modified or amended, or any of its provisions waived, only by a subsequent written agreement executed by each of the parties. The parties agree that this requirement for written modification cannot be waived and any attempted waiver shall be void.

32. COUNTERPARTS

This Agreement may be executed in multiple counterparts, each of which shall be an original and all of which together shall constitute one agreement.

33. WAIVER

The waiver at any time by any party of any of its rights with respect to a default or other matter arising in connection with this Contract shall not be deemed a wavier with respect to any subsequent default or other matter. Waiver by City of any one or more of the conditions of performance under this Agreement shall not be construed as waiver of any other condition of performance under this Agreement. The acceptance by the City of the performance of any work or services by Contractor shall not be deemed to be a waiver of any term or condition of this Agreement.

34. SEVERABILITY

If any part of this Agreement is found to be in conflict with applicable laws, such part shall be inoperative, null, and void insofar as it is in conflict with said laws, but the remainder of this Agreement shall continue to be in full force and effect. The invalidity, illegality or unenforceability of any provision of this Agreement shall not render the other provisions invalid, illegal or unenforceable.

35. NOTICES

All notices that are required to be given by one party to the other under this Agreement shall be in writing and shall be deemed to have been given if (1) personally delivered, (2) delivered via email, or (3) enclosed in a properly addressed envelope, postage prepaid, and deposited in a United States Post Office for delivery addressed to the parties as follows:

City: City of Greenfield
City Manager
P.O. Box 127
599 El Camino Real
Greenfield, CA 93927

Contractor: [CONTACT PERSON]
[Street Address]
[City, state and zip code]

Each party may change the address at which it gives notice by giving ten (10) days advance, written notice to the other party.

36. NOTICE TO PROCEED, PROGRESS, COMPLETION

Upon execution of this Agreement by the parties, City shall give Contractor written notice to proceed with the work. Such notice may authorize Contractor to render all of the services contemplated herein, or such portions or phases as may be mutually agreed upon. In the latter event, City shall, in its sole discretion, issue subsequent notices from time to time regarding further portions or phases of the work. Upon receipt of such notices, Contractor shall diligently proceed with the work authorized and complete it within the agreed time period.

37. INDEPENDENT INVESTIGATION

The Contractor agrees and hereby represents it has satisfied itself by its own investigation and research regarding the conditions affecting the work to be done and labor and materials needed, and that its decision to execute this Agreement is based on such independent investigation and research.

38. CONSTRUCTION AND INTERPRETATION

Contractor and City agree and acknowledge that the provisions of this Agreement have been arrived at through negotiation and that each party has had a full and fair opportunity to revise the provisions of this Agreement and to have such provisions reviewed by legal counsel. Therefore, any ambiguities in construing or interpreting this Agreement shall not be resolved against the drafting party. The titles of the various sections are merely informational and shall not be construed as a substantive portion of this Agreement.

39. MISTAKE OF FACT

Each party understands that if any fact with respect to any matter covered by this Agreement is found hereafter to be other or different from the facts now believed by that party to be true, such party expressly accepts and assumes the risk of such possible differences in fact and agrees that this Agreement shall be in all respects effective and not subject to termination or rescission by reason of any such difference in facts.

40. GOVERNING LAW

The City and Contractor agree that the laws of the State of California shall govern this Agreement. Any suit brought by either party against the other arising out of the performance of this Agreement shall be filed and maintained in the County of Monterey, federal diversity jurisdiction being expressly waived.

41. AUTHORITY TO EXECUTE

The person or persons executing this Contract on behalf of Contractor warrant and represent that they have the authority to execute this Contract on behalf of their agency and further warrant and represent that they have the authority to bind Contractor to the performance of its obligations hereunder.

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

CITY OF GREENFIELD

By: _____
Susan A. Stanton, ICMA-CM
City Manager

Approved as to form:

By: _____
Bradley W. Sullivan
City Attorney

Attest:
By: _____
Ann Rathbun
City Clerk

[NAME OF CONTRACTOR]

By: _____
[Name]
[Title]

CERTIFICATE OF COMPLIANCE
WITH LABOR CODE § 3700

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 have complied or will comply with such provisions before commencing the performance of the work of this contract. (Cal. Labor Code §§1860, 1861.)

CONTRACTOR

_____
[Insert Contractor Name]
[Name]
[Title]

EXHIBIT A
Scope of Work

The Scope of work is contained in the following documents, considered attachments to this Contract for Services:

1. Plans & Specifications for the **Wastewater Treatment Plant Surface Aerator Addition Project** as Prepared by **Wallace Group** Dated February 2016, including all issued addendums.

2. All provisions of this Contract.

3. All requirements required under CDBG, the funding grant for this project, as described herein.

EXHIBIT B
Compensation and Method of Payment

Base Services – Unit Price Contract. City hereby agrees to pay Contractor a Unit Price Contract amount of _____ DOLLARS ($_____) for the Base Services as identified in Exhibit A, and as further broken down by Bid items in the Bid Sheet on the Contractor's Proposal. Contractor shall invoice City based on a percent completion basis of each task identified in the Base Services of Exhibit A based on the following cost allocation by task. Reallocation of funds from one task to another shall be by written amendment to this Agreement only (Approved Contract Change Order).

EXHIBIT C
Listing of Subcontractors and Key Personnel

As described in the Contractor's Proposal

EXHIBIT D
Items Provided by City

Not Applicable

EXHIBIT E
Insurance Requirements

Contractor shall procure and maintain for the duration of the contract and for two years thereafter insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees, or subcontractors.

MINIMUM SCOPE AND LIMIT OF INSURANCE

Coverage shall be at least as broad as:

1. Commercial General Liability (CGL): Insurance Services Office Form CG 00 01 covering CGL on an "occurrence" basis, including products and completed operations, property damage, bodily injury and personal & advertising injury with limits no less than $2,000,000 per occurrence. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.

2. Automobile Liability: Insurance Services Office Form Number CA 00 01 covering any auto (Code 1), or if no owned autos, hired (Code 8) and non-owned autos (Code 9), with limits no less than $2,000,000 per accident for bodily injury and property damage.

3. Workers' Compensation insurance as required by the State of California, with Statutory Limits, and Employers' Liability insurance with a limit of no less than $1,000,000 per accident for bodily injury or disease.

4. Builder's Risk (for construction contracts only) insurance utilizing an "All Risk" (Special Perils) coverage form, with limits equal to the completed value of the project and no coinsurance penalty provisions.

5. Surety Bonds as described below (for construction contracts only).

6. Professional Liability (Errors and Omissions), appropriate to the Contractor's profession, with limits no less than $1,000,000 per occurrence or claim, and $2,000,000 policy aggregate.

7. Contractors' Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors and Omissions (for construction contracts only) with limits no less than $1,000,000 per occurrence or claim, and $2,000,000 policy aggregate.

If the contractor maintains higher limits than the minimums shown above, the City requires and shall be entitled to coverage for the higher limits maintained by the contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City.

Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either: the Contractor shall cause the insurer to reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees, and authorized volunteers; or the Contractor shall provide a financial guarantee satisfactory to the City guaranteeing payment of losses and related investigations, claim administration, and defense expenses.

Other Insurance Provisions

The insurance policies are to contain, or be endorsed to contain, the following provisions:

1. The City, its officers, officials, employees, and authorized volunteers are to be covered as additional insureds on the CGL policy with respect to liability arising out of with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations and automobiles owned, leased, hired, or borrowed by or on behalf of the Contractor. General liability coverage can be provided in the form of an endorsement to the Contractor's insurance (at least as broad as ISO Form CG 20 10, CG 11 85 or both CG 20 10 and CG 20 37 forms if later revisions used).

2. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the City, its officers, officials, employees, and authorized volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees, or authorized volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

3. Each insurance policy required by this clause shall provide that coverage shall not be canceled, except with notice to the City.

Builder's Risk (Course of Construction) Insurance (for construction contracts only)

Contractor shall submit evidence of Builder's Risk insurance in the form of Course of Construction coverage. Such coverage shall name the City as a loss payee as their interest may appear.

Claims Made Policies

If any coverage required is written on a claims-made coverage form:

42. The retroactive date must be shown, and this date must be before the execution date of the contract or the beginning of contract work.

43. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of contract work.

44. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective date or start of work date, the Contractor must purchase "extended reporting" period coverage for a minimum of five (5) years after completion of contract work.

45. A copy of the claims reporting requirements must be submitted to the City for review.

46. If the services involve lead-based paint or asbestos identification/remediation, the Contractors Pollution Liability policy shall not contain lead-based paint or asbestos exclusions. If the services involve mold identification/remediation, the Contractors Pollution Liability policy shall not contain a mold exclusion, and the definition of Pollution shall include microbial matter, including mold.

Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best rating of no less than A: VII, unless otherwise acceptable to the City.

Waiver of Subrogation

Contractor hereby agrees to waive rights of subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss under such insurance. Contractor agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, provided such waiver of subrogation endorsement is commercially available, but this provision applies regardless of whether or not the City has received a waiver of subrogation endorsement form the insurer.

The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of the City for all work performed by the Contractor, its employees, agents and subcontractors.

Verification of Coverage

Contractor shall furnish the City with original certificates and amendatory endorsements, or copies of the applicable insurance language, effecting coverage required by this contract. All certificates and endorsements are to be received and approved by the City before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Contractor's obligation to provide them. The City reserves the right to require complete, certified copies of all required insurance policies, including endorsements, required by these specifications, at any time.

Subcontractors

Contractor shall require and verify that all subcontractors maintain insurance meeting all the requirements stated herein, and Contractor shall ensure that City is an additional insured on insurance required from subcontractors. For CGL coverage, subcontractors shall provide coverage with a format least as broad as CG 20 38 04 13.

Surety Bonds (for construction contracts only)

Contractor shall provide the following Surety Bonds or Guarantees:

1. Bid Guarantee – Equal to five percent (5%) of the proposed contract amount in form of bid bond, certified check, or other negotiable instrument as assurance that the bidder shall, upon acceptance of its bid, execute such contractual documents as may be required within the time specified.

2. Performance Bond – Equal to 100 percent of the contract amount executed in connection with the contract to secure fulfillment of all the contractor's obligations under such contract.

3. Payment Bond – Equal to 100 percent of the contract amount executed in connection with the contract to ensure payment as required by law of all persons supplying labor and material in the execution of the work provided for under such contract.

4. Maintenance Bond – Equal to ten percent (10%) of the contract amount executed in connection with the contract to maintain and keep in good repair for a period of two years the improvements provided for under such contract. If the Performance Bond or other warranty provides for a two year or longer warranty period for any item or improvement, a separate Maintenance Bond is not required for any such item or improvement.

Any bonds provided under this Agreement shall be duly executed by a responsible corporate surety, authorized to issue such bonds in the State of California.

Special Risks or Circumstances

City reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

EXHIBIT F

CDBG Grant Requirements

The Contractor shall, in addition to all other requirements of this contract, provide and perform the following:

EXHIBIT F
CDBG and Federal Contract Requirements

1. Sufficiency of Funds and Termination

A. The City may terminate this Agreement at any time for cause by giving at least fourteen (14) days written notice to the Contractor. Cause shall consist of violations of any terms and/or special conditions of this Agreement, upon the request of HUD, upon the request of the Department of Housing and Community Development ("HCD"), or withdrawal of HCD's expenditure authority.

B. This Agreement is valid and enforceable only if sufficient current funds are made available to HCD by the United States Government for the Federal Fiscal Year. In addition, this Agreement is subject to any additional restrictions, limitations, conditions or statute enacted by the Congress or State Legislature, which may affect the provisions, terms or funding of this Agreement in any manner.

C. If Congress does not appropriate sufficient funds for the program, the City may amend this Agreement to reflect any reduction in funds, or it may terminate this Agreement by giving fourteen (14) days written notice to the Contractor.

2. Uniform Administrative Requirements

The Contractor and Subcontractors shall comply with the policies, guidelines and requirements of 24 CFR Part 85 and OMB Circulars A-87, A-110 (implemented at 24 CFR part 84), A-122, A-133 (implemented at 24 CFR part 45), and A-128 (implemented at 24 CFR part 44), as applicable, as they relate to the acceptance and use of federal funds under this part. The applicable sections of 24 CFR parts 84 and 85 are set forth in Section 570.502.

3. Equal Opportunity Requirements and Responsibilities

A. **Title VI of the Civil Rights Act of 1964:** This act provides that no person shall be excluded from participation, denied program benefits, or subject to discrimination based on race, color, and/or national origin under any program or activity receiving federal financial assistance.

B. **Title VII of the Civil Rights Act of 1968 (The Fair Housing Act):** This act prohibits discrimination in housing on the basis of race, color, religion, sex and/or national origin. This law also requires actions which affirmatively promotes fair housing.

C. **Restoration Act of 1987:** This act restores the broad scope of coverage and clarifies the application of the Civil Rights Act of 1964. It also specifies that an institution which receives federal financial assistance is prohibited from

discriminating on the basis of race, color, national origin, religion, sex, disability or age in a program or activity which does not directly benefit from such assistance.

D. **Section 109 of Title 1 of the Housing and Community Development Act of 1974 [42 U.S.C. 5309]:** This section of Title 1 provides that no person shall be excluded from participation (including employment), denied program benefits, or subject to discrimination on the basis of race, color, national origin, or sex under any program or activity funded in whole or in part under Title 1 of the Act.

E. **The Fair Housing Amendment Act of 1988:** This act amended the original Fair Housing Act to provide for the protection of families with children and people with disabilities, strengthen punishment for acts of housing discrimination, expand the Justice Department jurisdiction to bring suit on behalf of victims in federal district courts, and create an exemption to the provisions barring discrimination on the basis of familial status for those housing developments that qualify as housing for persons age 55 or older.

F. **The Housing for Older Persons Act of 1995 (HOPA):** Retained the requirement that the housing facilities must have one person who is 55 years of age or older living in at least 80% of its occupied units. The act also retained the requirement that housing facilities publish and follow policies and procedures that demonstrate intent to be housing for persons 55 or older.

G. **The Age Discrimination Act of 1975:** This act provides that no person shall be excluded from participation, denied program benefits, or subject to discrimination on the basis of age under any program or activity receiving federal funding assistance. Effective January 1987, the age cap of 70 was deleted from the laws. Federal law preempts any State law currently in effect on the same topic including: KRS 18A.140; KRS 344.040; 101 KAR 1:350 Paragraph 11; 101 KAR 1:375 Paragraph 2(3); 101 KAR 2:095 Paragraphs 6 and 7.

H. **Section 504 of the Rehabilitation Act of 1973:** It is unlawful to discriminate based on disability in federally assisted programs. This Section provides that no otherwise qualified individual shall, solely by reason of his or her disability, be excluded from participation (including employment), denied program benefits, or subjected to discrimination under any program or activity receiving federal funding assistance. Section 504 also contains design and construction accessibility provisions for multi-family dwellings developed or substantially rehabilitated for first occupancy on or after March 13, 1991.

I. **The Americans with Disabilities Act of 1990 (ADA):** This act modifies and expands the Rehabilitation Act of 1973 to prohibit discrimination against “a qualified individual with a disability” in employment and public accommodations. The ADA requires that an individual with a physical or mental impairment who is otherwise qualified to perform the essential functions of a job, with or without

reasonable accommodation, be afforded equal employment opportunity in all phases of employment.

J. **Executive Order 11063:** This executive order provides that no person shall be discriminated against on the basis of race, color, religion, sex, or national origin in housing and related facilities provided with federal assistance and lending practices with respect to residential property when such practices are connected with loans insured or guaranteed by the federal government.

K. **Executive Order 11259:** This executive order provides that the administration of all federal programs and activities relating to housing and urban development be carried out in a manner to further housing opportunities throughout the United States.

L. **The Equal Employment Opportunity Act:** This act empowers the Equal Employment Opportunity Commission (EEOC) to bring civil action in federal court against private sector employers after the EEOC has investigated the charge, found "probable cause" of discrimination, and failed to obtain a conciliation agreement acceptable to the EEOC. It also brings federal, state, and local governments under the Civil Rights Act of 1964.

M. **The Immigration Reform and Control Act (IRCA) of 1986:** Under IRCA, employers may hire only persons who may legally work in the U.S., i.e., citizens and nationals of the U.S. and aliens authorized to work in the U.S. The employer must verify the identity and employment eligibility of anyone to be hired, which includes completing the Employment Eligibility Verification Form (1-9).

N. **The Uniform Guidelines on Employee Selection Procedures adopted by the Equal Employment Opportunity Commission in 1978:** This manual applies to employee selection procedures in the areas of hiring, retention, promotion, transfer, demotion, dismissal and referral. It is designed to assist employers, labor organizations, employment agencies, licensing and certification boards in complying with the requirements of federal laws prohibiting discriminatory employment.

O. **The Vietnam Era Veterans' Readjustment Act of 1974 (revised Jobs for Veterans Act of 2002):** This act was passed to ensure equal employment opportunity for qualified disabled veterans and veterans of the Vietnam War. Affirmative action is required in the hiring and promotion of veterans.

P. **Executive Order 11246 (as amended by Executive Order 11375):** This executive order applies to all federally assisted construction contracts and subcontracts. It provides that no person shall be discriminated against on the basis of race.

4. The Training, Employment, and Contracting Opportunities for Business and Lower-Income Persons Assurance of Compliance (Section 3)

A. 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 or 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.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

F. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

G. With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

5. Clean Air and Water Acts

This Agreement is subject to the requirements of the Clean Air Act, as amended, 42 U.S.C. 1857 et seq., the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR, Part 15, as amended from time to time.

6. Energy Policy and Conservation Act

This Agreement is subject to mandatory standards and policies relating to energy efficiency which are contained in the State Energy Conservation Plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94A 163, 89 Stat. 871).

7. Compliance with State and Federal Laws and Regulations

A. The Contractor agrees to comply with all State laws and regulations that pertain to construction, health and safety, labor, fair employment practices, equal opportunity, and all other matters applicable to the City, its contractors or subcontractors, and the grant activity, as well as any other State provisions as set forth.

B. The Grantee agrees to comply with all federal laws and regulations applicable to the CDBG Program and to the grant activity(ies), and with any other federal provisions as set forth.

8. Audit

Contractor agrees that the City, HCD, the Department of General Services, the Bureau of State Audits, or their designated representative shall have the right to review and to copy any records and supporting documentation pertaining to the performance of this Agreement. Contractor agrees to maintain such records for possible audit for a minimum of three (3) years after final payment, unless a longer period of records retention is otherwise required under this Agreement. Contractor agrees to allow the auditor(s) access to such records during normal business hours and to allow interviews of any

employees who might reasonably have information related to such records. (Gov. Code §8546.7, Pub. Contract Code §10115 et seq., CCR Title 2, Section 1896).

9. Non-Discrimination Clause

During the performance of this Agreement, Contractor and its subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition (e.g., cancer), age (over 40), marital status, and denial of family care leave. Contractor and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Contractor and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code §12990 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part hereof as if set forth in full. Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other Agreement.

10. Antitrust Claims

The Contractor by signing this Agreement hereby certifies that if these services or goods are obtained by means of a competitive bid, the Contractor shall comply with the requirements of the Government Codes Sections set out below.

A. The Government Code Chapter on Antitrust claims contains the following definitions:

1. “Public purchase" means a purchase by means of competitive bids of goods, services, or materials by the State or any of its political subdivisions or public agencies on whose behalf the Attorney General may bring an action pursuant to subdivision (c) of Section 16750 of the Business and Professions Code.

2. "Public purchasing body" means the State or the subdivision or agency making a public purchase. Government Code Section 4550.

B. In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the 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, materials, or services by the bidder for sale to

the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder. Government Code Section 4552.

C. If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery. Government Code Section 4553.

D. Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action. See Government Code Section 4554.

11. Child Support Compliance Act

For any Agreement in excess of $100,000, the Contractor acknowledges in accordance with Public Contract Code 7110, that:

A. The Contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with section 5200) of Part 5 of Division 9 of the Family Code; and

B. The Contractor, to the best of its knowledge, is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

12. Priority Hiring Considerations

If this Agreement includes services in excess of $200,000, the Contractor shall give priority consideration in filling vacancies in positions funded by this Agreement to qualified recipients of aid under Welfare and Institutions Code Section 11200 in accordance with Pub. Contract Code §10353.

13. Federal Labor Standards Provisions

A. Davis-Bacon Act (40 U.S.C. 3141-3148) requires that workers receive no less than the prevailing wages being paid for similar work in their locality. Prevailing wages are computed by the Federal Department of Labor and are issued in the form of federal wage decisions for each classification of work. The law applies to most construction, alteration, or repair contracts over $2,000.

B. Copeland "Anti-Kickback Act of 1986" (41 U.S.C. 51-58) prohibits attempted as well as completed "kickbacks," which include any money, fees, commission, credit, *gift,* gratuity, thing of value, or compensation of any kind. The act also provides that the inclusion of kickback amounts in contract prices is prohibited conduct in itself. This act requires that the purpose of the kickback was for improperly obtaining or rewarding favorable treatment. It is intended to embrace the full range of government contracting.

C. Contract Work Hours and Safety Standards Act - CWHSSA (40 U.S.C. 3702) requires that workers receive "overtime" compensation at a rate of one and one-half (1-1/2) times their regular hourly wage after they have worked forty (40) hours in one week.

D. Title 29, Code of Federal Regulations CFR. Subtitle A. Parts 1, 3 and 5 are the regulations and procedures issued by the Secretary of Labor for the administration and enforcement of the Davis-Bacon Act, as amended.

The Contractor shall maintain documentation that demonstrates compliance with the foregoing hour and wage requirements. Such documentation shall be made available to the City or the Department for review upon request.

14. Prevailing Wages

A. Where funds provided through this Agreement are used for construction work, or in support of construction work, the Contractor shall ensure that the requirements of California Labor Code(LC),Chapter 1, commencing with Section 1720, Part 7 [California Labor Code Section 1720-1743] (pertaining to the payment of prevailing wages and administered by the California Department of Industrial Relations) are met.

B. For the purposes of this requirement "construction work" includes, but is not limited to rehabilitation, alteration, demolition, installation or repair done under contract and paid for, in whole or in part, through this Agreement. All construction work shall be done through the use of a written contract with a properly licensed building contractor incorporating these requirements (the "Construction contract"). Where the construction contract will be between the City and a licensed building contractor, the City shall serve as the "awarding body" as that term is defined in the Labor Code. Where the City will provide funds to a third

party that will enter into the construction contract with a licensed building contractor, the third party shall serve as the "awarding body." Prior to any disbursement of funds, including but not limited to release of any final retention payment, the City may require a certification from the awarding body that prevailing wages have been or will be paid.

15. Lead Based Paint Hazards

Activity(ies) performed with assistance provided under this Agreement are subject to lead-based paint hazard regulations contained in Title 8 (Industrial Relations) and Title 17 (Public Health) of the CCR and 24 CFR, Part 35 (Lead Disclosure). Any grants or loans made by the City with assistance provided under the CCDBG Grant shall be made subject to the provisions for the elimination or mitigation of lead-based paint hazards under these regulations. The City shall be responsible for the notifications, inspections, and clearance certifications required under these regulations.

16. Conflict of Interest of Members, Officers, or Employees of Contractors, Members of Local Governing Body, or other Public Officials

Pursuant to 24 CFR 570.489(h), no member, officer, or employee of the City, or its designees or agents, no member of the governing body of the locality in which the program is situated, and no other public official of such locality or localities who exercise or have exercised any functions or responsibilities with respect to CDBG activities assisted under this part, or who are in a position to participate in a decision-making process or gain inside information with regard to such activities, may obtain a financial interest or benefit from a CDBG-assisted activity, or have a financial interest in any contract, subcontract or agreement with respect to a CDBG-assisted activity or its proceeds, either for themselves or those with whom they have business or immediate family ties, during their tenure, or for one (1) year thereafter.

17. Conflict of Interest of Certain Federal Officials

No member of or delegate to the Congress of the United States, and no resident commissioner, shall be admitted to any share or part of this Agreement or to any benefit to arise from the same.

18. Anti-Job Pirating Certification

Pursuant to 24 CFR 570.482(h) CDBG funds may not be used to directly assist a business, including a business expansion, in the relocation of a plant, facility, or operation from one labor market area to another labor market area if the relocation is likely to result in a significant loss of jobs in the labor market area from which the relocation occurs. Job loss of more than 500 employees is always considered significant. Job loss of 25 or fewer positions is never considered significant.

19. Anti-Lobbying Certification

This anti-lobbying certification clause is required for inclusion in all contracts or subcontracts entered into in connection with this grant activity(ies) and that all contractors 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 31 U.S.C.1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and no more than $100,000 for such failure.

A. No federal appropriated funds have been paid or will be paid, by or on behalf of it, 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 the awarding of any federal contract, the cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

B. 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, it will complete and submit Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

20. Bonus or Commission, Prohibition Against Payments of

The funds or assistance provided under this Agreement shall not be used in the payment of any bonus or commission for the purpose of:

A. Obtaining the City's approval of the Application for such assistance or the award of this contract; or,

B. The City's approval of the Applications for additional assistance or the award of additional contracts or change orders; or,

C. Any other approval or concurrence of the City required under this Agreement, Title I of the Housing and Community Development Act of 1974, or the State regulations with respect thereto; provided, however, that reasonable fees for bona fide technical, consultant, managerial or other such services, other than actual solicitation, are not hereby prohibited if otherwise eligible as CDBG program costs.

21. Contractors

A. The City shall not enter into any agreement, written or oral, with any contractor without the prior determination that the contractor is eligible to receive CDBG funds and is not listed on the Federal Consolidated List of Debarred, Suspended, and Ineligible Contractors. Contractors are defined as program operators or construction contractors who are procured competitively.

B. An agreement between the City and any contractor shall require:

1. Compliance with the applicable State and federal requirements described in this Agreement, which pertain to, among other things, labor standards, nondiscrimination, Americans with Disabilities Act, Equal Employment Opportunity and Drug-Free Workplace; and, Compliance with the applicable provisions relating to Labor Standards/Prevailing Wages. In addition to these requirements, all contractors and subcontractors shall comply with the applicable provisions of the California Labor Code.

2. Maintenance of at least the minimum State-required Workers' Compensation Insurance for those employees who will perform the grant activity(ies) or any part of it.

3. Maintenance, if so required by law, of unemployment insurance, disability insurance and liability insurance, which is reasonable to compensate any person, firm, or corporation, who may be injured or damaged by the contractor, or any subcontractor in performing the grant activity(ies) or any part of it.

4. Compliance with the applicable Equal Opportunity Requirements described in Section 3 of this Exhibit F.

C. Contractors shall:

1. Perform the grant activity(ies) in accordance with federal, State and local housing and building codes, as are applicable.

2. Provide security to assure completion of the project by furnishing the borrower and construction lenders with Performance and Payment Bonds, or other security approved in advance in writing by the Department.

D. Contractors shall comply with the requirements of the Drug-Free Workplace Act of 1988 and shall:

1. Publish and give a policy statement to all covered employees informing them that the unlawful manufacture, distribution, dispensation,

possession or use of a controlled substance is prohibited in the covered workplace and specifying the actions that will be taken against employees who violate the policy.

2. Establish a drug-free awareness program to make employees aware of a) the dangers of drug abuse in the workplace; b) the policy of maintaining a drug-free workplace; c) any available drug counseling, rehabilitation, and employee assistance programs; and d) the penalties that may be imposed upon employees for drug abuse violations.

3. Notify employees that as a condition of employment on a federal contract or grant, the employee must a) abide by the terms of the policy statement; and b) notify the employer, within (5) five calendar days, if he or she is convicted of a criminal drug violation in the workplace.

4. Notify the City within 10 (ten) days after receiving notice that a covered employee has been convicted of a criminal drug violation in the workplace.

5. Impose a penalty on or require satisfactory participation in a drug abuse assistance or rehabilitation program by any employee who is convicted of a reportable workplace drug conviction.

6. Make an ongoing, good faith effort to maintain a drug-free workplace by meeting the requirements of the act.

22. Periodic Reporting Requirements

During the term of this Agreement, the City must submit the following reports by the dates identified, respectively, or as otherwise required at the discretion of HCD. The Contractor shall provide information and documentation to the City, when and as requested, to enable to the City to fulfill these reporting requirements.

A. Semi-Annual Financial and Accomplishment Report: Submit by January 31 and July 31.

B. Annual Grantee Performance Report (GPR): Submit by July 31 starting from the contract effective date to subsequent June 30, and for each State fiscal year.

C. Annual Section 3 Reports: Submit by July 31 starting from the contract effective date to subsequent June 30, and for each State fiscal year.

D. Annual Minority Owned Business/Women Owned Business (MBE/WBE) Report: Submit by July 31 starting from the contract effective date to subsequent June 30, and for each State fiscal year.

E. Wage Compliance Reports: Semi-annual Wage Compliance Reports are to be submitted by October 7 and April 7 during the entire construction period. The final Wage Compliance Report is to be submitted thirty (30) days after construction is completed.

23. Access

Access by the City, HUD, the State, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers, and records of the Contractor or any subcontractor that are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transcriptions pursuant to 24 CFR 85.36(i) (10).

24. Flood Disaster Protection

A. This Agreement is subject to the requirements of the Flood Disaster Protection Act (FDPA) of 1973 (Public Law 93-234). No portion of the assistance provided under this Agreement is approved for acquisition or construction purposes as defined under FDPA, Section 3(a) of said act, for use in an area identified by the Secretary of HUD as having special flood hazards which Is located in a community not then in compliance with the requirements for participation in the national flood insurance program pursuant to FDPA, Section 102(d) of said act.

B. The use of any assistance provided under this Agreement for such acquisition or construction in such identified areas in communities then participating in the national flood insurance program shall be subject to the mandatory purchase of flood insurance requirements of FDPA, Section 102(a) of said act.

C. Any contract or agreement for the sale, lease, or other transfer of land acquired, cleared or improved with assistance provided under this Agreement shall contain certain provisions. These provisions will apply if such land is located in an area identified by the Secretary of HUD as having special flood hazards and in which the sale of flood insurance has been made available under the National Flood Insurance Act of 1968, as amended, 42 U.S.C. 4001 et seq.

D. These provisions shall obligate the transferee and its successors or assigns to obtain and maintain, during the ownership of such land, such flood insurance as required with respect to financial assistance for acquisition or construction purposes under FDPA, Section 102(s) of the Flood Disaster Protection Act of 1973. Such provisions shall be required notwithstanding the fact that the construction on such land is not itself funded with assistance provided under this Agreement.

25. Debarrment

The Consultant, and each of its subcontractors, shall certify that its organization, its affiliates, and any other principal person working or providing services under this Agreement have not been disbarred or suspended from participation in a transaction or conducting business with any Federal agency.

26. Procurement

The City will comply with the procurement provisions in 24 CFR 85.36, Administrative Requirements for Grants and Cooperative Agreements to State, local and federally recognized Indian tribal governments. A summary of the applicable provisions, requirements, and contracting procedures of 24 CFR 85.36 is set forth in Exhibit G of this Agreement. The City and Contractor shall comply with all applicable provisions of 24 CFR 85.36 regardless of whether they are set forth, summarized, or otherwise referenced in Exhibit G or elsewhere in this Agreement.

EXHIBIT G
Federal Procurement Requirements

Federal procurement requirements shall be followed. All forms provided in this section shall be included in the bid package. Failure to submit any of these forms shall deem the bidder as non-responsive.

1. Non-segregated Facilities Certification Form
2. HUD-4230A, US Department of Housing and Urban Development Report of Additional Classification and Rate
3. Past Performance Certification

The following additional requirements, where applicable, are part of the Contract Documents. Where conflicts arise between these requirements and other requirements in these Contract Documents, the following requirements shall prevail:

1. HUD-2554, Supplementary Conditions to the Contract for Construction

2. HUD-4010, Federal Labor Standard Provisions

3. HUD-5370, General Conditions of the contract for Construction (contracts >$100,000)

4. HUD 5370-EZ, General Conditions for Small Construction (contracts >$2,000 but no more than $100,000)

5. HUD-5370-C, General Conditions for Non-Construction Contracts, Section II

The Davis-Bacon wage decisions applicable to construction work are available online at: www.wdol.gov.

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REPORT OF ADDITIONAL CLASSIFICATION AND RATE

HUD FORM 4230A

OMB Approval Number 2501-0011
(Exp. 01/31/2010)

1. FROM (*name and address of requesting agency*)

2. PROJECT NAME AND NUMBER

3. LOCATION OF PROJECT (City, County and State)

4. BRIEF DESCRIPTION OF PROJECT

5. CHARACTER OF CONSTRUCTION

- ☐ **Building**
- ☐ **Heavy**
- ☐ **Highway**
- ☐ **Residential**
- ☐ **Other (specify)**

6. WAGE DECISION NO. (include modification number, if any)

☐ **COPY ATTACHED**

7. WAGE DECISION EFFECTIVE DATE

8. WORK CLASSIFICATION(S)	HOURLY WAGE RATES	
	BASIC WAGE	FRINGE BENEFIT(S) (if any)

9. PRIME CONTRACTOR (name, address)

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 as explained in agency referral. DOL decision requested.**

Agency Representative
(Typed name and signature)

Date

Phone Number

FOR HUD USE ONLY
LR2000:

Log in:

Log out:

CERTIFICATE OF NON-SEGREGATED FACILITIES

We, _____(Company)
Certify that we do not and will not maintain or provide for our employees any segregated facilities at any of our establishments, and that we do not and will not permit our employees to perform their services at any location, under our control, where segregated facilities are maintained. We understand and agree that breach of this certification is a violation of Equal Opportunity clause required by Executive Order 11246, amended.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, 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.

We further agree that (except where we have obtained identical certifications from proposed Subcontractors for specific time periods) we 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; that we will retain such certification in our files; and that we will forward the following notice to such proposed Subcontractors (except where the proposed Subcontractors have submitted identical certifications for specific time periods).

NOTICE TO PROSPECTIVE SUBBUILDERS OF REQUIREMENT FOR CERTIFICATION OF NON-SEGREGATED FACILITIES. A certification of Non-segregated facilities as required by the 9 May 1967 order on Elimination of Segregated Facilities, by the Secretary of Labor (32 Fed. Reg. 7439, 19 May 1967), must be submitted from the provisions either for each subcontract or for all subcontracts during a period (i.e. quarterly, semi-annually, or annually).

NOTE: Whoever knowingly and willfully makes any false, fictitious or fraudulent representation may be liable to criminal prosecution under 18 U.S.C. 1001.

_____
(Name of Company)

By: _____

Date: _____ **Title:** _____

ITEM 9

Past Performance Certification

PROJECT NAME _____ PROJECT NUMBER _____ NUMBER OF EMPLOYEES _____

COMPANY NAME _____

COMPANY ADDRESS _____

LICENSE NUMBER _____ EMPLOYER IDENTIFICATION NUMBER _____ DUNS NUMBER _____

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.

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

AUTHORIZED OFFICIAL NAME _____ AUTHORIZED OFFICIAL TITLE/CAPACOUNTY _____

AUTHORIZED OFFICIAL SIGNATURE _____ DATE _____

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.

Supplementary Conditions of the Contract for Construction

U.S. Department of Housing and Urban Development
Office of Housing
Federal Housing Commissioner

OMB Approval No. 2502-0470
(Expires 12/31/2016)

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This information is required to obtain benefits and voluntary. HUD may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB control number.

This information collection is necessary to ensure that viable projects are developed. It is important to obtain information from applicants to assist HUD in determining if nonprofit organizations initially funded continue to have the financial and administrative capacity needed to develop a project and that the project design meets the needs of the residents. The Department will use this information to sets forth the obligations of the contractor or subcontractor performing under the covered contract. This information is required in order to obtain benefits. This information is considered non-sensitive and no assurance of confidentiality is provided.

Article 1 – Labor Standards

Instructions

Whenever only FHA mortgage insurance is involved, use paragraph (A) and (C) of Article 1 – Labor Standards. Whenever any direct form of assistance (Section 8, Section 202/811 Capital Advance, grants etc.) is involved, use paragraphs (A) and (B) and (C) of Article 1 – Labor Standards.

Applicability

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

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), 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 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. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); 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 shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 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 classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall 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) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore 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 utilized 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) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs A.1.(ii)(b) or (c) of this paragraph, shall 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.

(iii) 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 shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) 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, 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. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the

same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, 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. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, 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 Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) 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 Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall 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. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed 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 permissable deductions as set forth in 29 CFR Part 3;

(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 of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A.3.(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3.(i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, 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 may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4. (i) Apprentices and Trainees. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed 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, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall 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 the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall 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, fringes shall be paid in accordance with that determination. In the event the Bureau

of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall 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 will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may be appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

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 HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies neither it (nor he or she) 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 Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration . . . makes, utters or publishes any statement, knowing the same to be false . . . shall be fined not more than $5,000 or imprisoned not more than two years, or both."

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen 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 subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. 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 watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 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 subparagraph (1) of this paragraph.

3. Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or 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, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. The Contractor will be required to execute FHA Form No. 2403-A, Contractor's Prevailing Wage Certificate, as a condition precedent to insurance by the Federal Housing Administration of that certain mortgage loan, or an advance thereof, made or to be made by the mortgagee in connection with the construction of the project.

Article 2 – Equal Employment Opportunity

The applicant hereby agrees that it will incorporate or cause to be

incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal 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 it has a collective bargaining agreement or other contract or understanding a notice to be provided advising the said labor union or workers representatives of the Contractor's commitments hereunder, 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 rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by 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 clauses 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, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulations or order of the Secretary of Labor, or as otherwise provided by law.

G. The Contractor will include the portion of the sentence immediately preceding paragraph A and the provisions of paragraphs A through G in every subcontract or purchase order unless exempted by rules, 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 Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance. *Provided, however,* that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Secretary of Housing and Urban Development or the Secretary of Labor, the Contractor may request the United States to ener into such litigation to protect the interests of the United States.

H. The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided, That* if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

I. The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

J. The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

Article 3 – Equal Opportunity for Businesses and Lower Income Persons Located Within the Project Area

(Applicable to Section 236 projects, where the estimated replacement cost of the project as determined by the Secretary of Housing and Urban Development exceeds $500,000, and to all projects, including Section 236 regardless of estimated replacement cost, receiving rent supplement assistance under Title I, Section 101 of the Housing and Urban Development Act of 1965.)

A. The work to be performed under this contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and 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 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the unit of local government or the metropolitan area (or nonmetropolitan county) as determined by the Secretary of Housing and Urban Development in which the projects located and contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the same metropolitan area (or nonmetropolitan county) as the project.

Article 4 – Health and Safety

A. No laborer or mechanic shall be required to work in surroundingss or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

B. The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) 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).

C. The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development of the Secretary of Labor shall direct as a means of enforcing such provisions.

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.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, 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 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. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section I(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); 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 shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification 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 classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall 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) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor 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 utilized 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) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall 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.

(iii) 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 shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) 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, 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. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, 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. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, 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 Section l(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) 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 Section l(b)(2)(B) of the Davis-Bacon Act, the contractor shall 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. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed 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;

(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 of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, 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 may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed 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 Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall 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 the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall 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, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant ',to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall 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 will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

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 HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) 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 Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds $100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen 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 the individual is employed on such work to work in excess of 40 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 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. 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 watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C 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 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 Title 29 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 USC 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.

General Conditions for Construction Contracts - Public Housing Programs

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing
OMB Approval No. 2577-0157 (exp. 1/31/2017)

Applicability. This form is applicable to any construction/development contract greater than $100,000.

This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 24 CFR 85.36, and those requirements set forth in Section 3 of the Housing and Urban Development Act of 1968 and its amendment by the Housing and Community Development Act of 1992, implemented by HUD at 24 CFR Part 135. The form is required for construction contracts awarded by Public Housing Agencies (PHAs).
The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, HAs would be unable to enforce their contracts.
Public reporting burden for this collection of information is estimated to average 1.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Responses to the collection of information are required to obtain a benefit or to retain a benefit.
The information requested does not lend itself to confidentiality.
HUD may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB number.

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1. Definitions

(a) "Architect" means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.

(b) "Contract" means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5370), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from the U.S. Department of Labor, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.

(c) "Contracting Officer" means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.

(d) "Contractor" means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.

(e) "Drawings" means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled Specifications and Drawings for Construction herein.

(f) "HUD" means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an Annual Contributions Contract (ACC), to provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.

(g) "Project" means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract.

(h) "PHA" means the Public Housing Agency organized under applicable state laws which is a party to this contract.

(j) "Specifications" means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the requirements are met.

(l) "Work" means materials, workmanship, and manufacture and fabrication of components.

2. Contractor's Responsibility for Work

(a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled Availability and Use of Utility Services herein.

(b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least [ ] (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.

(c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.

(f) The Contractor shall confine all operations (including storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.

(g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.

(h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

3. Architect's Duties, Responsibilities, and Authority

(a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

(b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the Changes clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.

(c) The Architect's duties and responsibilities may include but shall not be limited to:

(1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;

(2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;

(3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,

(4) Assisting in inspections, signing Certificates of Completion, and making recommendations with respect to acceptance of work completed under the contract.

4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees

Construction Requirements

5. Pre-construction Conference and Notice to Proceed

(a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.

(b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

6. Construction Progress Schedule

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

7. Site Investigation and Conditions Affecting the Work

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads;(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is

reasonably ascertainable from an inspection of the site, including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

(b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

8. Differing Site Conditions

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

9. Specifications and Drawings for Construction

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where " shown" " indicated", " detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place" that is "furnished and installed".

(d) "Shop drawings" means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be

required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

(h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.

(i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

10. As-Built Drawings

(a) "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings."

(b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.

(c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

11. Material and Workmanship

(a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) Approval of equipment and materials.

(1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.

(3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.

(4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.

(5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of materials with the specifications. The Contractor will assume all costs of retesting materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.

(6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.

(c) Requirements concerning lead-based paint. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

12. Permits and Codes

(a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any

waivers. Before installing the work, the Contractor shall examine the drawings and the specifications for compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled Changes herein to conform to the code or regulation.

(b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.

13. Health, Safety, and Accident Prevention

(a) In performing this contract, the Contractor shall:
  (1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;
  (2) Protect the lives, health, and safety of other persons;
  (3) Prevent damage to property, materials, supplies, and equipment; and,
  (4) Avoid work interruptions.

(b) For these purposes, the Contractor shall:
  (1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. 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.; and
  (2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.

(c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904.

(d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.

(e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

14. Temporary Heating

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

15. Availability and Use of Utility Services

(a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or, where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.

(b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.

(d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.

(e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

(f) New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the specifications.
(g) No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.
(h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.
(i) The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.
(j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.
(k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

17. Temporary Buildings and Transportation of Materials

(a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
(b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

18. Clean Air and Water

The contactor shall comply with the Clean Air Act, as amended, 42 USC 7401 et seq., the Federal Water Pollution Control Water Act, as amended, 33 U.S.C. 1251 et seq., and standards issued pursuant thereto in the facilities in which this contract is to be performed.

19. Energy Efficiency

The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

20. Inspection and Acceptance of Construction

(a) Definitions. As used in this clause -
(1) "Acceptance" means the act of an authorized representative of the PHA by which the PHA approves and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.
(2) "Inspection" means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.
(3) "Testing" means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.
(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
(c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the completed work under paragraph (j) below.
(d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer's written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.
(e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The PHA may conduct routine inspections of the construction site on a daily basis.

(g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.

(i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

21. Use and Possession Prior to Completion

(a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the PHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas occupied without proper remuneration therefore. If prior possession or use by the PHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

22. Warranty of Title

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

23. Warranty of Construction

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of _____ (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.

(b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—
   (1) The Contractor's failure to conform to contract requirements; or
   (2) Any defects of equipment, material, workmanship or design furnished by the Contractor.

(c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.

(d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.

(e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
   (1) Obtain all warranties that would be given in normal commercial practice;
   (2) Require all warranties to be executed in writing, for the benefit of the PHA; and,
   (3) Enforce all warranties for the benefit of the PHA.

(g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

(h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the repair of any damage that results from any defect in PHA furnished material or design.

(i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.

(j) This warranty shall not limit the PHA's rights under the Inspection and Acceptance of Construction clause of this contract with respect to latent defects, gross mistakes or fraud.

24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

Administrative Requirements

25. Contract Period

The Contractor shall complete all work required on this contract within calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

26. Order of Provisions

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

27. Payments

(a) The PHA shall pay the Contractor the price as provided in this contract.

(b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.

(c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

(d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved breakdown of the contract price. Such estimates shall be submitted not later than _____ days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.

(e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

_____
Name:

_____
Title:

_____
Date:

(f) Except as otherwise provided in State law, the PHA shall retain ten (10) percent of the amount of progress payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.

(g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments.

Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

(h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.

(i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.

(j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.

(k) The PHA shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bonds furnished under this contract.

28. Contract Modifications

(a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.

(b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

(c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

29. Changes

(a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:
(1) In the specifications (including drawings and designs);
(2) In the method or manner of performance of the work;
(3) PHA-furnished facilities, equipment, materials, services, or site; or,
(4) Directing the acceleration in the performance of the work.

(b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

(1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/ or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs when size of change warrants revision.

(2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.

(3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change. The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.

(g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.

(h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.

(i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.

(j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

30. Suspension of Work

(a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the PHA.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

(c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

31. Disputes

(a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(b) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.

(c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.

(d) The Contracting Officer shall, within 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.

(e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.

(f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

32. Default

(a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to

proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

(b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes clause of this contract.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

33. Liquidated Damages

(a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of $_____Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.

(b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the PHA in completing the work.

(c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

34. Termination for Convenience

(a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.

(b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.

(c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.

(d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

35. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

36. Insurance

(a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:

(1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.

(2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than $ _____ [Contracting Officer insert amount]

per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

(3) Automobile Liability on owned and non -owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than $ _____ [Contracting Officer insert amount] per occurrence.

(b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.

(c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

37. Subcontracts

(a) Definitions. As used in this contract -

(1) "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

(2) "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.

(b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work under this contract is to be performed.

(c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.

(d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.

(e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:

(a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(b) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;

(c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;

(d) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and

(e) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies.

39. Equal Employment Opportunity

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

(a) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or handicap.

(b) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, or handicap. Such action shall include, but not be limited to, (1) employment, (2) upgrading, (3) demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship.

(c) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(d) The Contractor shall, 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, national origin, or handicap.

(e) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(g) The Contractor shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(h) In the event of a determination that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, 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 under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.

(i) The Contractor shall include the terms and conditions of this clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontract or purchase order as the Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the Indian Preference clause of this contract.

40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

(a) 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 or 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.

(b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.

(c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.

(e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.

(f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

(g) With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b)agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

41. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

43. Limitations on Payments made to Influence Certain Federal Financial Transactions

(a) The Contractor agrees to comply with Section 1352 of Title 31, United States Code which prohibits the use of Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: 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; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) 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 a Federal contract, grant, loan, or cooperative agreement.

44. Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

45. Examination and Retention of Contractor's Records

(a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

(b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding $10,000.

(c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the Disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

46. Labor Standards - Davis-Bacon and Related Acts

If the total amount of this contract exceeds $2,000, the Federal labor standards set forth in the clause below shall apply to the development or construction work to be performed under the contract.

(a) Minimum Wages.

(1) All laborers and mechanics employed under this contract in the development or construction of the project(s) involved 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 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. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); 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 regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits in the wage determination for the classification 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 classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall

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.

(2) (i) 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 shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met: (A) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (B) The classification is utilized in the area by the construction industry; and (C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in classification.

(3) 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 shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) 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, 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.

(b) Withholding of funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, 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. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.

(c) Payrolls and basic records.

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, 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 section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall 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. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c) (1) of this clause and that such information is correct and complete;

(B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed 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

(C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.

(iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, 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 may be grounds for debarment action pursuant to 29 CFR 5.12.

(d) (1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed 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 and Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall 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 the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall 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 of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under

the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(e) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(f) Contract termination; debarment. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

(g) 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.

(h) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this clause 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 PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.

(i) Certification of eligibility.

(1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

(j) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen 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, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 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 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. 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 watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.

(k) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

47. Non-Federal Prevailing Wage Rates

(a) Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State or tribal law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate exceeds:
(1) The applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 3141 et seq.) to be prevailing in the locality with respect to such trade;
(b) An applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor (DOL) or a DOL-recognized State Apprenticeship Agency; or
(c) An applicable trainee wage rate based thereon specified in a DOL-certified trainee program.

48. Procurement of Recovered Materials.

(a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an unreasonable price.
(b) Paragraph (a) of this clause shall apply to items purchased under this contract where: (1) the Contractor purchases in excess of $10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of $10,000 of the item both under and outside that contract.

General Conditions for Non-Construction Contracts

Section I – (With or without Maintenance Work)

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing
Office of Labor Relations
OMB Approval No. 2577-0157 (exp. 1/31/2017)

Public Reporting Burden for this collection of information is estimated to average 0.08 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Reports Management Officer, Office of Information Policies and Systems, U.S. Department of Housing and Urban Development, Washington, D.C. 20410-3600; and to the Office of Management and Budget, Paperwork Reduction Project (2577-0157), Washington, D.C. 20503. Do not send this completed form to either of these addressees.

Applicability. This form HUD-5370-C has 2 Sections. These Sections must be inserted into non-construction contracts as described below:

1) **Non-construction contracts** (*without* maintenance) **greater than $100,000 - use Section I**;
2) **Maintenance contracts** (including nonroutine maintenance as defined at 24 CFR 968.105) **greater than $2,000 but not more than $100,000 - use Section II**; and
3) **Maintenance contracts** (including nonroutine maintenance), **greater than $100,000 – use Sections I and II**.

Section I - Clauses for All Non-Construction Contracts greater than $100,000

1. Definitions

The following definitions are applicable to this contract:

(a) "Authority or Housing Authority (HA)" means the Housing Authority.
(b) "Contract" means the contract entered into between the Authority and the Contractor. It includes the contract form, the Certifications and Representations, these contract clauses, and the scope of work. It includes all formal changes to any of those documents by addendum, Change Order, or other modification.
(c) "Contractor" means the person or other entity entering into the contract with the Authority to perform all of the work required under the contract.
(d) "Day" means calendar days, unless otherwise stated.
(e) "HUD" means the Secretary of Housing and Urban development, his delegates, successors, and assigns, and the officers and employees of the United States Department of Housing and Urban Development acting for and on behalf of the Secretary.

2. Changes

(a) The HA may at any time, by written order, and without notice to the sureties, if any, make changes within the general scope of this contract in the services to be performed or supplies to be delivered.
(b) If any such change causes an increase or decrease in the hourly rate, the not-to-exceed amount of the contract, or the time required for performance of any part of the work under this contract, whether or not changed by the order, or otherwise affects the conditions of this contract, the HA shall make an equitable adjustment in the not-to-exceed amount, the hourly rate, the delivery schedule, or other affected terms, and shall modify the contract accordingly.
(c) The Contractor must assert its right to an equitable adjustment under this clause within 30 days from the date of receipt of the written order. However, if the HA decides that the facts justify it, the HA may receive and act upon a proposal submitted before final payment of the contract.
(d) Failure to agree to any adjustment shall be a dispute under clause Disputes, herein. However, nothing in this clause shall excuse the Contractor from proceeding with the contract as changed.
(e) No services for which an additional cost or fee will be charged by the Contractor shall be furnished without the prior written consent of the HA.

3. Termination for Convenience and Default

(a) The HA may terminate this contract in whole, or from time to time in part, for the HA's convenience or the failure of the Contractor to fulfill the contract obligations (default). The HA shall terminate by delivering to the Contractor a written Notice of Termination specifying the nature, extent, and effective date of the termination. Upon receipt of the notice, the Contractor shall: (i) immediately discontinue all services affected (unless the notice directs otherwise); and (ii) deliver to the HA all information, reports, papers, and other materials accumulated or generated in performing this contract, whether completed or in process.
(b) If the termination is for the convenience of the HA, the HA shall be liable only for payment for services rendered before the effective date of the termination.
(c) If the termination is due to the failure of the Contractor to fulfill its obligations under the contract (default), the HA may (i) require the Contractor to deliver to it, in the manner and to the extent directed by the HA, any work as described in subparagraph (a)(ii) above, and compensation be determined in accordance with the Changes clause, paragraph 2, above; (ii) take over the work and prosecute the same to completion by contract or otherwise, and the Contractor shall be liable for any additional cost incurred by the HA; (iii) withhold any payments to the Contractor, for the purpose of off-set or partial payment, as the case may be, of amounts owed to the HA by the Contractor.
(d) If, after termination for failure to fulfill contract obligations (default), it is determined that the Contractor had not failed, the termination shall be deemed to have been effected for the convenience of the HA, and the Contractor shall been titled to payment as described in paragraph (b) above.
(e) Any disputes with regard to this clause are expressly made subject to the terms of clause titled Disputes herein.

4. Examination and Retention of Contractor's Records

(a) The HA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

(b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding $10,000.

(c) The periods of access and examination in paragraphs (a) and (b) above for records relating to:
(i) appeals under the clause titled Disputes;
(ii) litigation or settlement of claims arising from the performance of this contract; or,
(iii) costs and expenses of this contract to which the HA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

5. Rights in Data (Ownership and Proprietary Interest)

The HA shall have exclusive ownership of, all proprietary interest in, and the right to full and exclusive possession of all information, materials and documents discovered or produced by Contractor pursuant to the terms of this Contract, including but not limited to reports, memoranda or letters concerning the research and reporting tasks of this Contract.

6. Energy Efficiency

The contractor shall comply with all mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under this contract is performed.

7. Disputes

(a) All disputes arising under or relating to this contract, *except for disputes arising under clauses contained in Section III, Labor Standards Provisions,* including any claims for damages for the alleged breach there of which are not disposed of by agreement, shall be resolved under this clause.

(b) All claims by the Contractor shall be made in writing and submitted to the HA. A claim by the HA against the Contractor shall be subject to a written decision by the HA.

(c) The HA shall, with reasonable promptness, but in no event in no more than 60 days, render a decision concerning any claim hereunder. Unless the Contractor, within 30 days after receipt of the HA's decision, shall notify the HA in writing that it takes exception to such decision, the decision shall be final and conclusive.

(d) Provided the Contractor has (i) given the notice within the time stated in paragraph (c) above, and (ii) excepted its claim relating to such decision from the final release, and (iii) brought suit against the HA not later than one year after receipt of final payment, or if final payment has not been made, not later than one year after the Contractor has had a reasonable time to respond to a written request by the HA that it submit a final voucher and release, whichever is earlier, then the HA's decision shall not be final or conclusive, but the dispute shall be determined on the merits by a court of competent jurisdiction.

(e) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the HA.

8. Contract Termination; Debarment

A breach of these Contract clauses may be grounds for termination of the Contract and for debarment or denial of participation in HUD programs as a Contractor and a subcontractor as provided in 24 CFR Part 24.

9. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the HA under the contract may be assigned to a bank, trust company, or other financial institution. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership approved by the HA.

10. Certificate and Release

Prior to final payment under this contract, or prior to settlement upon termination of this contract, and as a condition precedent thereto, the Contractor shall execute and deliver to the HA a certificate and release, in a form acceptable to the HA, of all claims against the HA by the Contractor under and by virtue of this contract, other than such claims, if any, as may be specifically excepted by the Contractor in stated amounts set forth therein.

11. Organizational Conflicts of Interest

(a) The Contractor warrants that to the best of its knowledge and belief and except as otherwise disclosed, it does not have any organizational conflict of interest which is defined as a situation in which the nature of work under this contract and a contractor's organizational, financial, contractual or other interests are such that:
(i) Award of the contract may result in an unfair competitive advantage; or
(ii) The Contractor's objectivity in performing the contract work may be impaired.

(b) The Contractor agrees that if after award it discovers an organizational conflict of interest with respect to this contract or any task/delivery order under the contract, he or she shall make an immediate and full disclosure in writing to the Contracting Officer which shall include a description of the action which the Contractor has taken or intends to take to eliminate or neutralize the conflict. The HA may, however, terminate the contract or task/delivery order for the convenience of the HA if it would be in the best interest of the HA.

(c) In the event the Contractor was aware of an organizational conflict of interest before the award of this contract and intentionally did not disclose the conflict to the Contracting Officer, the HA may terminate the contract for default.

(d) The terms of this clause shall be included in all subcontracts and consulting agreements wherein the work to be performed is similar to the service provided by the prime Contractor. The Contractor shall include in such subcontracts and consulting agreements any necessary provisions to eliminate or neutralize conflicts of interest.

12. Inspection and Acceptance

(a) The HA has the right to review, require correction, if necessary, and accept the work products produced by the Contractor. Such review(s) shall be carried out within 30 days so as to not impede the work of the Contractor. Any

product of work shall be deemed accepted as submitted if the HA does not issue written comments and/or required corrections within 30 days from the date of receipt of such product from the Contractor.

(b) The Contractor shall make any required corrections promptly at no additional charge and return a revised copy of the product to the HA within 7 days of notification or a later date if extended by the HA.

(c) Failure by the Contractor to proceed with reasonable promptness to make necessary corrections shall be a default. If the Contractor's submission of corrected work remains unacceptable, the HA may terminate this contract (or the task order involved) or reduce the contract price or cost to reflect the reduced value of services received.

13. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America or Resident Commissioner shall be admitted to any share or part of this contract or to any benefit to arise there from, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

14. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees

No member, officer, or employee of the HA, no member of the governing body of the locality in which the project is situated, no member of the governing body in which the HA was activated, and no other pubic official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

15. Limitation on Payments to Influence Certain Federal Transactions

(a) Definitions. As used in this clause:

"Agency", as defined in 5 U.S.C. 552(f), includes Federal executive departments and agencies as well as independent regulatory commissions and Government corporations, as defined in 31 U.S.C. 9101(1).

"Covered Federal Action" means any of the following Federal actions:

(i) The awarding of any Federal contract;

(ii) The making of any Federal grant;

(iii) The making of any Federal loan;

(iv) The entering into of any cooperative agreement; and,

(v) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

Covered Federal action does not include receiving from an agency a commitment providing for the United States to insure or guarantee a loan.

"Indian tribe" and "tribal organization" have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B). Alaskan Natives are included under the definitions of Indian tribes in that Act.

"Influencing or attempting to influence" means making, with the intent to influence, any communication to or appearance before 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 any covered Federal action.

"Local government" means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency" includes the following individuals who are employed by an agency:

(i) An individual who is appointed to a position in the Government under title 5, U.S.C., including a position under a temporary appointment;

(ii) A member of the uniformed services as defined in section 202, title 18, U.S.C.;

(iii) A special Government employee as defined in section 202, title 18, U.S.C.; and,

(iv) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, title 5, appendix 2.

"Person" means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit or not for profit. This term excludes an Indian tribe, tribal organization, or other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Recipient" includes all contractors, subcontractors at any tier, and subgrantees at any tier of the recipient of funds received in connection with a Federal contract, grant, loan, or cooperative agreement. The term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed means, with respect to an officer or employee of a person requesting or receiving a Federal contract, grant, loan, or cooperative agreement, an officer or employee who is employed by such person for at least 130 working days within one year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract, grant, loan, or cooperative agreement. An officer or employee who is employed by such person for less than 130 working days within one year immediately preceding the date of submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

"State" means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibition.

(i) Section 1352 of title 31, U.S.C. provides in part that no appropriated funds may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay 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 any of the following covered Federal actions: 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.

(ii) The prohibition does not apply as follows:

(1) Agency and legislative liaison by Own Employees.

(a) The prohibition on the use of appropriated funds, in paragraph (i) of this section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract, grant, loan, or cooperative agreement, if the payment is for agency and legislative activities not directly related to a covered Federal action.

(b) For purposes of paragraph (b)(i)(1)(a) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(c) The following agency and legislative liaison activities are permitted at any time only where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency (including individual demonstrations) the qualities and characteristics of the person's products or services, conditions or terms of sale, and service capabilities; and,

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(d) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action:

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Public Law 95-507 and other subsequent amendments.

(e) Only those activities expressly authorized by subdivision (b)(ii)(1)(a) of this clause are permitted under this clause.

(2) Professional and technical services.

(a) The prohibition on the use of appropriated funds, in subparagraph (b)(i) of this clause, does not apply in the case of-

(i) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(ii) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(b) For purposes of subdivision (b)(ii)(2)(a) of clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline.

(c) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(d) Only those services expressly authorized by subdivisions (b)(ii)(2)(a)(i) and (ii) of this section are permitted under this clause.

(iii) Selling activities by independent sales representatives.

(c) The prohibition on the use of appropriated funds, in subparagraph (b)(i) of this clause, does not apply to the following selling activities before an agency by independent sales representatives, provided such activities are prior to formal solicitation by an agency and are specifically limited to the merits of the matter:

(i) Discussing with an agency (including individual demonstration) the qualities and characteristics of the person's products or services, conditions or terms of sale, and service capabilities; and

(ii) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(d) Agreement. In accepting any contract, grant, cooperative agreement, or loan resulting from this solicitation, the person submitting the offer agrees not to make any payment prohibited by this clause.

(e) Penalties. Any person who makes an expenditure prohibited under paragraph (b) of this clause shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(f) Cost Allowability. Nothing in this clause is to be interpreted to make allowable or reasonable any costs which would be unallowable or unreasonable in accordance with Part 31 of the Federal Acquisition Regulation (FAR), or OMB Circulars dealing with cost allowability for recipients of assistance agreements. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any of the provisions of FAR Part 31 or the relevant OMB Circulars.

16. Equal Employment Opportunity

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

(a) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.

(b) The Contractor shall 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 (1) employment; (2) upgrading; (3) demotion; (4) transfer; (5) recruitment or recruitment advertising; (6) layoff or termination; (7) rates of pay or other forms of compensation; and (8) selection for training, including apprenticeship.

(c) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(d) The Contractor shall, 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.

(e) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(g) The Contractor shall furnish all information and reports required by Executive Order 11246, as amended and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(h) In the event of a determination that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, 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 under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.

(i) The Contractor shall include the terms and conditions of this clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontractor or purchase order as the Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

17. Dissemination or Disclosure of Information

No information or material shall be disseminated or disclosed to the general public, the news media, or any person or organization without prior express written approval by the HA.

18. Contractor's Status

It is understood that the Contractor is an independent contractor and is not to be considered an employee of the HA, or assume any right, privilege or duties of an employee, and shall save harmless the HA and its employees from claims suits, actions and costs of every description resulting from the Contractor's activities on behalf of the HA in connection with this Agreement.

19. Other Contractors

HA may undertake or award other contracts for additional work at or near the site(s) of the work under this contract. The contractor shall fully cooperate with the other contractors and with HA and HUD employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or HA employee.

20. Liens

The Contractor is prohibited from placing a lien on HA's property. This prohibition shall apply to all subcontractors.

21. Training and Employment Opportunities for Residents in the Project Area (Section 3, HUD Act of 1968; 24 CFR 135)

(a) 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 or 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.

(b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.

(c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of

apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.

(e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.

(f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

22. Procurement of Recovered Materials

(a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an unreasonable price.

(b) Paragraph (a) of this clause shall apply to items purchased under this contract where: (1) the Contractor purchases in excess of $10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of $10,000 of the item both under and outside that contract.

General Conditions for Non-Construction Contracts

Section II – (With Maintenance Work)

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing
Office of Labor Relations
OMB Approval No. 2577-0157 (exp. 1/31/2017)

Public Reporting Burden for this collection of information is estimated to average 0.08 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Reports Management Officer, Office of Information Policies and Systems, U.S. Department of Housing and Urban Development, Washington, D.C. 20410-3600; and to the Office of Management and Budget, Paperwork Reduction Project (2577-0157), Washington, D.C. 20503. Do not send this completed form to either of these addressees.

Applicability. This form HUD-5370C has 2 Sections. These Sections must be inserted into non-construction contracts as described below:

1) Non-construction contracts (*without* maintenance) greater than $100,000 - use Section I;
2) Maintenance contracts (including nonroutine maintenance as defined at 24 CFR 968.105) greater than $2,000 but not more than $100,000 - use Section II; and
3) Maintenance contracts (including nonroutine maintenance), greater than $100,000 – use Sections I and II.

Section II – Labor Standard Provisions for all Maintenance Contracts greater than $2,000

1. Minimum Wages

(a) All maintenance laborers and mechanics employed under this Contract in the operation of the project(s) shall be paid unconditionally and not less often than semi-monthly, and without subsequent deduction (except as otherwise provided by law or regulations), the full amount of wages due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Housing and Urban Development which is attached hereto and made a part hereof. Such laborers and mechanics shall be paid the appropriate wage rate on the wage determination for the classification of work actually performed, without regard to skill. 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 approved by HUD under subparagraph 1(b), shall 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.

(b) (i) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate only when the following criteria have been met:

(1) The work to be performed by the classification required is not performed by a classification in the wage determination;

(2) The classification is utilized in the area by the industry; and

(3) The proposed wage rate bears a reasonable relationship to the wage rates contained in the wage determination.

(ii) The wage rate determined pursuant to this paragraph shall 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.

2. Withholding of funds

The Contracting Officer, upon his/her own action or upon request of HUD, shall withhold or cause to be withheld from the Contractor under this Contract or any other contract subject to HUD-determined wage rates, with the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics employed by the Contractor or any subcontractor the full amount of wages required by this clause. In the event of failure to pay any laborer or mechanic employed under this Contract all or part of the wages required under this Contract, the Contracting Officer or HUD may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment or advance until such violations have ceased. The Public Housing Agency or HUD may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.

3. Records

(a) The Contractor and each subcontractor shall make and maintain for three (3) years from the completion of the work records containing the following for each laborer and mechanic:

(i) Name, address and Social Security Number;
(ii) Correct work classification or classifications;
(iii) Hourly rate or rates of monetary wages paid;
(iv) Rate or rates of any fringe benefits provided;
(v) Number of daily and weekly hours worked;
(vi) Gross wages earned;
(vii) Any deductions made; and
(viii) Actual wages paid.

(b) The Contractor and each subcontractor shall make the records required under paragraph 3(a) available for inspection, copying, or transcription by authorized representatives of HUD or the HA and shall permit such representatives to interview employees during working hours on the job. If the Contractor or any subcontractor fails to make the required records available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds.

4. Apprentices and Trainees

(a) Apprentices and trainees 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:

(i) A bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration (ETA), Office of

Apprenticeship Training, Employer and Labor Services (OATELS), or with a state apprenticeship agency recognized by OATELS, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a state apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice; A

(ii) trainee program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, ETA; or

(iii) A training/trainee program that has received prior approval by HUD.

(b) Each apprentice or trainee must be paid at not less than the rate specified in the registered or approved program for the apprentice's/trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices and trainees shall be paid fringe benefits in accordance with the provisions of the registered or approved program. If the program does not specify fringe benefits, apprentices/trainees must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification.

(c) The allowable ratio of apprentices or trainees to journeyman on the job site in any craft classification shall not be greater than the ratio permitted to the employer as to the entire work force under the approved program.

(d) Any worker employed at an apprentice or trainee wage rate who is not registered in an approved program, and any apprentice or trainee performing work on the job site in excess of the ratio permitted under the approved program, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

(e) In the event OATELS, a state apprenticeship agency recognized by OATELS or ETA, or HUD, withdraws approval of an apprenticeship or trainee program, the employer will no longer be permitted to utilize apprentices/trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

5. Disputes concerning labor standards

(a) Disputes arising out of the labor standards provisions contained in Section II of this form HUD-5370-C, other than those in Paragraph 6, shall be subject to the following procedures. Disputes within the meaning of this paragraph include disputes between the Contractor (or any of its subcontractors) and the HA, or HUD, or the employees or their representatives, concerning payment of prevailing wage rates or proper classification. The procedures in this section may be initiated upon HUD's own motion, upon referral of the HA, or upon request of the Contractor or subcontractor(s).

(i) A Contractor and/or subcontractor or other interested party desiring reconsideration of findings of violation by the HA or HUD relating to the payment of straight-time prevailing wages or classification of work shall request such reconsideration by letter postmarked within 30 calendar days of the date of notice of findings issued by the HA or HUD. The request shall set forth those findings that are in dispute and the reasons, including any affirmative defenses, with respect to the violations. The request shall be directed to the appropriate HA or HUD official in accordance with instructions contained in the notice of findings or, if the notice does not specify to whom a request should be made, to the Regional Labor Relations Officer (HUD). The HA

(ii) or HUD official shall, within 60 days (unless otherwise indicated in the notice of findings) after receipt of a timely request for reconsideration, issue a written decision on the findings of violation. The written decision on reconsideration shall contain instructions that any appeal of the decision shall be addressed to the Regional Labor Relations Officer by letter postmarked within 30 calendar days after the date of the decision. In the event that the Regional Labor Relations Officer was the deciding official on reconsideration, the appeal shall be directed to the Director, Office of Labor Relations (HUD). Any appeal must set forth the aspects of the decision that are in dispute and the reasons, including any affirmative defenses, with respect to the violations. The Regional Labor

(iii) Relations Officer shall, within 60 days (unless otherwise indicated in the decision on reconsideration) after receipt of a timely appeal, issue a written decision on the findings. A decision of the Regional Labor Relations Officer may be appealed to the Director, Office of Labor Relations, by letter postmarked within 30 days of the Regional Labor Relations Officer's decision. Any appeal to the Director must set forth the aspects of the prior decision(s) that are in dispute and the reasons. The decision of the Director, Office of Labor Relations, shall be final.

(b) Disputes arising out of the labor standards provisions of paragraph 6 shall not be subject to paragraph 5(a) of this form HUD-5370C. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this paragraph 5(b) include disputes between the Contractor (or any of its subcontractors) and the HA, HUD, the U.S. Department of Labor, or the employees or their representatives.

6. Contract Work Hours and Safety Standards Act

The provisions of this paragraph 6 are applicable only where the amount of the prime contract exceeds $100,000. As used in this paragraph, the terms "laborers" and "mechanics" includes watchmen and guards.

(a) **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 40 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 40 hours in such workweek.

(b) **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the provisions set forth in paragraph 6(a), the Contractor and any

subcontractor responsible therefor shall be liable for the unpaid wages. 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 the District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the provisions set forth in paragraph (a) of this clause, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in paragraph (a) of this clause.

(c) **Withholding for unpaid wages and liquidated damages.** HUD or its designee shall upon its own action or upon written request of an authorized representative of the U.S. Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such Contract or any federal contract with the same prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in paragraph (b) of this clause.

7. Subcontracts

The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this Section II and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the provisions contained in these clauses.

8. Non-Federal Prevailing Wage Rates

Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under state law to be prevailing, with respect to any employee in any trade or position employed under the Contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate, exclusive of any fringe benefits, exceeds the applicable wage rate determined by the Secretary of HUD to be prevailing in the locality with respect to such trade or position.

General Contract Conditions for Small Construction/Development Contracts

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing
OMB Approval No. 2577-0157 (exp. 1/31/2017)

Applicability. The following contract clauses are applicable and must be inserted into **small construction/development contracts, greater than $2,000 but not more than $100,000.**

1. Definitions

Terms used in this form are the same as defined in form HUD-5370

2. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers. The only liens on the PHA's property shall be the Declaration of Trust or other liens approved by HUD.

3. Disputes

(a) Except for disputes arising under the **Labor Standards** clauses, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.
(b) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.
(c) The Contracting Officer shall, within 30 days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.
(d) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within 30 days after receipt of the Contracting Officer's decision.
(e) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

4. Default

(a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to proceed with the work (or separable part of the work) that has been delayed. In the event, the PHA may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.
(b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if –
  (1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor; and
  (2) The Contractor, within 10 days from the beginning of such delay notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of Fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the **Disputes** clause of this contract.
(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligation of the parties will be the same as if the termination had been for convenience of the PHA.

5. Termination for Convenience

(a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.
(b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.
(c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.
(d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

6. Insurance

(a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:

(1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.

(2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than $ _____ [Contracting Officer insert amount] per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims-made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

(3) Automobile Liability on owned and non -owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than $ _____ [Contracting Officer insert amount] per occurrence.

(b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.

(c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

7. Contract Modifications

(a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.

(b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

(c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

8. Changes

(a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:

(1) In the specifications (including drawings and designs);

(2) In the method or manner of performance of the work;

(3) PHA-furnished facilities, equipment, materials, services, or site; or,

(4) Directing the acceleration in the performance of the work.

(b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

(1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor

breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/ or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs - when size of change warrants revision.

(2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.

(3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change.

The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.

(g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.

(h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.

(i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.

(j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

9. Examination and Retention of Contractor's Records

The HA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until three years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

10. Rights in Data and Patent Rights (Ownership and Proprietary Interest)

The HA shall have exclusive ownership of, all proprietary interest in, and the right to full and exclusive possession of all information, materials, and documents discovered or produced by Contractor pursuant to the terms of this Contract, including but not limited to reports, memoranda or letters concerning the research and reporting tasks of this Contract.

11. Energy Efficiency

The Contractor shall comply with all mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under this contract is performed.

12. Procurement of Recovered Materials

(a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an unreasonable price.

(b) Paragraph (a) of this clause shall apply to items purchased under this contract where: (1) the Contractor purchases in excess of $10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of $10,000 of the item both under and outside that contract.

13. Training and Employment Opportunities for Residents in the Project Area (Section 3, HUD Act of 1968; 24 CFR 135)

(a) 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 or 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.

(b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.

(c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the

qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.

(e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.

(f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

14. Labor Standards - Davis-Bacon and Related Acts

(a) Minimum Wages.

(1) All laborers and mechanics employed under this contract in the construction or development of the project(s) involved 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 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. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); 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 regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits in the wage determination for the classification 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 classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall 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.

(2) (i) 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 shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met:

(a) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(b) The classification is utilized in the area by the construction industry; and

(c) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall 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.

(3) 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 shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) 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, 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.

(b) Withholding of Funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, 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. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.

(c) Payrolls and Basic Records.

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, 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 section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall 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. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c)(1) of this clause and that such information is correct and complete;

(B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed 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

(C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.

(iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, 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 may be grounds for debarment action pursuant to 29 CFR 5.12.

(d) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed 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 Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall 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 the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall 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 of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(e) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(f) Equal Employment Opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(g) Compliance with Copeland Act Requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(h) Contract Termination; Debarment. A breach of the labor standards clauses in this contract may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

(i) 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.

(j) Disputes Concerning Labor Standards. Disputes arising out of the labor standards provisions of this clause 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 PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.

(k) Certification of Eligibility.

(1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government

contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

(l) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

(m) Non-Federal Prevailing Wage Rates. Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate exceeds:

(i) the applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 3141 et seq.) to be prevailing in the locality with respect to such trade;

(ii) an applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor (DOL) or a DOL-recognized State Apprenticeship Agency; or

(iii) an applicable trainee wage rate based thereon specified in a DOL-certified trainee program.

SECTION B – Bonding Requirements
Surety Bonds

Contractor shall provide the following Surety Bonds:

1. Bid bond
2. Performance bond
3. Payment bond
4. Maintenance bond

The Payment Bond and the Performance Bond shall be in a sum equal to the contract price. If the Performance Bond provides for a one-year warranty a separate Maintenance Bond is not necessary. If the warranty period specified in the contract is for longer than one year a Maintenance Bond equal to 10% of the contract price is required. Bonds shall be duly executed by a responsible corporate surety, authorized to issue such bonds in the State of California

B2 CALIFORNIA BIDDER'S BOND

BOND NO. _____

AMOUNT: $_____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____

hereinafter called the PRINCIPAL, and _____

_____

a corporation duly organized under the laws of the State of _____.

having its principal place of business at _____

_____ in the State of _____.

And authorized to do business in the State of California (hereinafter called the SURETY). As SURETY, are held and firmly bound unto _____

Hereinafter called the OBLIGEE, in the sum of _____

_____Dollars ($_____)

for the payment of which we bind ourselves, the said PRINCIPAL and the said SURETY, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OFTHISBONDIS SUCH THAT:
WHEREAS, the PRINCIPAL is herewith submitting his or its Bid Proposal for

_____

_____

said Bid Proposal, by reference thereto, being hereby made a part hereof.

Now, therefore, if said Bid Proposal shall be rejected, or in the alternate, if said Bid Proposal shall be accepted by the OBLIGEE and the PRINCIPAL shall sign and deliver a Contract, in the form of Contract attached hereto and shall execute and deliver Performance and Payment Bonds in the forms attached hereto (all completed in accordance with said Bid Proposal), and shall in all other respects perform the agreement created by the acceptance of said Bid Proposal, or in the event of the failure of the PRINCIPAL to enter into such Contract and give such bond, if the PRINCIPAL shall pay to the OBLIGEE the difference, not to exceed the penalty hereof, between the amount specified in said Bid Proposal and the amount for which OBLIGEE may legally contract with another party to perform the work covered by said Bid Proposal, if the latter amount be in excess of the former.

Then, this obligation shall be null and void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the SURETY for any and all default of the PRINCIPAL hereunder shall be the amount of this obligation as herein stated.

The SURETY, for value received, hereby stipulates and agrees that the obligations of said SURETY and its Bond shall be in no way impaired or affected by any extension of the time within which the OBLIGEE may Accept such Bid Proposal, and said SURETY does hereby waive notice of any such extension.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Signed and sealed this _____ day of _____J 20_____.

_____
Principal

By _____

_____
SURETY

By _____
Attorney-in-Fact

The rate of premium on this bond is _____ per thousand.

Total amount of premium charged $ _____.

END OF SECTION

B3 CALIFORNIA PAYMENT BOND

BOND NO. _____

AMOUNT: $ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____

hereinafter called the PRINCIPAL, and _____

_____

a corporation duly organized under the laws of the State of _____.

hereinafter called the SURETY, and authorized to transact business within the State of California, as SURETY,

are held and firmly bound unto _____

as OWNER (Obligee), in the sum of:

_____Dollars ($_____)

lawful money of the United States of America, for the payment of which, well and truly be made to the OWNER, the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract hereto, attached, with the OWNER, dated _____, 20_____, for

_____

_____

That, if said CONTRACTOR, or his heirs, executors, administrators, successors or assigns, or subcontractors, shall fail to pay any of the persons named in Section 3181 of the Civil Code of the State of California, or for any amounts required to be deducted, withheld, and paid over to the Unemployment Development Department with respect to work or labor performed by any such claimant, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the CONTRACTOR and his subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor that the Surety or Sureties will pay for the same, in an aggregate amount not exceeding the sum specified in this bond, and also, in case suit is brought upon the bond, a reasonable attorney's fee, to be fixed by the Court in accordance with Section 3250 of the Civil Code of the State of California.

That, this bond shall inure to the benefit of any of the persons named in Section 3181 of the Civil Code of the State of California so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Signed and sealed this _____ day of _____J 20_____.

CONTRACTOR

_____

By _____(SEAL)

_____
Attest

SURETY

_____

By _____(SEAL)

_____
Attest

APPROVED AS TO FORM: _____, 20_____

_____
OWNER

The rate of premium on this bond is _____ per thousand.

Total amount of premium charged $ _____.

END OF SECTION

SECTION C - GENERAL CONDITIONS

These General Conditions contain contractual-legal Articles that establish the requirements and conditions governing responsibility, policy, and procedures that apply during the construction and warranty period. This part of the Contract Documents is preprinted. Any modifications to the following Articles that are special to the project under consideration will be made in the Supplementary Conditions. Requirements and conditions that have special significance to the Contract for the contemplated work on this project are as set forth in the remaining sections of these Contract Documents.

C1 DEFINITIONS

Wherever in the Contract Documents the following terms are used, the intent and meaning shall be interpreted as follows:

1. AS APPROVED

The words "as approved", unless otherwise qualified, shall be understood to be followed by the words "by the Engineer".

2. AS SHOWN, AND AS INDICATED

The words "as shown" and "as indicated" shall be understood to be followed by the words "on the Drawings".

3. BIDDER

The person or persons, partnership, firm, or corporation submitting a Proposal for the work contemplated.

4. CONTRACT

The "Contract" is the written agreement covering the performance of the work and the furnishing of labor, materials, incidental services, tools, and equipment in the construction of the work. It includes supplemental agreements amending or extending the work contemplated and which may be required to complete the work in a substantial and acceptable manner. Supplemental agreements are written agreements covering alterations, amendments, or extensions to the Contract and include Contract Change Orders.

5. CONTRACT DOCUMENTS

The "Contract Documents" consist of the Bidding Requirements, Contract forms, Conditions of the Contract, the Specifications, and the Drawings, including all modifications thereof incorporated into the Documents before their execution, and including all other requirements incorporated by specific reference thereto. These form the Contract.

6. CONTRACTOR

The person or persons, partnership, firm, or corporation who enters into the Contract awarded him by the Owner.

7. DAYS

Unless otherwise specifically stated, the terms "days" will be understood to mean calendar days.

8. DRAWINGS

The term "Drawings" refers to the official Drawings, profiles, cross sections, elevations, details, and other working drawings and supplementary drawings, or reproductions thereof, signed by the Engineer, which show the locations, character, dimensions, and details of the work to be performed. Drawings may either be bound in the same book as the balance of the Contract Documents or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding.

9. ENGINEER

The person or organization identified as such in the Contract Documents. The term "Engineer" means the Engineer or his authorized representative.

10. NOTICE

The term "notice" or the requirement to notify, as used in the Contract Documents or applicable state or federal statutes, shall signify a written communications delivered in person or by certified or registered mail to the individual, or to a member of the firm, or to an officer of the corporation for whom it is intended. Certified or registered mail shall be addressed to the last business address known to him who gives the notice.

11. OR EQUIVALENT

The term "or equivalent" (or the term “or equal”) shall be understood to indicate that the "equivalent" product is the same or better than the product named in function, performance, reliability, quality, and general configuration. Determination of equality in reference to the project design requirements will be made by the Engineer. Such "equivalent" products shall not be purchased or installed by the Contractor without the Engineer's written approval.

12. OWNER

The person, organization, or public body identified as such in the Contract Documents.

13. PLANS (See DRAWINGS)

14. SPECIFICATIONS

The term "Specifications" refers to the terms, provisions, and requirements contained herein. Where standard specifications, such as those of ASTM, AASHTO, etc., have been referred to, the applicable portions of such standard specifications shall become a part of these Contract Documents.

15. SUBSTANTIAL COMPLETION

"Substantial completion" shall be that degree of completion of the project or a defined portion of the project, sufficient to provide the Owner, at his discretion, the full-time use of the project or defined portion of the project for the purposes for which it was intended.

16. WORK

The word "work" within these Contract Documents shall include all material, labor, tools, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good practice to provide a complete and satisfactory system or structure. As used herein, "provide" shall be understood to mean "provide complete in-place", that is, "furnish and install".

C2 CONTRACT DOCUMENTS

17. INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. The intent of the Documents is to include all work (except specific items to be furnished by the Owner) necessary for completion of the Contract. Materials or worked described in words which so applied have a well known technical and trade meaning shall be held to refer to such recognized standards.

18. DISCREPANCIES AND OMISSIONS

Any discrepancies or omissions found in the Contract Documents shall be reported to the Engineer immediately. The Engineer will clarify discrepancies or omissions, in writing, within a reasonable time.

In resolving inconsistencies among two or more sections of the Contract Documents, precedence shall be given in the following order:

A. CONTRACT
B. SUPPLEMENTARY CONDITIONS
C. INSTRUCTIONS TO BIDDERS
D. GENERAL CONDITIONS
E. SPECIFICATIONS
F. DRAWINGS

Figure dimensions on Drawings shall take precedence over scale dimensions; detailed Drawings shall take precedence over general Drawings.

19. ALTERATIONS

The Owner, without invalidating the Contract, may order changes in the work within the general scope of the Contract by altering, adding to, or deducting from the work, the Contract being adjusted accordingly. All such work shall be executed under the conditions of the original Contract, except as specifically adjusted at the time of ordering such change.

In giving instructions, the Engineer may order minor changes in the work not involving extra cost and not inconsistent with the purposes of the project, but otherwise, except in an emergency endangering life or property, additions or deductions from the work shall be performed only in pursuance of an approved Change Order from the Owner, signed or countersigned by the Engineer, or a Change Order from the Engineer stating that the Owner has authorized the deduction, addition, or change, and no claim for additional payment shall be valid unless so ordered.

If the work is reduced by alterations, such actions shall not constitute a claim for damages based on loss of anticipated profits.

20. VERIFICATION OF CONTRACT DOCUMENTS

The Contractor shall thoroughly examine and become familiar with all of the various parts of these Contract Documents and determine the nature and location of the work, the general and local conditions, and all other matters which can in any way affect the work under this Contract. Failure to make an examination necessary for this determination shall not release the Contractor from the obligations of this Contract. The Contractor warrants that no verbal agreement or conversation with any officer, agent, or employee of the Owner, or with the Engineer either before or after the execution of this Contract, has affected or modified any of the terms or obligations herein contained.

21. DOCUMENTS TO BE KEPT ON THE JOBSITE

The Contractor shall keep one copy of the Contract Documents on the jobsite, in good order, available to the Engineer and to his representatives.

22. ADDITIONAL CONTRACT DOCUMENTS

The Engineer will furnish to the Contractor on request and free of charge, six copies of the Contract Documents and six sets of full-size Drawings. Additional copies of Contract Documents or Drawings may be obtained on request by paying the actual cost of reproducing the Contract Documents or Drawings.

23. OWNERSHIP OF DRAWINGS

All Drawings, Plans, Specifications, and copies thereof furnished by the Engineer are his property. They are not to be used on other work and, with the exception of the signed Contract set, are to be returned to him on request at the completion of the work. Any reuse of these materials without specific written verification or adaptation by the Engineer will be at the risk of the user and without liability or legal expense to the Engineer.

C3 THE ENGINEER

24. AUTHORITY OF THE ENGINEER

The Engineer shall be the Owner's representative during the construction period. His authority and responsibility shall be limited to the provisions set forth in these Contract Documents. The Engineer shall have the authority to reject work and materials whenever such rejection may be necessary to ensure execution of the Contract in accordance with the intent of the Contract Documents.

25. DUTIES AND RESPONSIBILITIES OF THE ENGINEER

The Engineer will make periodic visits to the site of the project to observe the progress and quality of the work and to determine, in general, if the work is proceeding in accordance with the intent of the Contract Documents. He shall not be required to make comprehensive or continuous inspections to check quality or quantity of the work, and he shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work. Visits and observations made by the Engineer shall not relieve the Contractor of his obligation to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety precautions, in conformance with the intent of the Contract.

The Engineer will make decisions, in writing, on all claims of the Owner or the Contractor arising from interpretation or execution of the Contract Documents. Such decisions shall be necessary before the Contractor can receive additional money under the terms of the Contract. Changes in work ordered by the Engineer will be made in compliance with Article ALTERATIONS.

One or more inspectors may be assigned to observe the work and to act in matters of construction under this Contract. It is understood that such inspectors shall have the power to issue instructions and make decisions within the limitations of the authority of the Engineer. Such inspection shall not relieve the Contractor of his obligations to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety precautions, in conformance with the intent of the Contract.

26. REJECTED MATERIAL

Any material condemned or rejected by the Engineer or his authorized inspector because of nonconformity with the Contract Documents shall be removed at once from the vicinity of the work by the Contractor at his own expense, and the same shall not be used on the work.

27. UNNOTICED DEFECTS

Any defective work or material that may be discovered by the Engineer before the final acceptance of work, or before final payment has been made, or during the guarantee period, shall be removed and replaced by work and materials which shall conform to the provisions of the Contract Documents. Failure on the part of the Engineer to condemn or reject bad or inferior work or materials shall not be construed to imply acceptance of such work or materials. The Owner shall reserve and retain all of its rights and remedies at law against the Contractors and its Surety for correction of any and all latent defects discovered after the guarantee period.

28. RIGHT TO RETAIN IMPERFECT WORK

If any part or portion of the work done or materials furnished under this Contract shall prove defective and not in accordance with the Drawings and Specifications, and if the imperfection in the same shall not be of sufficient magnitude or importance as to make the work dangerous or unsuitable, or if the removal of such work will create conditions which are dangerous or undesirable, the Owner shall have the right and authority to retain such work but shall make such deductions in the final payment therefore as may be just and reasonable.

29. LINES AND GRADES

Lines and grades shall be established as provided in the Supplementary Conditions. All stakes, marks, and other information shall be carefully preserved by the Contractor, and in case of their careless or unnecessary destruction or removal by him or his employees, such stakes, marks, and other information will be replaced by the Engineer at the Contractor's expense.

30. SHOP DRAWING SUBMITTAL PROCEDURE

The Contractor shall submit, in quintuplicate, to the Engineer for his review, such shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items (including mechanical and electrical equipment) required for the construction. Shop drawings shall be submitted in sufficient time to allow the Engineer not less than 20 regular working days for examining the shop drawings.

These shop drawings shall be accurate, distinct, and complete, and shall contain all required information, including satisfactory identification of items, units, and assemblies in relation to the Contract Drawings and Specifications.

Unless otherwise approved by the Engineer, shop drawings shall be submitted only by the Contractor, who shall indicate by a signed stamp on the shop drawings, or other approved means, that he (the Contractor) has checked the shop drawings, and that the work shown is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved.

The practice of submitting incomplete or unchecked shop drawings for the Engineer to correct or finish will not be acceptable, and shop drawings which, in the opinion of the Engineer, clearly indicate that they have not been checked by the Contractor will be considered as not complying with the intent of the Contract Documents and will be returned to the Contractor for resubmittal in the proper form.

When the shop drawings have been reviewed by the Engineer, two sets of submittals will be returned to the Contractor appropriately stamped. If major changes or corrections are necessary, the shop drawing may be rejected and one set will be returned to the Contractor with such changes or corrections indicated, and the Contractor shall correct and resubmit the shop drawings in quadruplicate, unless otherwise directed by the Engineer. No changes shall be made by the Contractor to resubmitted shop drawings other than those changes indicated by the Engineer, unless such changes are clearly described in a letter accompanying the resubmitted shop drawings.

The review of such shop drawings and catalog cuts by the Engineer shall not relieve the Contractor from responsibility for correctness of dimensions, fabrication details, and space requirements, or for deviations

from the Contract Drawings or Specifications, unless the Contractor has called attention to such deviations in writing by a letter accompanying the shop drawings and the Engineer approves the change or deviation in writing at the time of submission; nor shall review by the Engineer relieve the Contractor from the responsibility for errors in the shop drawings. When the Contractor does call such deviations to the attention of the Engineer, the Contractor shall state in his letter whether or not such deviations involve any deduction or extra cost adjustment.

Submittals that include shop drawings required for this project include Electrical Engineer (Hired by Contractor) line diagram, conductor sizing analysis, panel board schedules, and other drawing/specification items necessary for the installation of the system. This submittal may be in report or letter format with drawings, schedules and tables in 8 ½" x 11" or 11" x 17" format. The submittal my be electronic in PDF file format.

31. DETAIL DRAWINGS AND INSTRUCTIONS

The Engineer will furnish, with reasonable promptness, additional instructions by means of Drawings or otherwise, if, in the Engineer's opinion, such are required for the proper execution of the work. All such Drawings and instructions will be consistent with the Contract Documents, true developments thereof, and reasonable inferable therefrom.

C4 THE CONTRACTOR AND HIS EMPLOYEES

32. CONTRACTOR, AN INDEPENDENT AGENT

The Contractor shall perform all work under this Contract as an Independent Agent and shall not be considered as an agent of the Owner, nor shall the Contractor's subcontractors or employees be subagents of the Owner.

33. SUBCONTRACTING

The Contractor shall not employ any subcontractors that are not properly licensed. Changes of subcontractors listed with the Proposal shall be made only with the approval of the Owner.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

34. INSURANCE AND LIABILITY

SEE EXHIBIT E

35. INDEMNITY

SEE EXHIBIT E

36. TAXES AND CHARGES

The Contractor shall pay all state and local sales and use taxes on items, and in a manner as required by the laws and statutes of the State of California and its political subdivisions. The Contractor shall withhold and pay any and all withholding taxes, whether State or Federal, and pay all Social Security charges and also all State Unemployment Compensation charges, and pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees, or sums whatsoever, which are now or may hereafter be required to be paid or withheld under any laws.

37. ORDINANCES, PERMITS, AND LICENSES

The Contractor shall keep himself fully informed of all local ordinances, as well as state and federal laws, which in any manner affect the work herein specified. The Contractor shall at all times comply with said ordinances, laws, and regulations, and protect and indemnify the Owner and its officers and agents against any claim or liability arising from or based on the violation of any such laws, ordinances, or regulations. All permits, licenses, and inspection fees necessary for prosecution and completion of the work shall be secured and paid for by the Contractor, unless otherwise specified.

38. SUPERINTENDENCY

The Contractor shall keep on the work, during its progress, competent supervisory personnel. The Contractor shall designate, in writing, before starting work, an authorized representative who shall have complete authority to represent and to act for the Contractor. The Contractor shall give efficient supervision to the work, using his best skill and attention. The Contractor shall be solely responsible for all construction means, methods, techniques, and procedures, and for providing adequate safety precautions and coordinating all portions of the work under Contract.

39. RECEPTION OF ENGINEER'S DIRECTIONS

The superintendent, or other duly authorized representative of the Contractor, shall represent the Contractor in all directions given to him by the Engineer. Such directions of major importance will be confirmed in writing. Any direction will be so confirmed, in each case, on written request from the Contractor.

40. SANITATION

Sanitary conveniences conforming to state and local codes shall be erected and maintained by the Contractor at all times while workers are employed on the work. The sanitary convenience facilities shall be as approved by the Engineer.

41. EMPLOYEES

The Contractor shall employ only competent, skillful workers to do the work, and whenever any person shall appear to be incompetent or to act in a disorderly or improper manner, such person shall be removed from the work. SEE CONTRACT

42. REQUIREMENTS OF CALIFORNIA LAW FOR PUBLIC CONTRACTS

When the Contract Documents concern public works of the state or any county, municipality, or political subdivision created by its laws, the applicable statutes of the State of California shall apply. All parties to this Contract shall determine the contents of all applicable statutes and comply with their provisions throughout the performance of the Contract.

A. APPRENTICES

Section 1773.3 of the California Labor Code requires the Owner to notify the Division of Apprenticeship Standards of award of public work contracts which fall within the jurisdiction of Section 1777.5 of the Labor code.

The Contractor's attention is directed to Sections 1777.5, 1777.6, and 1777.7 of the California Labor Code and Title 8, California Administrative Code Section 200 et seq concerning employment of apprentices by the Contractor and his subcontractors. To insure compliance and complete understanding of the law regarding apprentices, and specifically the required ratio thereunder, the Contractor (and subcontractors) should, where some question exists, contact the Division of Apprenticeship Standards prior to commencement of the work. Responsibility for compliance with this paragraph 42A lies solely with the Contractor. The Owner's policy is to encourage the employment and training of apprentices on its construction contracts as may be permitted under local apprenticeship standards.

In general, Section 1777.5 requires that the Contractor and subcontractors follow specific procedures to determine the number of apprentices that must be employed and, under certain conditions, to contribute to funds established for administration of apprenticeship programs.

Excerpts from the California Labor Code and other information regarding the employment of apprentices on public work may be obtained from the Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, California or one of its branch offices.

B. LABOR DISCRIMINATION AND UNLAWFUL EMPLOYMENT PRACTICES

Attention is directed to the Section 1735 of the Labor Code which states:

> "No discrimination shall be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical

condition, marital status, or sex of such persons, except as provided in Section 12940 of the California Government Code, and every contractor for public works violating this section is subject to all the penalties imposed for violation of this chapter."

Attention is also directed to Section 12940 of the California Government Code which, although not specifically concerned with public works contracts, enumerates unlawful employment practices applicable to all employers in the State of California.

C. **HOURS OF LABOR**

Eight hours' labor constitutes a legal day's work. The Contractor shall forfeit, as penalty to the Owner, $25 for each workman employed in the execution of the Contract, by him or by any subcontractor under him, for each calendar day during which any workman is required or permitted to labor more than 8 hours in violation of the provisions of the Labor Code and, in particular, Section 1810 to Section 1815 thereof, inclusive.

D. **PREVAILING WAGES AND PAYROLL RECORDS**

SEE CONTRACT.

E. **ASSIGNMENT OF CLAIMS**

California Government Code Section 4551 requires that the following provision be included in public works contracts:

"In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the 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 pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties."

F. **TRENCH SAFETY PLAN**

In accordance with Section 6705 of the California Labor Code, for trenches 5 feet or more in depth, the Contractor shall submit to and receive from the Owner the acceptance of a detailed plan showing design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazards of caving ground. Such plan shall be submitted at least 5 days before the Contractor intends to begin work on the trenches.

If such plan varies from the shoring system standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer.

Nothing herein shall be deemed to allow the use of shoring, sloping, or protective system less effective than that required by the Construction Safety Orders of the Division of Industrial Safety.

43. EXCAVATION OR TRENCHING PERMIT

For trenches or excavation 5 feet or deeper, the Contractor shall obtain from the Division of Industrial Safety a permit authorizing such construction.

44. SAFETY

The Contractor shall be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees) and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), the State Occupational Safety and Health Act, and all other applicable federal, state, county, and local laws, ordinances, codes, the requirements set forth below, and any regulations that may be detailed in other parts of these Documents. Where any of these are in conflict, the more stringent requirement shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth herein.

The Contractor shall develop and maintain for the duration of this Contract, a safety program that will effectively incorporate and implement all required safety provisions. The Contractor shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.

The duty of the Engineer to conduct construction review of the Contractor's performance is not intended to include a review or approval of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.

The Contractor, as a part of his safety program, shall maintain at his office or other well-known place at the jobsite, safety equipment applicable to the work as prescribed by the aforementioned authorities, all articles necessary for giving first-aid to the injured, and shall establish the procedure for the immediate removal to a hospital or a doctor's care of persons (including employees) who may be injured on the jobsite.

If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Engineer and the Owner. In addition, the Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details and statements of witnesses.

If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

45. CONTRACTOR'S TOOLS AND EQUIPMENT

The Contractor's tools and equipment used on the work shall be furnished in sufficient quantity and of a capacity and type that will safely perform the work specified, and shall be maintained and used in a manner that will not create a hazard to persons or property, or cause a delay in the progress of the work.

46. PROTECTION OF WORK AND PROPERTY

The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this Contract. The Contractor shall at all times safely guard and protect from damage his own work, and that of adjacent property (as provided by law and the Contract Documents). All passageways, guard fences, lights, and other facilities required for protection by state or municipal laws and regulations and local conditions, must be provided and maintained.

The Contractor shall protect his work and materials from damage due to the nature of the work, the elements, carelessness of other Contractors, or from any cause whatever until the completion and acceptance of the work. All loss or damages arising out of the nature of the work to be done under these Contract Documents, or from any unforeseen obstruction or defects which may be encountered in the prosecution of the work, or from the action of the elements, shall be sustained by the Contractor.

47. RESPONSIBILITY OF CONTRACTOR TO ACT IN EMERGENCY

In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor shall act, without previous instructions from the Owner or Engineer, as the situation may warrant. The Contractor shall notify the Engineer thereof immediately thereafter. Any claim for compensation by the Contractor, together with substantiating documents in regard to expense, shall be submitted to the Owner through the Engineer and the amount of compensation shall be determined by agreement.

48. MATERIALS AND APPLIANCES

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary for the execution and completion of the work.

Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of good quality. The Contractor, shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

In selecting and/or approving equipment for installation in the project, the Owner and Engineer assume no responsibility for injury or claims resulting from failure of the equipment to comply with applicable national, state, and local safety codes or requirements, or the safety requirements of a recognized agency, or failure due to faulty design concepts, or defective workmanship and materials.

49. CONTRACTORS' AND MANUFACTURERS' COMPLIANCE WITH STATE SAFETY, OSHA, AND OTHER CODE REQUIREMENTS

The completed work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items required by the state and federal (OSHA) industrial authorities and applicable local and national codes. Further, any features of the work (including Owner-select equipment) subject to such safety regulations shall be fabricated, furnished, and installed in compliance with these requirements. Contractors and manufacturers of equipment shall be held responsible for compliance with the requirements included herein. Contractors shall notify all equipment suppliers and subcontractors of the provisions of this Article.

50. SEISMIC LOADING DESIGN PROVISIONS

Machinery, equipment, and components such as tanks, piping, and electrical panels, including their supports and anchorages, designed by manufacturers or suppliers, shall be designed in accordance with the provisions of the latest edition of the Uniform Building Code to withstand seismic loads in addition to other loads. Design shall be performed by a licensed professional engineer familiar with seismic design. Submittals shall be certified, by the Design Engineer, that designs are in conformance with the Uniform Building Codes and that all applicable loads, including seismic, have been designed for.

51. SUBSTITUTION OF MATERIALS

Except for Owner-selected equipment items, and items where no substitution is clearly specified, whenever any material, article, device, product, fixture, form, type of construction, or process is indicated or specified by patent or proprietary name, by name of manufacturer, or by catalog number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the material or process desired. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design, and shall be deemed to be followed by the words "or equivalent". The Bidder may, in such cases, for a period of not less than 35 days after award of the contract, submit complete data to the Engineer for consideration for another material, type, or process which shall be substantially equivalent in every respect to that so indicated or

specified. Substitute materials shall not be used unless approved in writing. The Owner or his authorized agent will be the sole judge of the substituted article or material.

52. TESTS, SAMPLES, AND INSPECTIONS

The Contractor shall furnish, without extra charge, the necessary test pieces and samples, including facilities and labor for obtaining the same, as requested by the Engineer. When required, the Contractor shall furnish certificates of tests of materials and equipment made at the point of manufacture by a recognized testing laboratory.

The Owner, Engineer, and authorized government agents and their representatives shall at all times be provided safe access to the work wherever it is in preparation or progress, and the Contractor shall provide facilities for such access and for inspection, including maintenance of temporary and permanent access.

If the Specifications, the Engineer's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give timely notice of its readiness for inspection. Inspections to be conducted by the Engineer will be promptly made, and where practicable, at the source of supply. If any work should be covered up without approval or consent of the Engineer, it shall, if required by the Engineer, be uncovered for examination at the Contractor's expense.

Reexamination of questioned work may be ordered by the Engineer, and, if so ordered, the work shall be uncovered by the Contractor. If such work is found to be in accordance with the Contract Documents, the Owner will pay the cost of reexamination and replacement. If such work is found to be not in accordance with the Contract Documents, the Contractor shall correct the defective work, and the cost of reexamination and correction of the defective work shall be paid by the Contractor.

53. ROYALTIES AND PATENTS

The Contractor shall pay all royalty and license fees, unless otherwise specified. The Contractor shall defend all suits or claims for infringement of any patent rights and shall save the Owner and the Engineer harmless from loss on account thereof.

54. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of more than 3 months, through no act or fault of the Contractor or of anyone employed by him, or if the Engineer should fail to issue any estimate for payment within 15 days after it is due, or if the Owner should fail to pay the Contractor within 30 days after the time specified in Article PARTIAL PAYMENTS, any sum certified by the Engineer, then the Contractor may, upon 15 days' written notice to the Owner and the Engineer, stop work or terminate this Contract and recover from the Owner payment for all work executed and any loss sustained upon any plant or material and reasonable profit, unless said default has been remedied within said time.

55. CORRECTION OF DEFECTIVE WORK FOUND DURING WARRANTY PERIOD

The Contractor hereby agrees to make, at his own expense, all repairs or replacements necessitated by defects in materials or workmanship, supplied under terms of this Contract, and pay for any damage to other works resulting from such defects, which become evident within 1 year after the date of final acceptance of the work or within 1 year after the date of substantial completion established by the Engineer for specified items of equipment, or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents. The Contractor further assumes responsibility for a similar guarantee for all work and materials provided by subcontractors or manufacturers of packaged equipment components. The effective date for the start of the guarantee or warranty period for equipment qualifying as substantially complete is defined in Article SUBSTANTIAL COMPLETION, and Article SUBSTANTIAL COMPLETION DATE, in these General Conditions. The Contractor also agrees to hold the Owner harmless from liability of any kind arising from damage due to said defects.

The Contractor shall make all repairs and replacements promptly upon receipt of written order for same from the Owner. If the Contractor fails to make the repairs and replacements promptly, the Owner may do the work, and the Contractor and his Surety shall be liable for the cost thereof. Any additional requirements for the project relative to correction of defective work after final acceptance are set forth in the Supplementary Conditions.

C5 PROGRESS OF THE WORK

56. BEGINNING OF THE WORK

Before work shall be started and materials ordered, the Contractor shall meet and consult with the Owner and/or Engineer relative to materials, equipment, and all arrangements for prosecuting the work.

57. SCHEDULES AND PROGRESS REPORTS

Prior to starting the construction, the Contractor shall prepare and submit to the Engineer for review, a progress schedule showing approximately the dates on which each part or division of the work is expected to be started and finished. The progress schedule shall be brought up to date and submitted to the Engineer at the end of each month or at such other times the Engineer may request.

The Contractor shall also forward to the Engineer, at the end of each month, an itemized report of the delivery status of major and critical items of purchased equipment and material, including shop drawings and the status of shop and field fabricated work. These progress reports shall indicate the date of the purchase order, the correct percentage of completion, estimated delivery, and cause of delay, if any.

If the completion of any part of the work or the delivery of materials is behind the approved schedule, the Contractor shall submit in writing a plan acceptable to the Owner and Engineer for bringing the work up to schedule.

The Owner shall have the right to withhold progress payments for the work if the Contractor fails to update and submit the progress schedule and reports as specified.

58. PROSECUTION OF THE WORK

It is expressly understood and agreed that the time of beginning, rate of progress, and time of completion of the work are the essence of this Contract. The work shall be prosecuted at such time, and in or on such part or parts of the project as may be required, to complete the project as contemplated in the Contract Documents and the approved construction schedule.

If the Contractor desires to carry on work at night or outside the regular hours, he shall give timely notice to the Engineer to allow satisfactory arrangements to be made for inspecting the work in progress.

59. ASSIGNMENT

SEE CONTRACT

60. OWNER'S RIGHT TO DO WORK

If the Contractor should, in the opinion of the Engineer, neglect to prosecute the work properly or should neglect or refuse at his own cost to take up and replace work as shall have been rejected by the Engineer, then the Owner shall notify the Surety of the condition, and after 10 days' written notice to the Contractor and the Surety, or without notice if an emergency or danger to the work or public exists, and without prejudice to any other right which the Owner may have under the contract, take over that portion of the work which has been improperly executed and make good the deficiencies and deduct the cost thereof from the payments then or thereafter due the Contractor.

61. OWNER'S RIGHT TO TRANSFER EMPLOYMENT

If the Contractor should abandon the work or should be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if he should fail to make prompt payment to subcontractors for material or labor, or persistently disregard laws, ordinances, or the instructions of the Engineer, or otherwise be guilty of a substantial violation of any provision of the Contract or any laws or ordinance, then the Owner may, without prejudice to any other right or remedy, and after giving the Contractor and Surety 7 days' written notice, transfer the employment for said work from the Contractor to the Surety. Upon receipt of such notice, such Surety shall enter upon the premises and take possession of all materials, tools, and appliances thereon for the purpose of completing the work included under this Contract and employ, by Contract or otherwise, any qualified person or persons to finish the work and provide the materials therefor, in accordance with the Contract Documents, without termination of the continuing full force and effect of this Contract. In case of such transfer of employment to such Surety, the Surety shall be paid in its own name on estimates according to the terms hereof without any right of the Contractor to make any claim for the same or any part thereof.

In lieu of the foregoing, if the Owner so elects, he may terminate the employment of the Contractor and take possession of the premises and of all materials, tools, and appliances thereon and finish the work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of completing the Contract, including compensation for additional managerial and administrative services, shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner.

62. DELAYS AND EXTENSION OF TIME

If the Contractor is delayed in the progress of the work by any act or neglect of the Owner or the Engineer, or by any separate Contractor employed by the Owner, or by strikes, lockouts, fire, unusual weather conditions, or unavoidable casualties, the Contractor shall, within 48 hours of the start of the occurrence, give notice to the Owner of the cause of the potential delay and estimate the possible time extension involved. Within 7 days after the cause of delay has been remedied, the Contractor shall give notice to the Owner of any actual time extension requested as a result of the aforementioned occurrence.

No extension of time will be granted to the Contractor for delays occurring to parts of the work that have no measurable impact on the completion of the total work under this Contract; nor will extension of time be granted for delays to parts of work that are not located on the critical path if the Critical Path Method (CPM) is used for scheduling the work.

No extension of time will be considered for weather conditions normal to the area in which the work is being performed. Unusual weather conditions, if determined by the Engineer to be of a severity that would stop all progress of the work, may be considered as cause for an extension of Contract completion time.

Delays in delivery of equipment or material purchased by the Contractor or his subcontractors (including Owner-selected equipment) shall not be considered as a just cause for delay. The Contractor shall be fully responsible for the timely ordering, scheduling, expediting, delivery, and installation of all equipment and materials.

Within a reasonable period after the Contractor submits to the Owner a written request for an extension of time, the Engineer will present his written opinion to the Owner as to whether an extension of time is justified, and, if so, his recommendation as to the number of days for time extension. The Owner will make the final decision on all requests for extension of time.

In no event shall the Contractor be entitled under this Contract to collect or recover any damages, loss, or expense incurred by any delay other than as caused by the Owner, as stipulated in Article NOTICE OF CLAIM FOR DELAY.

63. LIQUIDATED DAMAGES

Should the Contractor fail to complete the work, or any part thereof, in the time agreed upon in the Contract or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the Contractor shall reimburse the Owner for the additional expense and damage for each calendar day, Sundays and legal holidays excluded, that the Contract remains uncompleted after the Contract completion date. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the work is the per-diem rate, as stipulated in the Proposal. The said amounts are hereby agreed upon as liquidated damages for the loss to the Owner on account of expense due to the employment of Engineers, inspectors, and other employees after the expiration of the time of completion, and on account of the value of the operation of the works dependent thereon. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the Contractor. The Owner shall have the right to deduct such damages from any amount due, or that may become due the Contractor, or the amount of such damages shall be due and collectible from the Contractor or his Surety.

In accordance with the provisions of Section 4215 of the California Government Code, the 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 the removal or relocation of such utility facilities.

64. OTHER CONTRACTS

The Owner reserves the right to let other Contracts in connection with the work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

If any part of the work under this Contract depends on the prior acceptable completion of work by others under separate Contract(s), the Contractor shall inspect and promptly report to the Engineer any defects in such work that would adversely affect the satisfactory completion of the work under this Contract. The Contractor's failure to so inspect and report shall constitute acceptance of the work by others as being suitable for the proper reception and completion of the work under this Contract, excluding, however, those defects in the work by others that occur after the satisfactory completion of the work specified hereunder.

65. USE OF PREMISES

The Contractor shall confine his equipment, the storage of materials, and the operation of his workers to limits shown on the Drawings or indicated by law, ordinances, permits, or directions of the Engineer, and shall not unreasonably encumber the premises with his materials. The Contractor shall provide, at his own expense, the necessary rights-of-way and access to the work which may be required outside the limits of the Owner's property.

The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

66. SUBSTANTIAL COMPLETION DATE

The Engineer may, at his sole discretion, issue a written notice of substantial completion for the purpose of establishing the starting date for specific equipment guarantees, and to establish the date that the Owner will assume the responsibility for the cost of operating such equipment. Said notice shall not be considered as final acceptance of any portion of the work or relieve the Contractor from completing the remaining work

within the specified time and in full compliance with the Contract Documents. "Substantial completion" of an operating facility shall be that degree of completion that will provide a minimum of 7 continuous work days of successful operation in which all performance and acceptance testing has been successfully demonstrated to the Engineer. All equipment contained in the work, plus all other components necessary to enable the Owner to operate the facility in the manner that was intended, shall be complete on the substantial completion date. See "SUBSTANTIAL COMPLETION" under Article DEFINITIONS, of these General Conditions.

67. PERFORMANCE TESTING

Operating equipment and systems shall be performance tested in the presence of the Engineer to demonstrate compliance with the specified requirements. Performance testing shall be conducted under the specified design operating conditions as recommended or approved by the Engineer. Schedule such testing with the Engineer at least 1 week in advance of the planned date for testing.

68. OWNER'S USE OF PORTIONS OF THE WORK

The Owner shall have the right to take possession of and use any completed or partially completed portions of the work. Such use shall not be considered as final acceptance of any portion of the work, nor shall such use be considered as cause for an extension of the Contract completion time, unless authorized by a Change Order issued by the Owner.

69. CUTTING AND PATCHING

The Contractor shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other Contractors shown upon or reasonably implied by the Drawings. Any defective work or material, performed or furnished by the Contractor, that may be discovered by the Engineer before the final acceptance of the work or before final payment has been made, shall be removed and replaced or patched, in a manner as approved by the Engineer at the expense of the Contractor.

70. CLEANING UP

The Contractor shall, at all times, at his own expense, keep property on which work is in progress and the adjacent property free from accumulations of waste material or rubbish caused by employees or by the work. Upon completion of the construction, the Contractor shall, at his own expense, remove all temporary structures, rubbish, and waste materials resulting from his operations.

C6 PAYMENT

71. PAYMENT FOR CHANGE ORDERS

Payment or credit for any alterations covered by a Change Order shall be determined by one or a combination of the methods set forth in A, B, or C below:

A. **UNIT PRICES**. If applicable, those unit prices stipulated in the Proposal, or unit prices negotiated and mutually acceptable to the Contractor and Owner.

B. **LUMP SUM**. A total sum for the work negotiated and mutually acceptable to the Contractor and Owner.

In "A" and "B" above, Contractor's quotations for Change Orders shall be in writing and firm for a period of 30 days. Any compensation paid in conjunction with the terms of a Change Order shall comprise total compensation due the Contractor for the work or alteration defined in the Change Order. By signing the Change Order, the Contractor acknowledges that the stipulated compensation includes payment for the work or alteration plus all payment for the interruption of schedules, extended overhead, delay or any other impact

claim or ripple effect, and by such signing specifically waives any reservation or claim for additional compensation in respect to the subject of the Change Order.

The Owner's request for quotations on alterations to the work shall not be considered authorization to proceed with the work prior to the issuance of a formal Change Order, nor shall such request justify any delay in existing work. Lump sum quotations for alterations to the work shall include substantiating documentation with an itemized breakdown of Contractor and subcontractor costs, including labor, material, rentals, approved services, overhead, and profit calculated as specified under "C" below.

C. **FORCE ACCOUNT WORK**. If the method of payment cannot be agreed upon prior to the beginning of the work, and the Owner directs by written Change Order that the work be done on a force account basis, then the Contractor shall furnish labor, equipment, and materials necessary to complete the work in a satisfactory manner and within a reasonable period of time. For the work performed, payment will be made for the documented actual cost of the following:

1. Labor, including foremen, who are directly assigned to the force account work (actual payroll direct wage cost as established by negotiated labor agreements, except overtime will not be paid for less than 8 hours of work per day.) No other fixed labor burdens will be considered, unless approved in writing by the owner.

2. Material delivered and used on the designated work, including sales tax, if paid for by the Contractor or his subcontractor.

3. Rental, or equivalent rental cost of equipment, including necessary transportation for items having a value in excess of $100.

To costs under "C". FORCE ACCOUNT WORK", there shall be added the following fixed fees for the Contractor or subcontractor actually performing the work:

A. A fixed fee of 30 percent of the cost of Item 1 above,

B. A fixed fee of 15 percent added to the cost of Items 2, and

C. A fixed fee of 15 percent added to the cost of Items 3 above.

An additional fixed fee of 5 percent shall be allowed the Contractor for the administrative handling of portions of the work that are performed by an approved subcontractor. No additional fixed fee will be allowed for the administrative handling of work performed by a subcontractor of a subcontractor, unless by written permission from the Owner.

The above added fixed fees shall be considered to be full compensation, covering the cost of general supervision, overhead, profit, and any other general expense, and no additional fees or surcharges shall be allowed.

The Owner reserves the right to furnish such materials and equipment as he deems expedient, and the Contractor shall have no claim for profit or added fees on the cost of such materials and equipment.

For equipment under Item 3 above, rental or equivalent rental cost will be allowed for only those days or hours during which the equipment is in actual use. Rental and transportation allowances shall not exceed the current rental rates prevailing in the locality. The rentals allowed for equipment will, in all cases, be understood to cover all fuel, supplies, repairs, and renewals, and no further allowances will be made for those items, unless specific agreement to that effect is made.

The Contractor shall maintain his records in such a manner as to provide a clear distinction between the direct costs of work paid for on a force account basis and the costs of other operations. The Contractor shall

furnish the Engineer daily extra work report sheets in duplicate of each day's force account work no later than the working day following the performance of said work. The daily report sheets shall itemize the materials used, and shall cover the direct cost of labor and the charges for equipment rental, whether furnished by the Contractor, subcontractor, or other forces. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated.

Material charges shall be substantiated by valid copies of vendors' invoices. Such invoices shall be submitted with the daily extra work report sheets, or if not available, they shall be submitted with subsequent daily report sheets. Said daily extra work report sheets shall be signed by the Contractor or his authorized agent.

To receive partial payments and final payment for force account work, the Contractor shall submit in a manner approved by the Engineer, detailed and complete documented verification of the contractor's and any of his subcontractors' actual current costs involved in the force account work pursuant to the issuance of an approved Change Order. Such costs shall be submitted within 30 days after said work has been performed.

No payment will be made for work billed and submitted to the Engineer after the 30-day period has expired. No extra or additional work shall be performed by the Contractor, except in an emergency endangering life or property, unless in pursuance of a written Change Order, as provided in Article ALTERATIONS.

72. PARTIAL PAYMENTS

A. GENERAL

Nothing contained in this Article shall be construed to affect the right, hereby reserved, to reject the whole or any part of the aforesaid work, should such work be later found not to comply with the provisions of the Contract Documents. All estimated quantities of work for which partial payments have been made are subject to review and correction on the final estimate. Payment by the Owner and acceptance by the Contractor of partial payments based on periodic estimates of quantities of work performed shall not, in any way, constitute acceptance of the estimated quantities used as the basis for computing the amounts of the partial payments.

B. LUMP SUM PRICE BREAKDOWN

For work to be done for a lump sum price, the Contractor shall submit a price breakdown to the Engineer immediately after award of the Contract. The price breakdown, as agreed upon by the Contractor and Engineer, shall be used for preparing future estimates for partial payments to the Contractor, and shall list the major items of the work with a price fairly apportioned to each item. Overhead, other general costs, and profit shall be prorated to each item so that the total of the prices for all items equals the lump sum price. The price breakdown will be subject to the approval of the Engineer and, upon request the Contractor, shall substantiate the price for any or all items.

C. ESTIMATE

Before the first working day of each calendar month, the Contractor shall submit to the Engineer a detailed estimate of the amount earned for the separate portions of the work, and request payment. As used in this Article, the words "amount earned" means the value, on the date of the estimate for partial payment, of the work completed in accordance with the Contract Documents, and the value of approved materials delivered to the project site suitably stored and protected prior to incorporation into the work. If the Contractor's estimate of amount earned conforms with the Engineer's evaluation, the Engineer will calculate the amount due the Contractor and make recommendation to the Owner for payment.

D. DEDUCTION FROM ESTIMATE

Ten percent of the total amount earned for work satisfactorily completed plus 10 percent of the value of approved materials on the jobsite but not yet incorporated into the work will be deducted and retained by the Owner, or the Contractor may elect to substitute securities of equivalent value in accordance with Section 22300 of the Public Contract Code.

Pursuant to Section 22300 of the Public Contract Code, the Contractor may substitute securities for any money held by the Owner to insure performance of the Contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the Owner or with a State or federally-chartered bank as an escrow agent, who shall return such securities to the Contractor upon satisfactory completion of the Contract. Deposit of securities with an escrow agent shall be subject to written agreement in accordance with the provisions of Section 22300. The Owner shall not certify that the Contract has been completed until at least 45 days after filing by the Owner of a Notice of Completion. Securities eligible for investment under this Section shall be limited to those listed in Section 16430 of the California Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed upon by the Contractor and the public agency.

E. QUALIFICATION FOR PARTIAL PAYMENT FOR MATERIALS DELIVERED

Unless modified in the Supplementary Conditions, qualification for partial payment for materials delivered but not yet incorporated into the work shall be as described below.

Materials, as used herein, shall be considered to be those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to the Owner will be qualified for partial payment.

To receive partial payment for materials delivered to the site, but not incorporated in the work, it shall be necessary for the Contractor to submit to the Engineer, at least 7 days prior to the end of said month, a list of such materials. At his sole discretion, the Engineer will approve items for which partial payment is to be made. The Contractor's actual net cost for the materials must be supported by invoices of suppliers. Proper storage and protection shall be provided by the Contractor, and as approved by the Engineer. Final payment shall be made only for materials actually incorporated in the work and, upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the Contractor, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.

F. PAYMENT

After deducting the retainages and the amount of all previous partial payments made to the Contractor, the amount earned as of the current month will be made payable to the Contractor 10 days after the last day of said month, except where the Owner is a municipality or other agency whose laws require the approval of each payment by a council or similar body, in which case, the payment shall become due and payable 10 days after the first meeting in the following month scheduled for approval of such payments.

73. CLAIMS (ALSOSEE COINTRACT)

In any case where the Contractor deems additional compensation is due him for work or materials not clearly covered in the Contract or not ordered by the Engineer according to provisions of Article ALTERATIONS, the Contractor shall notify the Engineer, in writing, of his intention to make claim for such compensation before he begins the work on which he bases the claim, in order that such matters may be settled, if possible, or other appropriate action promptly taken. If such notification is not given or the Engineer is not afforded proper facilities by the Contractor for keeping strict account of actual cost, then the Contractor hereby agrees to waive the claim for such additional compensation. Such notice by the Contractor, and the fact that the Engineer has kept account of the cost as aforesaid, shall not in any way be construed as proving the validity

of the claim. Claims for additional compensation shall be made in itemized detail and submitted, in writing, to the Owner and Engineer within 10 days following completion of that portion of the work for which the Contractor bases his claim. In case the claim is found to be just, it shall be allowed and paid for as provided in Article PAYMENT FOR CHANGE ORDERS, or it shall be allowed and paid under a supplemental agreement to be entered into between the parties to the Contract.

74. NOTICE OF CLAIM FOR DELAY

If the Contractor intends to file a claim for additional compensation for a delay caused by the Owner at a particular time, he shall file a notice of claim with the Owner within 7 days of the beginning of the occurrence. The notice of claim shall be in duplicate, in writing, and shall state the circumstances and the reasons for the claim, but need not state the amount. No claim for additional compensation will be considered unless the provisions of Article DELAYS AND EXTENSION OF TIME, are complied with, and a notice of claim has been filed with the Owner in writing, as stated above.

75. RELEASE OF LIENS OR CLAIMS

Before the Owner pays the Contractor his final payment for the work, the Contractor shall sign and deliver to the Owner a release of liens or claims sworn to under oath and duly notarized. The release shall state that the Contractor has satisfied all claims and indebtedness of every nature in any way connected with the work, including (but not limiting the generality of the foregoing) all payrolls, amounts due to subcontractors, accounts for labor performed and materials furnished, incidental services, liens, and judgments.

If any lien or claim remains unsatisfied after all payments to the Contractor are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such a lien or claim, including all costs and a reasonable attorney's fee.

76. FINAL PAYMENT

Upon completion of all of the work under this Contract, the Contractor shall notify the Engineer, in writing, that he has completed his part of the Contract and shall request final payment. If the work has been completed to the extent of the Contract Documents, the Engineer will recommend acceptance of the completed work and submit a final estimate of the amount due the Contractor under this Contract. Within 10 days following Owner's acceptance of the work, the Owner will file a Notice of Completion with the County Recorder's office. Thirty-five days after the filing of the Notice of Completion, and subject to the Contractor's evidence of compliance with Article RELEASE OF LIENS OR CLAIMS, the Owner will pay to the Contractor all moneys due him under the provisions of these Contract Documents.

77. NO WAIVER OF RIGHTS (ALSO SEE CONTRACT)

Neither the inspection by the Owner, through the Engineer or any of his employees, nor any order by the Owner for payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the Owner or Engineer, nor any extension of time, nor any possession taken by the Owner or its employees, shall operate as a waiver of any provision of this Contract, or any power herein reserved to the Owner, or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach.

78. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the Contractor of the final payment shall release the Owner and the Engineer, as agent of the Owner, from all claims and all liability to the Contractor for all things done or furnished in connection with the work, and every act of the Owner and other relating to or arising out of the work. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from obligations under this Contract and the Performance and Payment Bond, and other bonds and warranties, as herein provided.

END OF SECTION

SECTION D TECHNICAL SPECIFICATIONS & MODIFICATIONS

D1 - TECHNICAL SPECIFICATIONS

CITY OF GREENFIELD WWTP UPGRADE

TECHNICAL SPECIFICATIONS TABLE OF CONTENTS

These technical specifications were prepared by various professionals qualified in their respective disciplines. The following professionals were responsible for preparing these technical specifications, and their initials are indicated by each specification section as being the responsible engineer of record (EOR) for corresponding sections prepared by each respective EOR. Profession seals on these technical specifications correspond to each individual listed and the respective specification sections each is responsible for:

- Steven G. Tanaka, P.E. (SGT), Wallace Group, License C49779
- William A. Thoma, P.E. (WAT), Thoma Electric, License E10757

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01 20 00	Price and Payment Procedures	SGT
01 30 00	Administrative Requirements	SGT
01 32 15	Construction Progress Schedule	SGT
01 33 00	Submittal Procedures	SGT
01 35 00	Special Project Procedures	SGT
01 50 00	Temporary Facilities and Controls	SGT
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01 60 00	Product Requirements	SGT
01 64 00	Pre-Selected Vendor Equipment	SGT
01 66 00	Product Storage and Handling Requirements	SGT
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Division 02 – Existing Conditions

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FACILITY CONSTRUCTION SUBGROUP **Responsible Engineer**

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03 40 00 Precast Concrete ..... SGT

Division 04– Not Used

Division 05 Metals
05 53 00 Metal Gratings ..... SGT

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Division 09 – Finishes
09 90 00 Painting and Coating..... SGT

Divisions 10 through 14 – Not Used

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22 14 26.16 Process Drains and Cleanouts.....AMS
22 15 13 Compressed Air Piping ..... SGT

Division 23 – HVAC
23 34 16 Centrifugal HVAC Fans..... ESR
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SITE AND INFRASTRUCTURE SUBGROUP

Divisions 22 to 25 – Not Used

Division 26 – Electrical
26 05 00 Common Work Results for Electrical.....WAT
26 05 19 Low-Voltage Electrical Power Conductors and Cables.....WAT
26 05 33 Raceways & Boxes for Electrical Systems .....WAT
26 05 46.13 Electrical Utility Systems.....WAT
26 05 53 Identification of Electrical Systems.....WAT
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32 12 00 Flexible Paving ..... SGT
32 31 13 Chain Link Fences and Gates ..... SGT

Division 33 – Utilities
33 31 00 Sanitary Utility Sewerage Piping ..... SGT
33 47 13 Pond Liners ..... SGT
33 24 99 Sludge Removal From Ponds ..... SGT

Divisions 34 and 35 – Not Used

PROCESS EQUIPMENT SUBGROUP

Division 40 – Process Integration
40 05 59.26 Fiberglass-Reinforced Plastic Slide Gates ..... SGT

Division 41 through 45 – Not Used

Division 46 – Water and Wastewater Equipment
46 51 13 Floating Mechanical Aerators ..... SGT

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK INCLUDED

A. The Work includes construction/installation of 90 HP of surface floating aerators on three existing oxidation ponds, re-conditioning of the three oxidation ponds and equipping with pond liners, sludge removal/dewatering and disposal, yard piping and hydraulic control structures between the existing ponds, managing the wastewater ponds in compliance with the waste discharge requirements during construction, sludge management/removal/disposal, new electrical service to accommodate the new surface aerators.

B. The Work consists of items listed in the Base Bid. Refer to Section 01 20 00, Price and Payment Procedures, for further definition.

1.02 WORK NOT INCLUDED

A. Except for such auxiliary work as is shown or specified or is necessary as a part of the construction, the following work is NOT included in this Contract.

1. Work shown, but marked "NIC" (Not in Contract) or otherwise designated to be performed by others.

1.03 LOCATION OF SITE

A. The Site is located at the existing City of Greenfield WWTP, located off Walnut Avenue west of 2nd Street, City of Greenfield, California, Monterey County.

1.04 SPECIFICATIONS

A. The Specifications are those bound in the Project Manual. The Project Manual consists of the Noticing Inviting Bids, Instructions to Bidders, General Conditions of the Contract for Construction, Supplementary Conditions, Division 01, and Divisions 02 through 46 technical specifications.

1.05 DRAWINGS

A. The Drawings consist of 11 sheets prepared by Wallace Group and Thoma Electric, Inc.

1.06 INTERRUPTION OF SERVICES

A. Interruptions to services for the purpose of making or breaking connection of utilities shall be made only after consultation with the Owner’s facility operator, a minimum of one week in advance of connection break, and shall be at such time and of such duration as may be directed. All utility disruptions shall be limited to 24 hours or less. All such Work shall be identified in the Construction Schedule and updated throughout the Construction period.

B. Existing wastewater treatment plant and pond system, shall remain fully operational and in compliance with existing waste discharge requirements, until such time new WWTP improvements are deemed functional and ready to accept wastewater flow. Include such provisions in the Construction Work Plan, Paragraph 1.8 of this Section.

1.07 SEQUENCE OF CONSTRUCTION OPERATIONS

A. Submit Construction Work Plan at Pre-Construction Meeting, dovetailing sequencing details with Schedule as required in Section 01 32 16, Construction Progress Schedule. Owner and Engineer shall approve such plan prior to Contractor starting construction operations. Work Plan shall describe in detail how existing WWTP operations will be maintained and protected during construction. Contractor's Work Plan and Schedule shall comply with the following general sequencing and conditions:

1. Two of three oxidation Ponds (Ponds 1, 2 and 3) shall remain in service at all times during construction. Both percolation ponds (Ponds 4 and 5) shall remain in service at all times during construction. During Work on Ponds 1, 2 and 3, the percolation ponds shall hold the maximum allowed volume of water, maintaining adequate freeboard, to serve as polishing ponds prior to discharge to the percolation fields, thus maximizing detention time of water through the pond system during construction.
2. Oxidation Pond refurbishment shall commence with either Pond 1 or 2. Ponds 1 and 2 shall not be taken out of service at the same time. Contractor shall begin pond improvements with Pond 1 or 2, thus allowing the other Pond to operate "as is". However, prior to taking the Pond out of service, Contractor shall set up temporary flow bypassing to "split" the incoming primary wastewater flow equally between the two ponds in service (Ponds 1 and 3; or Ponds 2 and 3). Contractor shall be responsible for dewatering the ponds to be taken out of service, removing sludge from such ponds, and properly handling and disposing of sludge. WWTP staff will monitor dissolved oxygen levels in the Ponds during construction. Should the in-service ponds fail to maintain the required 2.0 mg/L oxygen, Contractor shall provide temporary surface aeration to maintain dissolved oxygen levels above 2 mg/L at all times. Only after the Pond with the new functional aeration system is ready for startup, shall the other Pond be taken out of service. Maintain dissolved oxygen levels at or above 2 mg/L in both ponds at all times.
3. The new PGE/power supply shall be complete and ready to accommodate the new surface aerators such that the Ponds will be ready to be fully functional with floating aerators once the pond refurbishment work is complete.
4. During the entire construction period, Contractor shall be responsible for ensuring compliance with the waste discharge requirements, as such requirements relate to Contractor's Work.

B. Prior to commencement of Work and within 7 calendar days of Notice to Proceed, verify and confirm, to the City's Representative in writing, the existing grades, elevations and conditions of the site. Any discrepancies between existing conditions and the contract documents must be brought to the City's attention during that time frame.

C. Prepare schedules as set forth in Section 01 32 16, Construction Progress Schedule.

1.08 HOURS OF WORK

A. Perform Work of this Contract on normal workdays and within normal work hours; 7:00 am to 5:00 pm, and/or as specified for night work. After hours work and work on

Saturdays, Sundays, and City holidays, may be permitted if approval is received from the Owner and Engineer at least 3 working days in advance.

B. Continuously keep existing drainage facilities, walks, and paved areas clean and free of mud and dirt, obstacles, etc., and protect against damage.

C. Owner will maintain operations of the WWTP during the entire period of construction. Cooperate with Owner to minimize conflict, and to facilitate Owner's continued operations. Contractor's Work shall not cause violation of the City's waste discharge requirements.

D. Schedule the Work to accommodate Owner occupancy and use of the Site.

E. Intermediate Start-up and Training. Refurbished ponds must be completely operational and accepted by the City prior to starting Work on the subsequent oxidation pond. Provide an intermediate startup and training plan that allows proper startup, testing, and acceptance of the Work to accommodate the sequencing requirements specified herein.

F. Closeout Timetable. Coordinate with Owner to establish dates for equipment, testing, acceptance periods, and on-site instructional periods (as required under the Contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the Owner and their authorized representatives sufficient time to schedule attendance at such activities. Refer to Section 01 75 00, Starting and Adjusting.

G. Final Submittals: Prior to requesting final payment, obtain and submit the following items to the Engineer for transmittal to the Owner:
   1. Written guarantees, where required.
   2. Operating manuals and instructions.
   3. Completed record drawings per Section 01 70 00.
   4. Certificates of inspection and acceptance by local governing agencies having jurisdiction, including but not limited to the City.
   5. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.

1.09 EXCAVATIONS OR TRENCHING FOR UNDERGROUND UTILITIES AND STORM DRAINS

A. Time intervals between excavation or trenching and installation of conduit or piping or other work concerned, and backfilling operations shall be kept to absolute minimum.

B. Excavations or trenching crossing roadways and other traffic areas shall be provided with skid-resistant traffic bearing steel plates; pedestrian and bicycle paths shall be provided with wood planking temporary covers, or other materials approved by Owner.

1.010 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

A. Refer to the General Conditions of the Contract for Construction for Contractor responsibilities.

B. Damage to existing improvements caused by Contractor's operations, either on-site or on adjacent sites, shall be repaired to restore damaged items to their original condition. Cost of such repair shall be borne entirely by Contractor.

C. Drawings indicate existing structures, drainage lines, water, gas, electrical and other similar items and utilities that are known to the City.

D. Locate known existing structures and utilities before proceeding with construction. Maintain them in service, except as otherwise specified. Provide protection and repair damage to them caused by the Work at no increase in Contract price.

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 This Section describes the methods of measurement and payment for the specific bid items. All other provisions of the Contract Documents which relate to measurement and payment are applicable, except that where conflicts occur between this section and other provisions of the technical specifications or reference specifications, this measurement and payment section shall prevail.

1.02 RELATED SECTIONS

A. Relevant articles in Section 00 70 00, General Conditions.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 GENERAL

A. All work shown, described, or otherwise required by the Contract Documents, shall be included within the given bid items.

B. Payment for all bid items shall include full compensation for all equipment, materials, labor, tools, trucking, and all other incidental work necessary to construct complete and operational systems which conform to the Contract Documents.

3.02 MEASUREMENT AND PAYMENT FOR BID ITEMS

A. All lengths shall be measured in a horizontal plane (plan view dimensions), unless otherwise specified. All areas measured shall be based on the specified measurement definition included in each bid item description.

B. All work shown, described, or otherwise required by the Contract Documents, shall be included within the given bid items.

C. Basis for the submitted bid shall be on the quantities shown for the items on the Bid Sheet.

D. Unit definitions of Measurement and Payment

1. “Lump Sum”, or “LS”, shall mean a single Lump Sum Payment for the identified bid item. Partial payments may be made, based on the Engineer’s estimate of the percent completion of the specified item. Provide schedule of values for lump sum bid items with pay designation of “SV” on the bid schedule. Refer to Section 01 30 00, Administrative Requirements, Para. 1.04 for submittal requirements for Schedule of Values.

2. “Each” shall mean the actual number of identified bid items provided. Payment for the identified bid item will be based on providing each item, complete and in place in accordance with the contract documents.

3. Measurable units of quantity expressed in “Linear Feet” or “LF”; “Cubic Yard or CY”; “Ton”; “SF” or “SY” shall mean the number of indicated measurable quantities of the bid item. Payment for the identified bid item will be based on actual and measured quantities of the bid item installed.

4. For quantity changes for unit price work, refer to the General Conditions, Paragraph 11.03, and the Supplemental Conditions, Paragraph SC-11.04.D.4.

E. Final Pay Quantities.

1. Bid items that are designated a Final Pay Quantity bid item by having the notation (F) or (S-F) shown on the bid sheet or by designation in this Section 01 20 00, Measurement and Payment.

2. The quantity shown on the bid sheet for a Final Pay Quantity shall be the final pay quantity used for the purpose of payments, unless the dimensions of any portion of the item are modified by the Engineer, or the item or any portion of the item is eliminated.

3. If the dimensions of any portion of a Final Pay Quantity bid item are changed, and the changes result in an increase or decrease in the quantity of the item, the final pay quantity will be revised by the change in quantity.

4. If a portion of a Final Pay Quantity item, or the item is eliminated, the final pay quantity will be adjusted by the quantity eliminated.

5. The estimated quantity shown on the bid sheet for a Final Pay Quantity bid item shall be considered as an estimate only and no guarantee is made that a quantity computed based on the details and the plans, will equal the estimated quantity shown on the bid sheet. No allowance is made in the event that a computed quantity does not equal the estimate quantity.

6. In the case of a discrepancy between a quantity shown on the plans, and an estimated quantity shown on the bid sheet for a Final Pay Quantity item, payment will be based on the quantity shown on the bid sheet.

BASE BID

DIVISION 01 - GENERAL REQUIREMENTS

Bid Item No. 1 - Mobilization, Demobilization and Cleanup

A. Units: Lump Sum

B. Measurement: Partial payments based on Engineer’s determination.

C. Payment: Payment includes full compensation for all work required to complete the contract requirements for <u>mobilization, demobilization and cleanup</u>.

1. No payment for <u>mobilization, demobilization and cleanup</u> work will be made until all the listed items have been completed to the satisfaction of the Owner.

D. Scope of bid item: <u>Mobilization, demobilization and cleanup</u> includes, but is not limited to the following:

1. Obtaining all required bonds, insurance, and permits.

2. Posting all Cal-OSHA required notices and establishment of safety programs and injury and illness prevention plan (IIPP).
3. Moving onto the site of all Contractors' plant and equipment required for project operations.
4. Arranging for and erection of Contractor's work and storage yard.
5. Providing and installing temporary communication facilities.
6. Potholing existing utilities to verify locations of subsurface utilities and tie-in points, pothole reports.
7. Providing and installing construction water facilities.
8. Providing on-site sanitary facilities.
9. Maintaining Project site in good, clean condition, managing dust, water control, and handling of debris and hazardous materials.
10. Designation of the Contractor's superintendent who will be present at the job site full time.
11. Submittal of detailed work plan describing the order of Work to ensure proper installation and testing of work, coordination with Owner's staff, local agency coordination, scheduled down time, and other key aspects of the Work.
12. Submittal of the work schedule required in Section 01 32 16, Construction Progress Schedule.
13. Submittal of Schedule of Values as required in Section 01 30 00, Administrative Requirements.
14. Documenting construction progress, including pre- and post-construction photographs, and progress photographs.
15. Preparing and submitting field record drawings.
16. Overall plant startup and testing, not specifically included as part of vendor/equipment startup and testing.
17. Removing equipment, personnel, temporary facilities, and other construction resources at job completion.
18. Site cleanup.
19. All other incidental work as specified in Division 01 of the Specifications, and as necessary to complete mobilization, demobilization and cleanup in accordance with the Contract Documents.

Bid Item No. 2 – Storm Water Pollution Control

A. Units: Lump Sum (LS)

B. Measurement: Partial payments based on Engineer's determination.

C. Payment: Payment includes full compensation for all work required to complete the contract requirements for storm water pollution control.

D. Scope of bid item: storm water pollution control includes, but is not limited to the following:

1. Proper management of storm water, erosion control, in accordance with Section 01 57 13, Temporary Storm Water Pollution Control.
2. Preparing and complying with Storm Water Pollution Prevention Plan (SWPPP).
3. Complying with all reporting, monitoring, inspection and permitting requirements for protection of water quality.
4. All other incidental work necessary to complete storm water pollution control in accordance with the Contract Documents.

DIVISION 02 – EXISTING CONDITIONS

Bid Item No. 3 - Construction Survey

A. Units: Lump Sum (LS)

B. Measurement: Partial payments based on Engineer's determination.

C. Payment: Payment includes full compensation for all work required to complete the contract requirements for construction survey.

D. Scope of bid item: Construction survey includes, but is not limited to the following:

1. All survey related Work as described in Section 02 21 00, Surveys, and the Drawings.
2. Replacement of property corner markers, including proper recordation.
3. Pothole surveys, pothole reports.
4. All other incidental work necessary to complete construction survey in accordance with the Contract Documents.

Bid Item No. 4 - Site Demolition

A. Units: Lump Sum (LS)

B. Measurement: Partial payments based on Engineer's determination.

C. Payment: Payment includes full compensation for all work required to complete the contract requirements for site demolition.

D. Scope of bid item: site demolition includes, but is not limited to the following:

1. Demolition as required by the contract documents, including:
   a. All demolition Work indicated on the drawings, including existing piping and concrete structures.
   b. Temporary removal, storage and re-installation of four existing solar powered pond circulators.
   c. Potholing required to locate existing facilities to be abandoned, removed, protected in place, or relocated, preparation of pothole reports.
   d. Protection of existing utilities.
   e. All demolition and salvage Work described in Section 02 42 00, Removal and Salvage of Construction Materials.

2. All other incidental work necessary to complete site demolition in accordance with the Contract Documents.

DIVISION 03 – CONCRETE

Bid Item No. 5 – Influent Splitter Structure

A. Units: Lump Sum (LS)

B. Measurement: Partial payments based on Engineer's determination.

C. Payment includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, influent splitter structure in accordance with the contract documents.

D. Scope of bid item: influent splitter structure includes, but is not limited to the following:
1. Pre-cast concrete box of dimensions shown on the drawings.
2. Interior partition walls, weir plates.
3. Aluminum grating.
4. Process water management, bypassing as required.
5. Trenching, excavation, backfilling, compaction, and surface replacement.
6. Hauling and disposing of all waste, unsuitable and excess material in accordance with the Contract Documents.
7. Control of ground and surface waters, verification of adjacent utilities.
8. Placement of 12 inches of crushed gravel or aggregate base beneath structure bottom.
9. All other incidental work necessary to complete influent splitter structure in accordance with the Contract Documents.

Bid Item No. 6 – Intermediate Control Structure (4)

A. Units: Lump Sum (LS)

B. Measurement: Partial payments based on Engineer's determination.

C. Payment includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, intermediate control structure in accordance with the contract documents.

D. Scope of bid item: intermediate control structure includes, but is not limited to the following:
1. Pre-cast concrete box of dimensions shown on the drawings.
2. Aluminum grating.
3. Process water management, bypassing as required.
4. Trenching, excavation, backfilling, compaction, and surface replacement.
5. Hauling and disposing of all waste, unsuitable and excess material in accordance with the Contract Documents.
6. Control of ground and surface waters, verification of adjacent utilities.
7. Placement of 12 inches of crushed gravel or aggregate base beneath structure bottom.
8. All other incidental work necessary to complete intermediate control structure in accordance with the Contract Documents.

Bid Item No. 7 – Effluent Control Structure (2)

A. Units: Lump Sum (LS)

B. Measurement: Partial payments based on Engineer's determination.

C. Payment includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, diversion boxes in accordance with the contract documents.

D. Scope of bid item: effluent control structure includes, but is not limited to the following:
   1. Pre-cast concrete box of dimensions shown on the drawings.
   2. Interior partition walls, weir plates.
   3. Aluminum grating.
   4. Process water management, bypassing as required.
   5. Trenching, excavation, backfilling, compaction, and surface replacement.
   6. Hauling and disposing of all waste, unsuitable and excess material in accordance with the Contract Documents.
   7. Control of ground and surface waters, verification of adjacent utilities.
   8. Placement of 12 inches of crushed gravel or aggregate base beneath structure bottom.
   9. All other incidental work necessary to complete effluent control structure in accordance with the Contract Documents.

DIVISION 26– ELECTRICAL

Bid Item No. 8 - Electrical Work

A. Units: Lump Sum (LS)

B. Measurement: Partial payments based on Engineer's determination

C. Payment includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to install complete and in place the electrical work in accordance with the contract documents.

D. Scope of bid item: electrical work includes, but is not limited to the following:
   1. All electrical work shown on the drawings, including:
      a. All work described on the electrical construction documents which includes Division 26 of the Technical Specifications and related or referred to Specifications, and all electrical drawings and details.
      b. Buried conduits, wiring, handholes, vaults, concrete penetrations.
      c. Provisions for temporary electrical service and protection of existing power service during construction.
      d. New electrical power service upgrade, coordination with PGE.
      e. Power/control panels for new aerators.
      f. Power connection to new aerators.
      g. Associated wiring and conduit to accommodate future dissolved oxygen sensors;
   2. All other incidental work necessary to install electrical work in accordance with the Contract Documents.

DIVISION 31 - EARTHWORK

Bid Item No. 9 – Site Work for Pond Upgrade

A. Units: Cubic Yard (CY).

B. Measurement: Measurement shall be the actual volume of the material excavated/compacted for Site Work for Pond Upgrade, and accepted by Engineer.

C. Earthwork that is specifically included in other bid items for liner trench is not included in this measurement.

D. No payment will be made for earthwork outside of the dimensions, tolerances, and areas specified unless ordered by the Engineer.

E. Payment includes full compensation for all furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, the Site Work for Pond Upgrade in accordance with the contract documents.

F. Scope of bid item: Site work for pond upgrade includes, but is not limited to the following:

1. All work as described in Section 31 00 00, Earthwork, including clearing and grubbing, rough and fine grading, foundation preparation for the pond liners and diversion structures, compaction and subgrade preparation, but excluding utility trench backfill.
2. Pond 1, 2 and 3 grading, lowering of pond bottom, preparation for HDPE pond liner installation.
3. Re-conditioning of Ponds 4 and 5 embankments, leveling pond bottoms.
4. Grading and re-grading required to provide proper drainage.
5. Dust control, management of surface and subsurface waters.
6. All other incidental work necessary to complete site work for pond upgrade in accordance with the Contract Documents.

Bid Item No. 10 – Earthwork/Export Volume

A. Units: Cubic Yard (CY).

B. Measurement: Measurement shall be the actual volume of the material exported from Site, and accepted by Engineer.

C. No payment will be made for export outside of the dimensions, tolerances, and areas specified unless ordered by the Engineer.

D. Payment includes full compensation for all furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, the Earthwork/Export Volume in accordance with the contract documents.

E. Scope of bid item: Earthwork/Export Volume includes, but is not limited to the following:

1. All work as described in Section 31 00 00, Earthwork, for exportation of excess dirt.
2. Export dirt from lowering of Pond 1, 2 and 3 bottoms, preparation for HDPE pond liner installation.
3. Dust control, management of surface and subsurface waters.
4. All other incidental work necessary to complete Earthwork/Export Volume in accordance with the Contract Documents.

Bid Item No. 11 - Sheeting, Shoring and Bracing

A. Units: Lump Sum (LS)

B. Measurement: Partial payments based on Engineer's determination.

C. Payment: Payment includes full compensation for all work required to complete the contract requirements for sheeting, shoring and bracing.

D. Scope of bid item: Work for sheeting, shoring and bracing includes, but is not limited to the following:

1. Required fees, permits, plans, and submittals.
2. Compliance with all requirements for Cal-OSHA construction safety in the excavation of trenches and pits, and in Section 31 23 33, Trenching and Backfilling.
3. Engineered shoring plan for deep trench construction, where required.
4. Trench excavation plans if required.
5. Providing adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life or limb, which shall conform to the applicable construction safety orders.
6. All other incidental work necessary to complete sheeting, shoring and bracing in accordance with the Contract Documents.

DIVISION 32– EXTERIOR IMPROVEMENTS

Bid Item No. 12 - Class 2 Aggregate Base

A. Units: Cubic Yard (CY).

B. Measurement:

1. Measurement shall be the actual volume of the material based on certified delivery receipts for aggregate base placed and accepted by Engineer.
2. Class 2 aggregate base that is specifically included in other bid items is not included in this measurement.
3. No payment will be made for aggregate base placed outside of the dimensions, tolerances, and areas specified unless ordered by the Engineer.

C. Payment includes full compensation for all furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, the class 2 aggregate base in accordance with the contract documents.

D. Scope of bid item: class 2 aggregate base includes, but is not limited to the following:

1. Constructing class 2 aggregate base to the limits and extent of shown on the drawings, including class 2 base for the re-conditioned pond access roads, and the aggregate base required beneath concrete hydraulic structures.
2. Placement and compaction of aggregate base.
3. Erosion and dust control, control of surface and subsurface waters.
4. All other incidental work necessary to complete the class 2 aggregate base in accordance with the Contract Documents.

E. The cost of aggregate base or crushed gravel under vaults, manholes, pre-cast structures, headworks and septage station, building, is paid for separately under the corresponding other bid items listed.

Bid Item No. 13 – Rock Slope Protection

A. Units: Cubic Yard (CY).

B. Measurement:

1. Measurement shall be the actual volume of the material based on certified delivery receipts for rock slope protection placed and accepted by Engineer.
2. No payment will be made for rock slope protection placed outside of the dimensions, tolerances, and areas specified unless ordered by the Engineer.

C. Payment includes full compensation for all furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, the rock slope protection in accordance with the contract documents.

D. Scope of bid item: rock slope protection includes, but is not limited to the following:

1. Constructing rock slope protection to the limits and extent shown on the drawings, including all rock slope protection shown for pipes entering Ponds 4 and 5, and overflow piping from Pond 4 to effluent percolation fields.
2. Placement and compaction of RSP.
3. Erosion and dust control, control of surface and subsurface waters.
4. All other incidental work necessary to complete the rock slope protection in accordance with the Contract Documents.

E. The cost of aggregate base or crushed gravel under vaults, manholes, pre-cast structures, headworks and septage station, building, is paid for separately under the corresponding other bid items listed.

DIVISION 33– UTILITIES

Bid Item Nos. 14, 15 and 16 – 12", 18" and 24" HDPE Pipe

A. Units: Linear Feet (LF)

B. Measurement:
   1. Linear feet, along the longitudinal axis of installed pipe of the size indicated on the bid schedule.
   2. Diversion boxes and hydraulic structures are excluded from the measurement, and the pipe is measured to the inside face of the box.

C. Payment includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, the HDPE Pipe in accordance with the contract documents.

D. Scope of bid item: HDPE Pipe includes, but is not limited to the following:
   1. Temporary work necessary to maintain operation of the existing sewer system such as pumping, bypassing, temporary piping, and all appurtenant temporary items, where required.
   2. Pipe penetrations, including Link-Seal or equal penetration seals, grouting.
   3. Tie-in to existing effluent wetwell (24" pipe).
   4. Sewer bypassing where required.
   5. 1-sack sand cement slurry trench backfill in area of process ponds (for 12" overflow piping) per Section 31 23 33, Trenching and Backfilling.
   6. Trenching, hand-digging, exposing, backfilling, compaction, but excluding road surface base replacement.
   7. Hauling and disposing of all waste, unsuitable, and excess material in accordance with the Contract Documents. Control of surface and subsurface waters, verification of adjacent utilities.
   8. Control of surface and subsurface waters, verification of adjacent utilities.
   9. Mandrel testing per Section 33 31 00.
   10. All other incidental work necessary to complete HDPE Pipe in accordance with the Contract Documents.

Bid Item No. 17 – Pond Liner

A. Units: Square Feet (SF)

B. Measurement:
   1. Square feet measured along the surface of the ponds, including measured surface area for anchor trenches.

C. Payment includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, the Pond Liner in accordance with the contract documents.

D. Scope of bid item: Pond Liner includes, but is not limited to the following:

1. Temporary work necessary to maintain operation of the existing sewer system such as pumping, bypassing, temporary piping, and all appurtenant temporary items, where required.
2. Excludes earthwork required to prepare surface for liner installation.
3. All liner installation, including seam welding, pipe/boot penetrations, excavation and installation of pond liner anchor trenches.
4. Hauling and disposing of all waste, unsuitable, and excess liner material in accordance with the Contract Documents.
5. Liner air vents.
6. All other incidental work necessary to complete Pond Liner in accordance with the Contract Documents.

Bid Item No. 18 – Sludge Dewatering, Hauling and Disposal

A. Units: Dry Ton (DT).

B. Measurement:

1. Measurement shall be the actual weight, expressed in dry tons (imperial units), of sludge removed and disposed of, based on calculation of dry tons based on moisture content analyses conducted on each truck load of sludge hauled. Calculations subject to approval of the Engineer.

C. Payment includes full compensation for all furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to provide sludge dewatering, hauling and disposal in accordance with the contract documents.

a. No payment for sludge dewatering, hauling and disposal will be made until all the listed items have been completed to the satisfaction of the Owner.

b. Value for this pay item on first progress payment shall not exceed 25% of bid item value, based on a calculation of the bid schedule quantity times the bid unit price for this item.

c. Intermediate partial payments based on Engineer's determination, and total value approved for payment shall not exceed actual percent complete of Contract Work.

d. Final pay request shall include the remaining value for this pay item, based on approved calculations of dry tons of biosolids removed, in accordance with truck haul tickets and corresponding laboratory moisture content analyses.

i. Scope of bid item: sludge dewatering, hauling and disposal includes, but is not limited to the following:

1. Removing sludge from Ponds 1, 2 and 3, controlling odors to the satisfaction of the City, maintaining operation of treatment processes during removal of sludge, protecting existing improvements in place during sludge removal and dewatering, protecting daily WWTP operations;
2. Providing necessary equipment, power and utilities to adequately dewater sludge, control odors, and mitigate objectionable odors;
3. Temporary grading and site improvements to accommodate sludge dewatering operations, if required;

4. Testing and analytical results from a certified California laboratory qualified to perform testing in accordance with Title 22 CCR, Division 4.5, Chapter 11, Article 3;
5. Hauling and disposing of dewatered sewage sludge at a fully licensed, qualified facility to handle and beneficially reuse non-hazardous sewage sludge solids, or qualified landfill;

1. All other incidental work necessary to complete the sludge dewatering, hauling and disposal in accordance with the Contract Documents.

DIVISION 40 – PROCESS INTEGRATION

Bid Item No. 19 – Fiberglass Reinforced Plastic Slide Gates

A. Units: Each (EA)

B. Measurement: The number of actually completed fiberglass reinforced plastic slide gates.

C. Payment includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, fiberglass reinforced plastic slide gates in accordance with the contract documents.

D. Scope of bid item: fiberglass reinforced plastic slide gates includes, but is not limited to the following:

1. Slide gates as specified, completely assembled and installed per manufacturer's recommendations.
2. Grouting for sealing gates to concrete box surfaces.
3. Two SS T-wrenches.
4. All other incidental work necessary to complete fiberglass reinforced plastic slide gates in accordance with the Contract Documents.

DIVISION 46 – INDUSTRY SPECIFIC MANUFACTURING EQUIPMENT

Bid Item No. 20 – Floating Mechanical Aerators

A. Units: Each (EA)

B. Measurement: The number of actually completed floating mechanical aerators.

C. Payment includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to construct complete and in place, floating mechanical aerators in accordance with the contract documents.

D. Scope of bid item: floating mechanical aerators includes, but is not limited to the following:

1. New floating aerators as specified, completely assembled and installed per manufacturer's recommendations.
2. Mooring aerators into position, including providing concrete pier, installing manufacturer-provided cabling.

3. Temporary installation of floating aerators to accommodate construction phasing.
4. All other incidental work necessary to complete floating pond aerators in accordance with the Contract Documents.

3.03 TESTING

A. The Owner will perform, or will contract for the performance of the following tests. The Owner will pay for the costs of the initial tests. Should test results show that any work, construction, materials, or methods is unacceptable, the Contractor shall pay for all costs associated with any necessary retesting before or after corrective measures have been made. Such costs will be deducted from payments due to the Contractor.

1. Compaction Test and R-Values- Testing for soil compaction and R-Values will be provided by a Soils Engineer under separate contract with the Owner.

B. The Contractor shall furnish and pay for all labor, materials, tools, and supplies required to make the following performance tests in the presence of the Engineer:

1. Mandrel testing for process sewer mains
2. Electrical testing for the electrical system
3. Other Test Required by the Contract Documents

All tests must be passed, and any test reports requested by the Owner shall be provided to the Owner prior to acceptance of the work.

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 PROJECT CONTROL

A. The Owner's Representative will outline and detail communication, correspondence and coordination procedures at the Project pre-construction meeting.

B. Condition of Work in Place: Inspect and take responsibility for previously prepared or installed work of other contractors before applying subsequent materials or finishes. If work is in unsatisfactory condition, notify the Owner. Do not proceed until defective work has been corrected.

C. Coordination:
   1. Coordinate scheduling and submittals with Section 01 32 16, Network Analysis Systems.
   2. Perform and complete checking and coordination before commencing construction in the affected areas.
   3. Coordinate civil, controls and electrical/mechanical work, particularly between general trades and mechanical/electrical trades so that sleeves, hangers, chases, openings, etc., required for pipe, conduit, and other installations of like character are duly and properly provided for and installed as work progresses.
   4. Carefully examine Drawings relating to entire work with actual conditions so that Work will be accommodated in spaces provided. General arrangement and location of elements of various systems is shown on the Drawings or specified. Final locations, levels, etc., shall be governed by actual material size used, by conditions encountered, and by work of all trades. Space conflicts and interferences shall be resolved before work is installed.
   5. Utilize the Contract Documents, submittals, and layout drawings of the various trades to check and coordinate the Work so that no interferences or conflicts between trades will occur. This checking and coordination shall be performed and completed before construction is commenced in each affected area.
   6. Coordinate the work to assure efficient and orderly sequence of installation of construction elements. Make provisions for accommodating items installed by the Owner or under separate contracts.
   7. Verify that the characteristics of interrelated operating equipment are compatible, and coordinate all Work required for installing, connecting and placing such equipment into service.

1.02 LOCATIONS, ELEVATIONS, AND LAYOUT OF WORK

A. Property lines, location ties, and elevations of components of the Project to be built under this Contract are shown on the Drawings. Grade elevations shown for various parts of the Work are taken from a bench mark shown on the Drawings, or if not shown, will be designated by the Owner. In case of conflict therein, notify the Owner in writing before starting work.

B. Lay out the Work and furnish surveys required for alignment and elevations of the Work, and pay all costs therefore. Provide necessary lines, levels, locations, measurements and markers for all on the Work and be responsible for their accuracy.

1.03 SCHEDULES AND MEETINGS

A. Planning and Scheduling: Provide a project schedule as outlined herein.

B. Provide updated project schedules per Paragraph 1.03.C below, including realistic activity sequences and durations, allocation of labor and materials, processing of shop drawings, and samples and purchase and delivery of products requiring long lead-time procurement. This schedule will be broken down into activities of 4 weeks maximum duration, with the exception of procurement. Each activity shall be explicit in definition and location of work.

C. The schedule shall be updated 1) once per month, 2) whenever work is behind schedule to an extent greater than 14 days, and 3) to add change order work which impacts schedule.

D. Project and Pre-installation Meetings: Contractor or his duly appointed representative shall attend project meetings at regular intervals as set by the Owner and shall attend pre-installation meetings as required by pertinent Specification Sections. Attendance shall be limited to the Contractor and his immediate subordinates, subcontractors where so specified, the Owner, and representatives of the Engineer and Consultants, as requested. Owner, or Owner's duly appointed representative, will keep minutes of meetings; with copies sent to all who attend. Meetings shall be held at the job site.

1.04 SCHEDULE OF VALUES

A. Provide a Schedule of Values for those contract lump sum items identified in the Bid Schedule designated by “SV”. Submit Schedule of Values to the Engineer for review and approval within 15 working days following notice to proceed, or at the pre-construction kickoff meeting, whichever occurs first. Schedule of Values will be approved, in writing, by the Engineer before any partial payment will be made for the applicable lump sum items of Work.

B. Submit to the Owner for acceptance, in the form directed by or acceptable to the Owner, a complete schedule of the values of the various portions of the Work, including quantities and unit prices if required by the Owner, aggregating the Contract Price (except in cases and to the extent that accepted unit prices form the basis for payment). The schedule shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction and to coordinate with the progress schedule required for this Work, and shall be supported by such data to substantiate its correctness as the Owner may require. Each item in the schedule of values shall include its proper share of overhead and profit. An unbalanced breakdown providing for overpayment to the Contractor on items of Work which would be performed first will not be approved. The schedule of values, when accepted by the Owner, shall be used only as a basis for the Contractor's applications for payment and not for additions to or deductions from the Contract Price. The initial submittal for the schedule of values shall be provide at the preconstruction conference or within 10 days of the Notice to Proceed, whichever comes sooner.

C. Determine the quantities required to complete the Work shown on the plans. The quantities and their values shall be included in the cost breakdowns submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost breakdowns submitted for approval. The sum of the amounts for the line items of work listed in each cost breakdown table for the lump sum items shall be equal to the contract lump sum price bid for same items.

D. No adjustment in compensation will be made in the contract lump sum prices paid for these lump sum bid items resulting from differences between the quantities shown in the cost breakdowns furnished by the Contractor and the quantities required to complete the Work as shown on the plans and as specified in these Technical Specifications.

E. Individual line item values in the approved cost breakdown tables will be used to determine partial payments during the progress of the Work and as the basis for calculating an adjustment in compensation for the contract lump sum items due to changes in line items of work ordered by the Engineer.

PART 2 PRODUCTS – NOT USED

PART 3 PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 DESCRIPTION

This Section covers the specific requirements for the Construction Progress Schedule, using the Critical Path Schedule Method.

A. Work Included in This Section. Principal items are:
   1. Critical Path Method (CPM) Schedule Printouts and Plot
   2. CPM Schedule Narrative

1.02 SUBMITTALS

In accordance with Section 01 33 00, Submittal Procedures, provide the following:

A. Provide three copies of each CPM schedule, updated schedule and revised narrative for the Owner's review, and including PDF electronic copy to Owner, WWTP Operator, Owner’s Representative, Engineer.

B. Provide schedule incorporating Work Plan requirements, per Section 01 11 00, Summary of Work, to ensure Work Plan and Schedule are well coordinated.

C. Within 14 calendar days following notice to proceed, or at the pre-construction meeting, whichever occurs first, provide a Work Plan for review by Owner and Engineer, that dovetails with the Schedule in Paragraph 1.02A above and Work Plan required in Section 01 11 00, Summary of Work, and describes how the Work is anticipated to be conducted. The Work Plan shall include, at a minimum, the following:
   1. Sequencing and Order of Work
   2. Schedule and Requirements for Utility shutdowns, process commissioning and decommissioning.
   3. Site Security Plan
   4. Detailed Erosion and Water Pollution Control Plan per Section 01 57 23.

PART 2 PRODUCTS

2.01 GENERAL

Submit a CPM analysis for construction progress control. Clearly indicate all construction activities and sub-activities on a time-oriented basis with the critical path fully identified for all activities. Update and resubmit the schedule as indicated herein; flag all slippages and missed mileposts and provide a narrative description of proposed corrective actions.

A. Include the following minimum information for each activity and critical path item:
   1. Date of initial submittal, as applicable.
   2. Ordering dates for long lead-time items.
   3. Dates for arrival of materials on site, including both Contractor and Owner Furnished Equipment.
   4. Start of work on the item.

5. Completion of work on the item.
6. Dates for temporary shutdown and start-up of process ponds.
7. Start-up and check out, including intermediate start-up of process Ponds.
8. Testing and validation, including intermediate testing and validation of process Ponds.
9. Final cleanup.
10. Final completion.

B. The CPM schedule shall demonstrate the Contractor's plan for fulfilling all Contract requirements and shall include review time for submittals.

C. Progress Payment Printout. Include with the CPM schedule a computerized Job Progress Report Form. The form shall include all items listed in the cost breakdown provided to the Owner and shall include the following:
1. Total units required for the Work.
2. Units completed to-date.
3. Units completed this month.
4. Unit cost.
5. Total cost this month.
6. Total cost to-date.

The columns shall be appropriately summed indicating total project cost, total work completed to-date and total work this month. Obtain Owner's approval of printout format.

2.02 FORMAT

A. Size. Prepare on 11 x 17 inch paper.

B. Technique. The diagram technique to be used shall be in accordance with conventional CPM activity (I-J) technique set forth in the Associated General Contractors of America publication: "CPM in Construction, A Manual for General Contractors".

C. Activity Descriptions. Select activity descriptions which clearly indicate the work task.

D. Duration - Work Days Required. Indicate each CPM trade activity utilizing a standardized work day calendar. Additional nodes or activities shall be used as required.

E. Activity Listing. Provide the following activity listings:
1. I-J node consecutive listing with activity description starting from lowest numbered node to highest numbered node.
2. Listing of activities by early start consecutive from first early start item to last early start item.
3. Listing of all activities on the critical path with start and finish dates.

F. Narratives.
1. Prepare detailed narrative statements of assumptions and conditions which provide supportive information for conclusions represented in each network schedule submitted. Such narratives shall accompany the CPM network submittals.
2. Indicate proposed areas for work and for storage of specific materials, proposed use of equipment, assumptions, and methods which determine

durations and sequences represented in specific areas of network analysis and schedule. Additionally, submit specific narrative statements relating to control and expediting of submittals, fabrication, and delivery of specific materials and equipment, and to supplement progress reports and successive revisions of the project schedule.

PART 3 EXECUTION

3.01 INITIAL SUBMITTAL

A. Submit the complete CPM network for this Contract work, in accordance with Paragraph 1.02 of this Section. The network shall be prepared to assign costs to each activity item indicated for such work.

3.02 REVIEW AND APPROVAL

A. Within 5 working days after receipt of the initial CPM network activity listing, the Owner will meet with the Contractor for joint review, correction or adjustment of the Contractor's proposed approach. Within 7 calendar days after the joint review, the Contractor shall submit a revised CPM network reflecting comments offered during the joint review. The Owner will review this resubmission, and may accept it as submitted. The accepted CPM will constitute the Contractor's project work schedule until it is subsequently revised by the Contractor.

B. Acceptance of the CPM is not to be construed as concurrence by Owner that schedule is reasonable or achievable. Any omission of project work from the CPM network or activity listing, otherwise required for Contract compliance, shall not excuse the Contractor from completing such work within any applicable completion date as determined by the Owner.

3.03 UPDATE

A. Update schedule in accordance with Section 01 30 00, Administrative Requirements, Paragraph 1.3.

B. Twice a month or as agreed, on a date mutually agreed upon, a job-site meeting will be held to review the CPM network, activity listing, and job progress.

C. The conditions under which a revision of the schedule will be required are as follows:
   1. When delay in completion of any work item or sequence of work items results in an estimated extension of project completion by either 5 working days or by 10 percent of the remaining duration of time to complete the Contract, whichever is less.
   2. When delays in submittals or deliveries or work stoppages are encountered which make replanning or rescheduling of the work necessary.
   3. When the schedule does not represent actual prosecution and progress of the work.
   4. When Contract modification necessitates schedule revision, submit a subnetwork analysis of all change work with his Proposal. If approved, this subnetwork will become a part of the approved schedule.

D. As part of this review, prepare a brief narrative report relating to the status of construction, submittals, approvals, and procurement. Indicate in the report areas where problems exist and are anticipated and recommend corrective action needed to be taken by the Owner or by the Contractor.

E. Three-Week Look Ahead Schedule. Provide three-week look ahead schedule when requested by Owner and Engineer, and at each job-site meeting.

3.04 CONTRACTOR'S REPRESENTATIVE

Designate an authorized representative who shall be responsible for production and review of the network diagram and who shall assume responsibility for reviewing progress of the work with the Owner. The Contractor's representative shall have direct control and complete authority to act on behalf of the Contractor; and such authority shall not be interrupted throughout the duration of the Contract, without approval of the Owner.

3.05 PROGRESS PAYMENT

The Job Progress Report will constitute the basis for monthly payment. Payment will not be made until the Job Progress Report is approved. No payment shall be made until obsolete CPMs are updated and the CPM is accepted by the Owner.

3.06 PAYMENT FOR CPM

Include all costs of preparing and updating the CPM as specified herein in the Bid Price for mobilization, demobilization and cleanup.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 DESCRIPTION

This Section covers requirements for submittals in addition to those stated elsewhere in the Contract Documents, and forms a part of all other Specification Sections in which submittals are specified or required. Refer to the specific Sections and Divisions of the Specifications for additional submittal requirements. Refer to Section 01 32 16, Construction Progress Schedule, for additional requirements for submittals management and overall construction management/coordination.

A. Submittal Requirements Included In This Section.

1. Number of submittal copies required.
2. CPM progress schedule.
3. Shop drawings.
4. Samples.
5. Materials lists and equipment data.
6. Instruction (operation and maintenance) manuals.
7. Installation instructions.
8. Seismic calculations.
9. Record drawings and specifications.
10. Certificates.

B. Submittal Requirements In General Conditions and Other Sections.

1. Applications for payments Section 00 70 00, Article 14.
2. Section 01 70 00, Execution and Closeout Requirements.
3. Schedule of testing laboratory services.
4. Written guarantees and warranties.
5. Factory test reports.
6. Manufacturers' certified reports.
7. System validation test procedures and results.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SUBMITTAL - GENERAL REQUIREMENTS

A. All items required to be submitted for review shall be furnished by and at the expense of the Contractor and any work affected by them shall not proceed without such review. Except for record documents, test plans, and instructional manuals for operation and maintenance, submittal shall be approved before the material or equipment covered by the submittal is delivered to the site.

B. Number of Submittals.

1. General. Except for manufacturer's instruction manuals and samples, the Owner shall require and retain a single PDF copy of all submittals, specified or required in this and all other Sections of these Specifications, for Contractor's and Contractor's representatives' use, unless otherwise specifically noted in a specific Specification section.

2. General. Submittals shall be submitted in electronic form unless otherwise specified. Where hard copies of submittals are requested by the Owner's Representative, submit six copies; the Owner shall require and retain 4 copies of such submittals, Owner's Representative will retain 1 copy, and Engineer of Record will retain one copy. The Contractor shall submit such additional number of copies, not to exceed 3, to be reviewed and returned for Contractor's use. For submitted drawings 11 by 17 inches and larger, submittal of a reproducible copy is preferred and encouraged. The reproducible set will be returned to the Contractor marked to show the required corrections or approval.

3. Samples. Provide the number of samples for each material or equipment item in accordance with Paragraph 3.04 herein and as required in the respective section of these Specifications.

4. Manufacturer's Instruction Manuals. Provide the number of copies of the submittals in accordance with Paragraph 3.01A above. Upon approval of the preliminary submittals, deliver 3 copies of each manual to the Owner, unless otherwise specified or directed.

C. Method of Submittal. Equipment which is specified in one section of the Specifications shall not be combined in a single submittal with equipment specified in other Sections of the Specifications, unless unit responsibility for a package system is required. In each transmittal the Contractor shall state the Owner's Project Number and Name, Name and Address of Contractor, Name and Address of Subcontractor, Manufacturer, Supplier or Distributor as applicable, Plan Reference and Specification Section, Articles, and paragraphs to which the submittal pertains; accompanying data sheets, catalogs, and brochures shall be identified in the same manner. Submittal transmittals shall fully index all items submitted.

D. Piecemeal Submittals. Except for reinforcing steel submittals, piecemeal submittals will be returned unreviewed. However, for mechanical equipment and the like, separate submittals for embedded items, embedded metal work and anchors will be accepted for review.

E. Number of Submittal Re-Reviews. The Owner will provide required submittal/re-submittal review up to three occurrences per submittal. Contractor shall reimburse the Owner the cost of Owner's, Owner's Representative's, and Engineer's time required for all subsequent reviews beyond three reviews. Such costs for excessive review of incomplete or non-conforming submittals shall be deducted from Contractor's monthly pay requests at the time such charges are incurred.

F. Engineer's Submittal Review Schedule. Engineer will review and return submittals within 10 working days from date of receipt from Owner's Representative. Engineer will review and return re-submittals within 5 working days from the date of receipt from Owner's Representative. **These review timelines supercede those stipulated in Article 30 of the General Conditions.**

3.02 CPM PROGRESS SCHEDULE (SEE SECTION 01 32 16)

3.03 SHOP DRAWINGS

A. Title Block and Identification. On each shop drawing, provide a space for the Engineer's approval or correction stamp and a title block showing the following:

1. Name and address of Contractor.
2. Name and address of Subcontractor, manufacturer, supplier, or distributor, as applicable.
3. Name and address of Owner.
4. Date, scale of drawings, and identification number.
5. Contractor's review and approval stamp.
6. Owner's Project Number (if applicable).
7. Drawing Reference and Specification Section reference.
8. Project Name.

B. Preparation and Size. Details and information shall be clearly drawn, dimensioned, noted, and cross referenced. Unless otherwise specified, PDF copies of approved, shop drawings shall be formatted on 8-1/2 by 11 inch printing, unless such size would not be easily legible. Refer to Paragraph 3.01.A above regarding use of a reproducible drawing copy.

C. Data. Unless the following data is included in instruction manuals or equipment data submitted prior to or with the shop drawings, submit with the shop drawings complete catalog and technical data for all manufactured products, materials, machinery, and equipment covered by the shop drawing submittal. Include data showing for each item, as applicable, the following information:

1. Manufacturer's specifications and details.
2. Applicable technical data and performance curves.
3. Preparation, assembly, and installation instruction with allowable tolerances.
4. Connection requirements.
5. Pre-start-up servicing and operating methods.
6. Other data and information necessary to demonstrate that the proposed items conform to the Contract Documents.

D. Information Required. Shop drawings shall contain details and information fully developing the pertinent Contract Document requirements and such other information as may be specified or required for approval, including but not limited to:

1. Related work with cross references to applicable portions of the Contract Documents.
2. Dimensions, including variations between indicated dimensions and actual conditions.
3. Physical configurations with critical dimensions for clearance, access, and servicing.
4. List of materials, including fasteners and connectors.
5. Structural construction and assemblies, welds shown by AWS symbols, and each fastener and connector shown by type and class.
6. Grouting work, including grouting space and material.
7. Concrete foundations and bases for machinery and equipment including joints, joint filler and sealer, and reinforcing.
8. Anchor bolt details showing type and class, sizes, embedments, projections, and locations measured with respect to permanent structural features. An anchor bolt template shall be shown on the Shop Drawings and shall be furnished unless waived in writing by the Owner.
9. Protective coatings and factory finishes fully described as to materials, number of coats, plated and metallic coating finishes, treatments, and similar information, all based on specified requirements. The term "as specified" is not acceptable for this purpose.
10. Machinery and equipment details. Standard catalog items need not be illustrated in detail, but indicate and detail sizes, supports, and connections.
11. Location of auxiliary items that are parts of machinery and equipment including sight glasses, petcocks, gauges, lubrication fittings and access, and maintenance monitoring devices.
12. Piping systems and piping including layout, fittings, valves, appurtenances, hangers and supports, and sleeves.
13. Electrical equipment showing plans, elevations, sections, arrangements, materials, anchor bolts, supports, weights, wiring and circuit diagrams, internal connections, busses, grounding, conduit spaces, layout of instruments, gauges, meters, and other components.
14. Underground duct banks showing typical details of conduits, joints, spacers, and means of securing conduits in place during concrete placement.
15. Dielectric connections, and materials and methods to be used to isolate dissimilar materials.
16. Full-size lettering layouts for data plate and nameplate inscriptions.
17. Written descriptions fully describing the operation of all control circuits, start-up sequencing, shutdown sequencing, and alarms.

E. Details and Connections. Satisfactorily detail all connections required to complete the Work, including details necessary to make indicated or specified additions to existing work or to provide connections for future work. Design connections and parts of strength to withstand, without adverse deflection or stress, all loads or pressures to

which they may be subjected and to develop the strength of the members or parts connected. In no case shall the connections, parts, or details be inferior to those required by the Contract Documents.

F. Related Work. The term "by others" is not acceptable for the description of related work shown in the shop drawings. Clearly note by name or description the Contractor, Subcontractor, or trade to provide such related Work; where such name or description is missing, it shall be understood and agreed that the Contractor is to furnish and install such related Work.

G. Clearances. Do not proceed with any related Work that may be affected by piping, machinery, equipment, or other work therein until shop drawings and data showing all components, with acceptable clearances have been approved.

H. Composite Shop Drawings with Installation Layouts. Prepare and submit drawings, wherever specified or required, to resolve tight or conflicting field conditions. Show dimensional plans and elevations of the materials or equipment of all trades in the involved area or space, and include complete information as to arrangements, locations, clearances, avoidance of interferences, access, sizes, supports, connections, services, assembly, disassembly, and installation. Composite shop drawings and layouts shall be coordinated in the field by the Contractor and his Subcontractors for proper relationship to the Work of all trades, based on field conditions, and shall be checked and approved by them before submittal. Contractor shall have competent technical personnel readily available for such coordinating and checking.

3.04 SAMPLES

A. Identification. Label or tag each sample or set of samples identifying the manufacturer's name and address, brand name, catalog number, intended use and other data specified in Article 3.01.B herein.

B. Colors, Pattems, and Textures. For items required to be of selected and approved colors, patterns, textures, or other finish, submit sufficient samples to show the range of shades, tones, values, patterns, textures, or other features corresponding to the instructions and requirements specified.

C. Field-Applied Paint and Coatings. Submit samples of finishes at least 60 days prior to start of such finishing operations in conformance with requirements specified in Section 09 90 00, Painting and Coatings.

D. Factorv Finish Colors. Colors of material specified to be furnished with a factory finish are subject to approval. Submit duplicate samples of factory finishes showing the full range of available colors for selection and approval when requested by the Owner.

3.05 MATERIALS LISTS AND EQUIPMENT DATA

Materials lists and equipment data shall be submitted for all items proposed to be incorporated into the Work. In determining acceptability, consideration will be given to the availability of maintenance and replacement parts and materials, the availability of manufacturer's technical representatives, other factors that relate to the maintenance and repair of installed items without excessive inconvenience to the Owner, guarantees and warranties, as well as determination of conformance with the Contract Documents.

A. Material Lists. Submittal copies of Material Lists shall be provided where specified in other Sections, and the number of copies submitted shall be as stated in Paragraph 3.01.A herein.

B. Equipment Data. Submittal copies of equipment data shall be provided in accordance with other Sections and the number of submittals shall be as stated in Paragraph 3.01.A herein. Submittals for equipment incorporating logic circuits shall include a draft of a detailed theory of operation. Data shall be submitted in sets covering complete systems or functioning units.

3.06 INSTRUCTION (OPERATIONS AND MAINTENANCE) MANUALS

Instruction Manuals shall comply with the requirements of other Sections, and the following:

A. Submit O&M manuals in accordance with Section 01 70 00, Execution and Closeout Requirements.

B. The manufacturer's instruction, or O&M, manuals required by these Specifications shall be specific to this project and to the equipment being furnished.

C. It is the intent that the instruction manuals be a complete document on the respective equipment item(s), independent of any separate shop drawing submittals, for the information and use by operation and maintenance personnel. As such, the manuals shall contain at a minimum, all approved shop drawing data necessary to describe the respective equipment and conform to the requirements of these Contract Documents, wiring diagrams and detailed circuit operation description; and performance curves and data.

D. The index furnished for each manual shall address all of the content categories to facilitate their being located by the reader. Categories which are considered to be not applicable or not required shall be identified as such in the index.

E. For each class of equipment or machinery identify the name, address and telephone number of the manufacturer, supplier and closest authorized service organization or company. Include this information at the beginning of each respective equipment manual.

3.07 INSTALLATION INSTRUCTIONS

Submit two copies of manufacturers' installation instructions for material and equipment incorporated in the Work to the extent specified in other Sections and Divisions of the Specifications or requested by the Owner for its review. Installation instructions will be reviewed for general adequacy only. After review, the Contractor shall distribute copies to all those involved with the installation.

Submit this information sufficiently in advance of the Work to ensure proper coordination of the respective equipment installation into the Work. In no case furnish this information later than delivery of the respective material or equipment. Payment for materials and equipment delivered will not be approved without submittal of the respective manufacturer's installation instructions.

3.08 EARTHQUAKE DESIGN AND RESTRAINT

All manufactured equipment supplied under this Contract shall be designed, constructed and attached to resist stresses produced by seismic forces specified in this Section. Equipment that does not vibrate during normal operation shall be rigidly attached. Equipment that

vibrates during normal operation shall be attached by means of isolators with mechanical stops that limit movement in all directions unless it can be demonstrated by calculations that such stops are not required. Equipment or portions of equipment that move during normal operation shall be restrained with mechanical devices that prevent displacement unless it can be demonstrated by calculations that such restraints are not required.

A. Work Included. The work included in this Paragraph includes, but is not limited to, the following: All machinery, mechanical and electrical equipment, instrumentation panels, electrical panels, lighting fixtures, and all other manufactured equipment.

B. Minimum Earthquake Forces. Except as provided herein, the minimum earthquake forces shall be those prescribed for 2007 California Building Code

C. Contractor shall include seismic calculations with submittals of shop drawings, details and data specified in technical Sections of these Specifications.

D. Seismic calculations shall be sealed and signed by a Professional Engineer (Civil and/or Structural) registered in the State of California.

3.09 OTHER SUBMITTALS

Provide copies of other submittals such as calculations, manufacturer's certified reports, operational demonstration and system validation reports specified in other Sections and Divisions of the Specifications.

3.010 STORAGE INSTRUCTIONS

For each equipment and material item furnished, provide for the Owner's records 2 copies of the manufacturer's recommended instructions for storage of the respective equipment or material. The instructions shall address conditions both before installation and (for mechanical, electrical and instrumentation equipment) after installation but before placing into continuous operation.

Submit manufacturer's storage instructions either prior to delivery of the material/equipment or with the request for payment of materials delivered. Payment for materials delivered will not be approved without submittal of the manufacturer's storage instructions.

3.011 FORM OF APPROVAL

A. Copies of submittals which are returned to the Contractor and which are subject to approval will be marked with notations A, B, B-R, C, D, or E, in which case the action so indicated shall be taken by the Contractor. These notations are defined as follows:

1. No Exceptions Noted (Resubmittal Not Required): Accepted subject to its compatibility with future submissions and additional partial submissions for portions of the work not covered in this submission. Does not constitute approval or deletion of specified or required items not shown in the partial submission.

2. Make Corrections Noted (Resubmittal Not Required): Same as A, except that minor corrections as noted shall be made by the Contractor.

3. Make Corrections Noted (Resubmit for Record Purposes): Same as B, except that resubmittal is required.

4. Amend and Resubmit: Rejected because of major inconsistencies or error which shall be resolved or corrected by the Contractor prior to subsequent review by the Design Consultant.

5. Not Acceptable (Resubmit): Submitted material does not conform to Drawings and Specifications in major respect, i.e., wrong size, model, capacity, or material.

6. Received for Record Purposes Only: Applies to submittals which are required but not reviewed, such as shoring submittals.

B. Returned copies of drawings marked with either notation A, B, or B-R authorize the Contractor to proceed with the fabrication, installation or construction, or any combination thereof, covered by such returned drawings, provided, that such fabrication, installation or construction shall be subject to the comments, if any, shown on such returned copies and to the Contract requirements whether or not specifically referenced. Although fabrication may proceed on a notation B-R, Contractor shall incorporate the comments, resubmit, and obtain notation A before release for shipment can be granted. Failure to satisfactorily address the review comments, shall result in designation of the resulting as being defective.

C. Returned copies of drawings marked with notation C or D shall be corrected as necessary and revised drawings shall be submitted in the same manner as before.

3.012 RECORD DRAWINGS AND SPECIFICATIONS

A. Refer to Section 01 70 00, Execution and Closeout Requirements.

3.013 CERTIFICATES

Each certificate required under the Contract or in any of the following Sections shall be signed by the individual, office, or agent lawfully authorized to execute the certificate, and such authority shall be cited in the certificate by title, description, or other acceptable evidence. All certificates shall be sworn as to the correctness and validity of the contents. Where specifically required in the respective Section of the Specifications, certificates shall be notarized and duplicate copies of required certificates shall be notarized to be true copies.

END OF SECTION

SECTION 01 35 00

SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Protection of improvements
2. Utility potholing
3. Existing utilities
4. Protection of existing pavement
5. Protection of existing hardscape
6. Excavation notification.
7. Construction Photographs

B. Related Sections:
1. Section 01 33 00 - Submittal Procedures
2. Section 02 21 00 – Surveys

1.2 SUBMITTALS

A. Potholing Report

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 Protect all existing utilities and improvements not designated for removal and restore damaged or temporarily relocated utilities and improvements, immediately, to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the contract documents.

3.2 Protect all private and public property from damage due to its activities. If any damage does occur to public or private property as a result of the contractors operation, the contractor shall be responsible for the repair of the property.

3.3 POTHOLING

A. Designated Pothole Locations: The plans indicate locations where potholing is required. For all such designated locations, the Contractor shall perform the potholing and submit a written report at least 2 working days prior to performing any work or ordering materials for the related underground facilities. The written re-

port shall be signed by a licensed surveyor or engineer and shall include the following information:

1. Size, type, and material of the facility exposed.
2. Accurate horizontal location, determined by survey.
3. Accurate vertical location, determined by survey. The vertical location shall be the top of pipe, flow line, or bottom of the pipe, as shown on the plans, or if not designated, whichever is the critical location for the proposed crossing of connection.

B. Non-designated Potholing: The Contractor shall perform exploratory excavations sufficiently ahead of construction for all known crossings, either shown on the plans, or marked on the pavement, so as to identify any unforeseen conflicts with the proposed construction a sufficient time in advance of construction to avoid possible delays to the Contractor's works. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility. The cost of non-designated potholing shall be considered appurtenant to the bid items requiring such excavation. There will be no separate payment for non-designated potholing.

3.4 EXISTING UTILITIES, WATER, SEWER AND DRAINAGE

A. General: The Contractor shall protect all above ground and underground utility, water, sewer and drainage improvements that may be impaired during construction operations.

B. Contractor shall be responsible for coordination and communication with all utility agencies during construction.

C. Locations shown: The known existing buried utilities and pipelines are shown on the Drawings in their approximate location, and also may be marked in the field by the utility representatives. The Contractor shall exercise reasonable care in avoiding damage to all utilities, and be held responsible for their repair if buried facilities so located are damaged.

D. Services Assumed: When underground distribution mains are shown on the plans or marked by the utility companies, the Contractor shall assume that every property parcel will be served by a service connection of each type of facility. Not all laterals are shown on the drawings.

E. Work by Utilities: During the course of the Contract, work may be performed by the utility companies or by the Owner to inspect, operate, relocate, abandon or install facilities. The Contractor shall coordinate with the utility companies regarding such work. Such coordination shall be included within the Contract bid and there will be no separate payment therefore.

F. Utilities to be moved: Should it become necessary to move the property of any public utility or franchise holder, the Contractor shall notify the Engineer a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.

G. Approval of Repairs: All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other work.

H. Maintaining Service: All pipelines, power, telephone, communication cable, gas, water, irrigation, sewer, and storm drain systems within the work area shall remain continuously in service during all the operations under the Contract, unless specifically shown otherwise in the Contract Documents, or unless other arrangements satisfactory to the Engineer are made (by the Contractor) with the owner of said system.

3.5 RESTORATION OF PAVEMENT

A. General: All paved areas cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents.

B. Pavement repair shall be in accordance with Section 32 12 00 – Flexible Paving.

C. All temporary and permanent pavement shall conform to the requirements of the affected pavement owner. All pavements that are subject to partial removal shall be neatly saw cut in straight lines.

3.6 EXISTING HARDSCAPE

A. General: All surface concrete or other hardscape areas cut or damaged during construction shall be replaced with similar materials and of equal material and quality to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents. All such repairs and replacements shall conform to the requirements of the affected hardscape owner.

B. Partial removal: All concrete and PCC pavement that is subject to partial removal shall be neatly saw cut in straight lines. The saw cut lines shall be extended to align with existing score lines or similar feature so as to provide a uniform appearance.

3.7 EXCAVATION NOTIFICATION

A. Notify Prior to Excavation: Prior to any excavation the Contractor shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than 3 days nor more than 7 days prior to excavation so that a representative of said owners or agencies can be present during such work if they so desire.

B. Call USA: The Contractor shall also notify Underground Service Alert (USA) **at 811** at least 2 working days, but no more than 14 calendar days, prior to such excavation. If a utility owner is not equipped to locate its utility, the Contractor shall locate it.

3.8 CONSTRUCTION PHOTOGRAPHS

A. Provide pre-construction, construction progress, and post-construction photographs as part of the Work. Photographs shall be taken with a minimum 5 megapixel digital camera, and all photos shall be provided to Owner on CDs. Photos shall be arranged in folders on the CDs by date taken and clearly identified by location of Work. Provide further cataloging of photographs as required to clearly identify subject matter, if not self-evident on the photograph (such as utility identification).

B. Pre-Construction Photographs. Arrange a meeting time with Owner and Engineer, 2 working days prior to taking photographs, to allow Owner and Engineer the opportunity to accompany Contractor on the pre-construction photograph session. Provide pre-construction photographs during this walk-through of the existing project site conditions at locations directed by Owner and Engineer. Submit the CD of pre-construction photographs within 10 working days following the date photographs are taken. Include at a minimum, the following:

1) photographs and documentation of condition of existing WWTP access roads.
2) Existing oxidation ponds, hydraulic control structures, wetwell, in area of Work.

1. Post-Construction Photographs. Provide same coverage as required in the pre-construction photographs. Arrange a meeting time with Owner and Engineer, 2 working days prior to taking photographs, to allow Owner and Engineer the opportunity to accompany Contractor on the post-construction photograph session. Submit final photographs as part of close-out submittals specified in Section 01 70 00.
2. Progress Photographs. Provide photographs of the progress of the Work, to be provided to the Owner throughout progress of the Work. Progress photographs shall be taken at a minimum, on a weekly basis. Photographs shall be taken at a minimum:
   a. At utility appurtenant features, such as tie-in points, inlets, vaults/hydraulic control structures, effluent pumping station;
   b. Existing facilities to remain, pond access roads.
   c. Representative photographs of pre-existing road conditions and new base roads installed.
   d. Staging and construction haul routes.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Furnish and install temporary facilities as herein specified, plus other unspecified temporary facilities, including labor, materials, services, utilities, and equipment, as may be required for proper performance of Contract, except as otherwise provided. Temporary facilities shall be approved by the Owner and other authorities having legal jurisdiction. Locate facilities where and as directed, and maintain in safe and sanitary condition at all times until completion of Work.

B. At completion of work, or sooner when no longer needed, remove all temporary facilities, except where certain facilities are specified to remain or to be relocated for use under future contracts.

C. All Work required and specified in this Section shall be included in Contractor's price for mobilization, and therefore no separate or additional payment will be made therefore.

1.02 CONSTRUCTION EQUIPMENT

A. Erect, equip, operate, and maintain construction equipment in strict accordance with applicable statutes, laws, ordinances, rules, and regulations of authorities having jurisdiction.

1.03 SAFETY PRECAUTIONS

A. Provide and maintain barricades, fencing, shoring, and other safety precautions to properly guard against personal injury and property damage.

B. Maintain such items for duration of Work, and repair, replace, and relocate them as necessary for safe protection.

C. Provide such additional safety precautions as may be prescribed by WWTP Operations staff.

D. Attention is directed to Safety Orders issued by State of California, Division of Industrial Safety. Contractor shall obtain copies of Safety Orders applicable to type of work to be performed, and shall be governed by requirements thereof in construction operations.

E. Fully inform each subcontractor and material supplier as to requirements of applicable Safety Orders.

1.04 ROADS AND ACCESSWAYS

A. Access to Existing WWTP Site: Contractor shall maintain at all times, access to Owner's WWTP throughout construction. Cooperate and coordinate with Owner staff accordingly.

B. Maintain access roads and parking areas in satisfactory condition during Contract time, and repair damages attributable to Work of this Project at intervals as needed. Keep all equipment, vehicles, workers on plant access roads only; do not enter adjacent agricultural fields at any time. At completion of Contract, roads and entrance ways shall be left in condition at least equal to that existing at start of Contract, except as may be otherwise required by Contract documents.

C. Retain responsibility of permanent improvements pursuant to General Conditions. Use of permanent improvements by Contractor shall be subject to approval by the Owner.

1.05 USE OF CITY PROPERTY

A. On-Site Storage and Work Areas: The Owner will allocate available on-site storage and work areas to Contractor, subject to change as may be necessary by job progress, such as site development or other intervening work.

B. City Property and Right-of-Way: Operations shall be confined to City property and right-of-way to greatest possible extent, and shall not encroach on areas other than those designated or approved for such use by the Owner.

1. Ascertain, observe, and comply with rules and regulations in effect, including, but not restricted to, parking and traffic regulations, hours of allowable ingress and egress as to main arteries, and the like.

C. Covering, moving, trimming, or altering which may become necessary shall be done only with consent of and in cooperation with Owner. Contractor shall pay costs that may be incurred.

D. Make detailed examination of such City property at start of work and conditions shall be noted by Contractor and confirmed by Owner.

1. Access roads, hardscape and other existing improvements therein adjacent to site, if damaged by this work, shall be repaired by Contractor at intervals as needed. At completion of project, all such items not included in Contract shall be left in condition at least equal to that at start of operations.
2. Repair work shall conform to requirements of the Owner. This includes, but is not restricted to, temporary walks for pedestrians, cleaning of mud and debris, air pollution control, and traffic control if necessary.

1.06 CONTRACTOR'S STAGING AREA

A. Contractor shall coordinate and provide suitable staging area for the Work.

1.07 CLEAN UP OF WORK AND DISPOSAL OF TRASH

A. Keep work and storage areas clean and free of rubbish and perform protective and clean up work within one day of being so notified by Owner.

B. Dispose of trash resulting from work. Recycle materials to the extent practicable. Remove and dispose of trash resulting from work in appropriate receptacles provided by Contractor, and dispose of at an approved facility. Do not use existing nearby trash containers for depositing trash and rubbish.

1.08 DUST ABATEMENT

A. Use water wagons or spray from hoses to control dust created by outdoor work operations in areas on project property during entire period of this Contract as directed by Owner; also, satisfactorily control dust created by operations on property used, other than project property, to satisfaction of all concerned.

1.09 EROSION AND SEDIMENT CONTROL

A. Implement applicable measures for erosion and sediment control during construction, and prepare Site Specific Stormwater Management Plan to address construction activities and the control of erosion and sediments at the Work site. Refer to Section 01 57 23, Temporary Storm Water Pollution Control for further requirements and submittal requirements.

1.010 SANITARY FACILITIES

A. Toilet Facilities: Provide sufficient suitably enclosed chemical toilets, conforming to ANSI Z4.3., with urinal for workmen.

B. Drinking Water Facilities: Provide clean, sanitary and adequate drinking water.

1.011 TEMPORARY WATER

A. Make arrangements for water required for construction purposes; furnish and install temporary piping or hose to carry water to every part of construction, or use water truck. Construction water shall be paid for by Contractor, included in the Contract Price, and at no additional cost to the Owner therefor.

1.012 TEMPORARY ELECTRICITY

A. Provide such temporary electrical facilities as necessary for the Work, and to supply temporary lighting for work operations and temporary power for portable power driven tools.

B. Construction Requirements: Construct and maintain temporary electrical service facilities in accordance with California Code of Regulations, Title 24, Part 3, Basic Electrical Regulations, Public Utilities Commission “Rules for Overhead Line Construction” (G.O.95), and requirements of Pacific Gas and Electric (PG&E). Contractor shall be responsible for contacting and coordinating with PG&E and to provide necessary applications for obtaining temporary electrical service in conformance with the project schedule. Materials, devices, and equipment used for these facilities shall be in good and safe condition, but need not be new. Electrical service equipment and utility feed shall be of adequate amperage and voltage ratings to serve electrical loads necessary to complete the Work and to serve other required loads listed in this specification. Materials, devices, equipment and temporary electrical service facilities shall be removed from the site prior to final field observation and project closeout.

C. Contractor-Installed Construction Power Facilities: Temporary electrical materials and equipment furnished and installed by Contractor for required facilities hereunder shall be removed after serving their purpose.

1. If Owner should desire to retain portion of Contractor-Installed construction power system, it will be acquired as Change in Work per the General Conditions.

1.013 SECURITY

A. Contractor shall be responsible for security of Work involved in this Project, during entire time of Contract. Make good all damages to work and loss of materials due to vandalism or theft, within this responsibility.

1.014 SEWAGE BYPASSING

A. In accordance with approved Work Plan as required in Section 01 11 00, Summary of Work, provide temporary sewage bypassing as required for construction, phasing and cut-over of the new facilities.

B. Contractor shall provide all equipment, labor, materials and resources needed to adequately monitor and control sewage bypass operations. As part of the approved Work Plan, delineate anticipated flow conditions, required equipment to accommodate anticipated flow conditions, response times to respond to failure or malfunction of bypass equipment, emergency contact information and staffing assignments, details of monitors and alarms.

END OF SECTION

SECTION 01 57 13

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 Work of This Section

A. This section covers the work necessary for to stabilize the Site soils to mitigate wind blown dust, prevent soil erosion and sediment discharges off-site during and after construction, demolition, and land disturbing Work activities. The work shall include the furnishing of all labor, materials, tools, and equipment to perform the work and services necessary as specified in these Specifications and as indicated on the Drawings. This shall include installation, maintenance, and final removal of all temporary soil erosion and sediment control measures.

B. The areas requiring soil erosion and sediment control measures are the areas involving earthwork as shown on the Drawings, and the area where imported material is stockpiled. The right is reserved to modify the use, location, and quantities of soil erosion and sediment control measures based on activities of the Contractor and as the Engineer considers to be to the best interest of the Owner.

C. See additional information noted on the Drawings.

1.02 General

A. The Owner may assume the responsibilities of the Engineer.

B. The BMPs set forth in the referenced Manuals, that apply to the Work are listed in Table 1 furnished at the end of this section.

C. The table listings may not be all inclusive of the BMPs required for the Work, especially under different seasons and weather conditions, and depending on the Contractor's construction methods and operations.

D. The Contractor shall utilize all BMPs required to perform the Work in accordance with these Contract Documents, the referenced Manual, and all local, state and federal laws and regulations.

E. The Contractor shall be responsible for phasing Work, as required by the SS-1 BMP, so that the soil erosion and sediment control facilities and practices are in place before the start of the Work requiring those facilities and practices. This includes installation of all temporary BMPs required to comply with these Specifications and BMP practices used during construction.

F. The areas set aside for the Contractor's use during the Project may be temporarily developed to provide satisfactory working, staging, equipment and material storage areas for Contractor's exclusive use. Preparation of these areas shall be in accordance with other requirements contained within these

Specifications and shall be done in a manner to both control all soil erosion, sediment transport, wind blown dust and runoff that may migrate from the Work site during the course of construction.

G. Contractor shall follow the WE-1 BMP practices to reduce dust during Site grading and construction activities, and at any other time to minimize soil dust from being blown off the Site. The WE-1 BMP practices shall also be used by the Contractor for controlling dust off-site on unpaved roadways used to access the Site and for off-site material hauling. Contractor shall regularly sweep or vacuum paved roadways to mitigate dust, and to keep the roadways clean of construction materials and debris. Contractor shall employ these BMP practices as directed by the Engineer at any time during construction of the Work to achieve the environmental goals and objectives intended by this Specification section.

H. Contractor shall follow the WM-3 BMP for all temporary material stockpiles.

I. The Contractor shall establish a point of ingress and egress for the Site and use that access point for all of its construction activities. Contractor shall construct a TC-1 stabilized entrance/exit at that location. Contractor shall remove this BMP at the completion of construction of the Work, and re-establish the area to its original condition prior to the start of construction.

J. All non-salvageable material shall be handled on-site and disposed of off-site in accordance with the requirements of WM-5 BMP. This requirement also applies to material cleared and grubbed from the site in preparation for the Site earthwork and grading, and excess excavated soil that is not to be stockpiled.

K. Contractor shall maintain the existing soil erosion and sediment control measures on the existing material stockpile, which involves maintenance of the fiber rolls on the side slopes and perimeter silt fence. Contractor's maintenance activities shall include the application of two soil binder treatments to the surface of the stockpile as directed by the Engineer. The surface of the material stockpile up to 20 feet beyond the toe of the stockpile is to be treated with the soil binder in accordance with the SS-5 BMP to prevent wind blown erosion of the stockpiled soil. The second soil binder treatment shall be effective for a minimum period of four months after completion of construction.

L. Temporary sanitary facilities shall be maintained in accordance with the WM-9 BMP requirements.

M. If vehicles and/or equipment are to be washed on-site, the Contractor shall comply with the NS-8 BMP requirements.

N. If vehicles and/or equipment are to be fueled on-site, the Contractor shall comply with the NS-9 BMP requirements.

O. If vehicles and/or equipment are to be maintained on-site, the Contractor shall comply with the NS-10 BMP requirements.

1.03 References

A. The following is a list of standards and references which may be used in this Section:

1. State of California Department of Transportation (Caltrans) Construction Site Best Management Practices (BMPs) Manual, latest edition;

2. Caltrans Standard Specifications, latest edition;

3. Caltrans Standard Special Provisions, latest edition;

4. Caltrans Standard Plans, latest edition;

5. In the event of a conflict, the more stringent requirement shall apply.

1.04 Submittals

A. Action Submittal: Contractor shall prepare a Soil Erosion and Sediment Control Plan (Plan) for the project that describes the Best Management Practices (BMPs) Contractor intends to utilize to mitigate soil erosion, wind blown dust and sediment impacts resulting from Contractor's construction activities and methods. The Plan shall meet the requirements of the Manual, and local and county Stormwater Pollution Prevention Program (SWPPP) requirements. Engineer will review and accept the Plan. Submit Plan in conjunction with Work Plan specified in Paragraph 1.05, Section 01 11 00, Summary of Work.

B. Submittal of the Plan shall be made in accordance with Section 01 33 00, Submittal Procedures.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 Preparation

A. The Contractor shall prepare Soil Erosion and Sedimentation Control Plan for the project which shall be reviewed and accepted by Engineer before the start of construction of the Work. Contractor shall submit the Plan to local and county agencies that have jurisdiction over construction-related environmental activities, and shall obtain their approval before the start of construction of the Work.

B. Contractor shall keep a copy of the approved Plan at the Site.

C. Soil Erosion and Sedimentation Control activities to be performed by the Contractor shall consist of the at least the following components:

1. Construction of new temporary storm drainage berms, channels and piping systems and other facilities, as necessary, to maintain existing Site drainage patterns and to direct runoff to the adjacent roadways.

2. Construction of temporary soil erosion and sedimentation control facilities and use of procedures, as needed, to minimize windblown dust, off-site runoff to adjacent properties, and to mitigate the off-site discharge of sediment.

3. Maintenance of temporary storm drainage berms, channels and piping systems and facilities during construction, as necessary, or as directed by Engineer. This requirement includes the removal and disposal of accumulated sediment.

4. Removal of the temporary soil erosion and sedimentation control facilities and drainage facilities at the completion of construction of the Work that are not to remain in place.

5. Construction and utilization of material and waste management practices during the construction of the Work.

3.02 Installation

A. Contractor shall adhere to the Plan at all times during construction of the Work, and shall install and/or arrange for the BMPs required for each portion of the Work and/or construction activity associated with the Work prior to start of any portion of the Work or construction activity.

B. Contractor shall not start any portion of the Work, or construction activity until all required BMPs are in place to the satisfaction of the Engineer.

3.03 Maintenance

A. The Contractor shall maintain all elements of the Soil Erosion and Sedimentation Control systems for the duration of construction activities on the Project. Formal inspections made jointly by the Contractor and the Engineer shall be conducted every week to evaluate the Contractor's conformance to the requirements of both these Specifications, and local, state and federal laws and regulations. Noted deficiencies shall be corrected by the Contractor within two days of notification by the Engineer, and as directed by the Engineer.

B. All silt traps and silt fences shall be cleaned of collected sediment after every storm or as determined from the weekly inspections. Cleaning shall be done in a manner that will not direct the sediment into the storm drain piping system. Removed sediment shall be taken to an area selected by the Engineer where it can be allowed to dry before it is disposed of off-site. Contractor shall dispose of the dried sediment and debris in a lawful manner.

C. Replacement or repair of failed, damaged or overloaded temporary BMPs shall be accomplished by the Contractor within two days after receiving written notice from the Engineer.

D. If the Contractor has not complied with any of the above maintenance efforts to the satisfaction of the Engineer within two working days after receiving written notification from the Engineer, the Owner shall have the prerogative of engaging others to perform, or performing itself, any needed maintenance, cleanup or

corrective measures, including removal of accumulated sediment at constructed erosion control facilities, and deduct from the Contractor's monthly partial payment the costs for such efforts plus the Owner's costs to administer the work.

E. Unpaved earth drainage ditches shall be regraded and cleaned as needed to maintain original grade and drainage pattern, and to remove sediment buildup. If a ditch becomes difficult to maintain, the Contractor shall cooperate with the Engineer and install additional erosion control BMPs to solve the problem to the satisfaction of the Engineer.

Table 1

Designation	BMP Name	Usage
SS-1	Scheduling	BMP and Construction Planning
SS-2	Preservation of Existing Vegetation	Soil Stabilization and Sediment Control
SS-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats	Soil Stabilization and Wind Erosion Control
SS-9	Earth Dikes/Drainage Swales & Lined Ditches	Runoff Protection and Soil Stabilization
SC-1	Silt Fence	Sediment Control
SC-3	Sediment Trap	Sediment Control
SC-5	Fiber Rolls	Soil Stabilization and Sediment Control
SC-6	Gravel Bag Berm	Sediment Control
SC-7	Street Sweeping and Vacuuming	Soil Stabilization, and Sediment and Tracking Control
SC-8	Sandbag Barrier	Sediment Control
SC-9	Straw Bale Barrier	Sediment Control
SC-10	Storm Drain Inlet Protection	Sediment Control
WE-1	Wind Erosion Control	Soil Stabilization, and Sediment and Wind Erosion Control
TC-1	Stabilized Construction Entrance/Exit	Soil Stabilization, and Tracking and Wind Erosion Control
TC-2	Stabilized Construction roadway	Soil Stabilization, and Tracking and Wind Erosion Control
WM-1	Material Delivery and Storage	Materials Management
NS-8	Vehicle and Equipment Cleaning	Non-Storm Water Management
NS-9	Vehicle and Equipment Fueling	Non-Storm Water Management
NS-10	Vehicle and Equipment Maintenance	Non-Storm Water Management
WM-3	Stockpile Management	Soils Stabilization, Sediment Control and Materials Management
WM-4	Spill Prevention and Control	Materials and Waste Management
WM-5	Solid Waste Management	Materials Management
WM-6	Hazardous Waste Management	Materials Management
WM-9	Sanitary/Septic Waste Management	Materials and Waste Management
WM-10	Liquid Waste Management	Materials and Waste Management

END OF SECTION

SECTION 01 57 13

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 Work of This Section

A. This section covers the work necessary for to stabilize the Site soils to mitigate wind blown dust, prevent soil erosion and sediment discharges off-site during and after construction, demolition, and land disturbing Work activities. The work shall include the furnishing of all labor, materials, tools, and equipment to perform the work and services necessary as specified in these Specifications and as indicated on the Drawings. This shall include installation, maintenance, and final removal of all temporary soil erosion and sediment control measures.

B. The areas requiring soil erosion and sediment control measures are the areas involving earthwork as shown on the Drawings, and the area where imported material is stockpiled. The right is reserved to modify the use, location, and quantities of soil erosion and sediment control measures based on activities of the Contractor and as the Engineer considers to be to the best interest of the Owner.

C. See additional information noted on the Drawings.

1.02 General

A. The Owner may assume the responsibilities of the Engineer.

B. The BMPs set forth in the referenced Manuals, that apply to the Work are listed in Table 1 furnished at the end of this section.

C. The table listings may not be all inclusive of the BMPs required for the Work, especially under different seasons and weather conditions, and depending on the Contractor's construction methods and operations.

D. The Contractor shall utilize all BMPs required to perform the Work in accordance with these Contract Documents, the referenced Manual, and all local, state and federal laws and regulations.

E. The Contractor shall be responsible for phasing Work, as required by the SS-1 BMP, so that the soil erosion and sediment control facilities and practices are in place before the start of the Work requiring those facilities and practices. This includes installation of all temporary BMPs required to comply with these Specifications and BMP practices used during construction.

F. The areas set aside for the Contractor's use during the Project may be temporarily developed to provide satisfactory working, staging, equipment and material storage areas for Contractor's exclusive use. Preparation of these areas shall be in accordance with other requirements contained within these

Specifications and shall be done in a manner to both control all soil erosion, sediment transport, wind blown dust and runoff that may migrate from the Work site during the course of construction.

G. Contractor shall follow the WE-1 BMP practices to reduce dust during Site grading and construction activities, and at any other time to minimize soil dust from being blown off the Site. The WE-1 BMP practices shall also be used by the Contractor for controlling dust off-site on unpaved roadways used to access the Site and for off-site material hauling. Contractor shall regularly sweep or vacuum paved roadways to mitigate dust, and to keep the roadways clean of construction materials and debris. Contractor shall employ these BMP practices as directed by the Engineer at any time during construction of the Work to achieve the environmental goals and objectives intended by this Specification section.

H. Contractor shall follow the WM-3 BMP for all temporary material stockpiles.

I. The Contractor shall establish a point of ingress and egress for the Site and use that access point for all of its construction activities. Contractor shall construct a TC-1 stabilized entrance/exit at that location. Contractor shall remove this BMP at the completion of construction of the Work, and re-establish the area to its original condition prior to the start of construction.

J. All non-salvageable material shall be handled on-site and disposed of off-site in accordance with the requirements of WM-5 BMP. This requirement also applies to material cleared and grubbed from the site in preparation for the Site earthwork and grading, and excess excavated soil that is not to be stockpiled.

K. Contractor shall maintain the existing soil erosion and sediment control measures on the existing material stockpile, which involves maintenance of the fiber rolls on the side slopes and perimeter silt fence. Contractor's maintenance activities shall include the application of two soil binder treatments to the surface of the stockpile as directed by the Engineer. The surface of the material stockpile up to 20 feet beyond the toe of the stockpile is to be treated with the soil binder in accordance with the SS-5 BMP to prevent wind blown erosion of the stockpiled soil. The second soil binder treatment shall be effective for a minimum period of four months after completion of construction.

L. Temporary sanitary facilities shall be maintained in accordance with the WM-9 BMP requirements.

M. If vehicles and/or equipment are to be washed on-site, the Contractor shall comply with the NS-8 BMP requirements.

N. If vehicles and/or equipment are to be fueled on-site, the Contractor shall comply with the NS-9 BMP requirements.

O. If vehicles and/or equipment are to be maintained on-site, the Contractor shall comply with the NS-10 BMP requirements.

1.03 References

A. The following is a list of standards and references which may be used in this Section:

1. State of California Department of Transportation (Caltrans) Construction Site Best Management Practices (BMPs) Manual, latest edition;

2. Caltrans Standard Specifications, latest edition;

3. Caltrans Standard Special Provisions, latest edition;

4. Caltrans Standard Plans, latest edition;

5. In the event of a conflict, the more stringent requirement shall apply.

1.04 Submittals

A. Action Submittal: Contractor shall prepare a Soil Erosion and Sediment Control Plan (Plan) for the project that describes the Best Management Practices (BMPs) Contractor intends to utilize to mitigate soil erosion, wind blown dust and sediment impacts resulting from Contractor's construction activities and methods. The Plan shall meet the requirements of the Manual, and local and county Stormwater Pollution Prevention Program (SWPPP) requirements. Engineer will review and accept the Plan. Submit Plan in conjunction with Work Plan specified in Paragraph 1.05, Section 01 11 00, Summary of Work.

B. Submittal of the Plan shall be made in accordance with Section 01 33 00, Submittal Procedures.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 Preparation

A. The Contractor shall prepare Soil Erosion and Sedimentation Control Plan for the project which shall be reviewed and accepted by Engineer before the start of construction of the Work. Contractor shall submit the Plan to local and county agencies that have jurisdiction over construction-related environmental activities, and shall obtain their approval before the start of construction of the Work.

B. Contractor shall keep a copy of the approved Plan at the Site.

C. Soil Erosion and Sedimentation Control activities to be performed by the Contractor shall consist of the at least the following components:

1. Construction of new temporary storm drainage berms, channels and piping systems and other facilities, as necessary, to maintain existing Site drainage patterns and to direct runoff to the adjacent roadways.

2. Construction of temporary soil erosion and sedimentation control facilities and use of procedures, as needed, to minimize windblown dust, off-site runoff to adjacent properties, and to mitigate the off-site discharge of sediment.

3. Maintenance of temporary storm drainage berms, channels and piping systems and facilities during construction, as necessary, or as directed by Engineer. This requirement includes the removal and disposal of accumulated sediment.

4. Removal of the temporary soil erosion and sedimentation control facilities and drainage facilities at the completion of construction of the Work that are not to remain in place.

5. Construction and utilization of material and waste management practices during the construction of the Work.

3.02 Installation

A. Contractor shall adhere to the Plan at all times during construction of the Work, and shall install and/or arrange for the BMPs required for each portion of the Work and/or construction activity associated with the Work prior to start of any portion of the Work or construction activity.

B. Contractor shall not start any portion of the Work, or construction activity until all required BMPs are in place to the satisfaction of the Engineer.

3.03 Maintenance

A. The Contractor shall maintain all elements of the Soil Erosion and Sedimentation Control systems for the duration of construction activities on the Project. Formal inspections made jointly by the Contractor and the Engineer shall be conducted every week to evaluate the Contractor's conformance to the requirements of both these Specifications, and local, state and federal laws and regulations. Noted deficiencies shall be corrected by the Contractor within two days of notification by the Engineer, and as directed by the Engineer.

B. All silt traps and silt fences shall be cleaned of collected sediment after every storm or as determined from the weekly inspections. Cleaning shall be done in a manner that will not direct the sediment into the storm drain piping system. Removed sediment shall be taken to an area selected by the Engineer where it can be allowed to dry before it is disposed of off-site. Contractor shall dispose of the dried sediment and debris in a lawful manner.

C. Replacement or repair of failed, damaged or overloaded temporary BMPs shall be accomplished by the Contractor within two days after receiving written notice from the Engineer.

D. If the Contractor has not complied with any of the above maintenance efforts to the satisfaction of the Engineer within two working days after receiving written notification from the Engineer, the Owner shall have the prerogative of engaging others to perform, or performing itself, any needed maintenance, cleanup or

corrective measures, including removal of accumulated sediment at constructed erosion control facilities, and deduct from the Contractor's monthly partial payment the costs for such efforts plus the Owner's costs to administer the work.

E. Unpaved earth drainage ditches shall be regraded and cleaned as needed to maintain original grade and drainage pattern, and to remove sediment buildup. If a ditch becomes difficult to maintain, the Contractor shall cooperate with the Engineer and install additional erosion control BMPs to solve the problem to the satisfaction of the Engineer.

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WM-10	Liquid Waste Management	Materials and Waste Management

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. This section provides the requirements for product substitution. The procedure for requesting substitution approval applies to products defined in the Contract Documents by reference to one or more of the following:

1. Name of manufacturer
2. Name of vendor
3. Trade name
4. Catalog number

B. Requests for Substitution - General:

1. Base all bids on materials, equipment, and procedures specified, and as approved by addendum. Refer to Article 6.05.C, Supplementary General Conditions.
2. Certain types of equipment and kinds of material are described in specifications by means of references to names of manufacturers and vendors, trade names, or catalog numbers. When this method of specifying is used, it is not intended to exclude from consideration other products bearing other manufacturer's or vendor's names, trade names, or catalog numbers, provided said products are capable of accomplishing the same tasks as the products specifically indicated.
3. Other types of equipment and kinds of material may be acceptable.

C. Refer to additional requirements of Instructions to Bidders, Section 00 70 00, General Conditions, Article 6.Paragraph 10.

D. Pre-Selected Vendor Equipment. Owner has pre-selected Vendor and Equipment for the wastewater pond aeration process. There shall be no substitutions allowed for this equipment. Also refer to the bid schedule, and Section 01 20 00 Price and Payment Procedures.

1.02 QUALITY ASSURANCE

A. In making request for substitution or in using an approved product, Contractor represents:

1. He has investigated proposed product, and has determined that it is equal or superior in all respects to that specified, and that it will perform function for which it is intended.
2. He will provide same guarantee for substitute item as for product specified.
3. He will coordinate installation of accepted substitution into work, to include building modifications if necessary, making such changes as may be required for work to be complete in all respects.

4. He waives all claims for additional costs related to substitution which subsequently arise.

1.03 DEFINITIONS

A. Product: Manufactured material or equipment.

1.04 PROCEDURE FOR REQUESTING SUBSTITUTION

A. Considered after award of Contract, or by addenda during bidding. See Paragraph 1.01.B of this Section.

B. Written requests may be made by the Contractor only.

C. Transmittal Mechanics:

1. Follow the transmittal mechanics prescribed for shop drawings in Section 01 33 00, Submittal Procedures. Describe the deviation and justifications on the transmittal form. Include in the transmittal letter, either directly or as a clearly marked attachment, the items listed in paragraph D below.

D. Transmittal Contents:

1. Product identification:

a. Manufacturer's name.

b. Telephone number and representative contact name.

c. Specification section or drawing reference of originally specified product, including discrete name or tag number assigned to original product in the Contract Documents.

2. Manufacturer's literature clearly marked to show compliance of proposed product with Contract Documents.

3. Itemized comparison of original and proposed product addressing product characteristics including but not necessarily limited to:

a. Size.

b. Composition or materials of construction.

c. Weight.

d. Electrical or mechanical requirements.

4. Product experience:

a. Location of past projects utilizing product.

b. Name and telephone number of persons associated with referenced projects knowledgeable concerning proposed product.

c. Available field data and reports associated with proposed product.

5. Data relating to changes in construction schedule.

6. Data relating to changes in cost.

7. Samples:

a. At request of Engineer.

b. Full size if requested by Engineer.

c. Held until substantial completion.

d. Engineer not responsible for loss or damage to samples.

1.05 APPROVAL OR REJECTION

A. Written approval or rejection of substitution given by the Engineer.

B. Engineer reserves the right to require proposed product to comply with color and pattern of specified product if necessary to secure design intent.

C. In event substitution results in a change of Contract price or time, provisions in Special Provisions-General Conditions will be applied for adjustment.

D. Substitutions will be rejected if:

1. Submittal is not through the Contractor with Contractor's approval.

2. Requests are not made in accordance with this Section.

3. In the Engineer's opinion, acceptance will require substantial revision of the original design.

4. In the Engineer's opinion, substitution is not equal to original product specified or will not perform adequately the function for which it was intended.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Closeout Procedures.

B. Project Record Documents.

C. Operation and Maintenance Data.

D. Guaranties, Warranties and Bonds.

E. Spare Parts and Maintenance Materials.

F. Certification of Recycled Content.

G. Waste Management Report.

1.02 CLOSEOUT PROCEDURES

A. Comply with procedures in this Section, and other applicable sections, for inspection and acceptance of the Work, payment and retention procedures.

B. When Contractor considers Work has reached substantial completion, submit written certification that Work is ready for inspection.

1.03 INSPECTION PROCEDURES

When the Work is in the opinion of the Contractor, substantially complete, the Contractor shall call for a punch list inspection.

A. Inspection Procedures: On receipt of a written request for inspection, the Owner's Representative will schedule the inspection. If in the judgment of the Owner's Representative the project is not substantially complete, the Owner Representative will so advise the Contractor and discontinue the inspection.
   1. The Owner's Representative will repeat inspection when requested and assured that the Work has been completed.
   2. Results of the completed inspection will form the basis of requirements for final acceptance of the Work.

B. Final cleaning shall be completed prior to Owner's inspection and acceptance.

1.04 PROJECT RECORD DOCUMENTS ("AS-BUILTS")

A. Maintain, on current basis, record drawings showing "as-built" conditions of project; subject to monthly review by Owner Representative. Monthly pay estimates will not be processed without review and approval of record drawings by the Owner. Written

confirmation that the as-builts have been properly updated shall be submitted with each pay application request. Final Acceptance of Work will not take place until record drawings are turned over to the Owner's Representative.

B. Store Project record documents separate from those used for construction. Protect from deterioration and loss in a secure, fire-resistive location; provide access to the Owner's Representatives during normal working hours. In the event of loss of recorded data, use means necessary to again secure the data to the Owner's acceptance; such means shall include, if necessary in the opinion of the Owner, removal and replacement of concealing materials and in such case, replacements shall be to the standards originally specified.

C. Before commencing backfilling of utilities or any other underground pipes, ducts, conduits, or structures, take photographs showing relationship of below ground utilities to structure(s) or other physical reference point. Photos are to be in compliance with Section 01 35 00, Special Project Procedures, categorized by locations and indicating utilities and progress of Work, as specified. Provide photo(s) of all connections, crossings, stubs, or other critical points. If the Contractor neglects to take such photographs, Contractor shall uncover, at the Contractor's expense, the area(s) so neglected in order to provide the requisite photos.

D. Record Drawings: Maintain a clean, undamaged bond set of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately. At time of installation, installed locations of work relating to aboveground and underground utilities, structural, ventilation, plumbing, electrical, and other scopes of work as may be required, shall be recorded on sepia mylar prints by Contractor, and reviewed with Owner's Representative. Timing of entries shall be within 24 hours after receipt of information. Do not conceal work until required information is recorded.

1. Information entered on prints shall be neat, legible, and emphasized by drawing "clouds" around changed items. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work. Date entries.
2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
3. At a minimum, the following information shall be inserted and dimensioned on record documents where applicable:
    a. The exact horizontal and vertical location of all installations in their finished condition, including all electrical, plumbing and mechanical installations;
    b. All changes in construction, materials and installed equipment;
    c. Adequate dimensional data, both horizontal and vertical, to allow location of covered installations;
    d. The identification of changes authorized by Change Order and the number of that Change Order;
    e. All Requests for information and the number of that Request for Information;
    f. All Field Clarifications and the number of that Field Clarification;
    g. All the Engineer's field change directives and the number of such directive where applicable.
4. Symbols and designations used in preparing record drawings shall match those used in Contract Drawings.

5. Locate and dimension work, including stubs for future connections, with reference to permanent landmarks or buildings and indicate approximate depth below finish grade.
6. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

E. Prior to final Acceptance of Work, submit Project record documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents and signature of Contractor.

1.05 OPERATION AND MAINTENANCE DATA

A. Provide data for Sections as required by the Contract Documents.

B. Preparation of data shall be by personnel:
1. Trained and experienced in maintenance and operation of described products.
2. Familiar with requirements of this Section.
3. Skilled as technical writer to the extent required to communicate essential data.
4. Skilled as draftsperson competent to prepare required drawings.

C. Submit 4 hard copies and 1 electronic copy of operating/maintenance manuals prior to Final Acceptance of Work, bound in 8-1/2” x 11”, three ring side binders with durable plastic covers; with identification on, or readable through, front cover stating general nature of manual. Final Acceptance of the Work will not take place until operation/maintenance manuals are approved by Engineer and Owner.

D. Operation and Maintenance (O&M) Manual shall contain:
1. Part 1: Directory, listing names, addresses and telephone numbers of Engineer, City Inspector and Contractor; and index furnishing complete information as to location in manual of emergency data regarding installation.
2. Part 2: Operation and maintenance instructions, arranged by system. For each system, give names, addresses and telephone numbers of subcontractors and suppliers; and include the following:
   a. Appropriate design criteria.
   b. List of equipment.
   c. Parts list; including complete nomenclature, current costs, and names and address of nearest vendor of parts.
   d. Detailed operating instructions in a logical sequence for each procedure. Include proper procedures in event of failure.
   e. Maintenance instructions, equipment, including routine maintenance cards with time frequency of routine maintenance noted.
   f. Maintenance instructions, finishes. Provide manufacturer’s recommendation for types of cleaning agents and methods, cautions against agents and methods that are detrimental to the product and a recommended schedule for cleaning and maintenance.
   g. Copy of each Material Safety Data Sheet (MSDS) received with products or materials delivered to the site for incorporation into the Project, for Owner future reference.
   h. Shop drawings and product data, including changes made during construction. Illustrate relations of component parts of equipment and systems and control and flow diagrams.
   i. Copies of Guaranties/Warranties. Note instances that might affect validity of warranties or bonds.

E. Extraneous Data: Where contents of manuals include manufacturers' catalog pages, clearly indicate precise items included in this installation and delete, or otherwise clearly indicate, manufacturer's data with which this installation is not concerned. Include catalog number, size and composition, color and texture designations and information required for re-ordering special manufactured products.

F. Review contents of manual with Owner representative in full detail to explain all aspects of operations and maintenance in addition to requirements per Section 01 75 00 Starting and Adjusting.

1.06 GUARANTIES, WARRANTIES AND BONDS

A. Standard Guaranty: Guarantee Work executed under this Contract to be free of defects of workmanship and materials for a period of one year after completion and acceptance by the Owner. Refer to Article 6, General Conditions Section 00 70 00 of the Contract Documents. Submittal not required for standard one year guaranty for Work of this project.

B. Additional Guaranties/Warranties: Provide additional guarantees/warranties (in excess of one year) where specifically required by pertinent Specification Sections.
   1. Provide duplicate copies. Execute Contractor's submittals and assemble documents executed by subcontractors, suppliers and manufacturers. Provide table of contents and assemble in binder with durable plastic cover.

C. Submit guaranties/warranties prior to final payment.
   1. For equipment put into use with Owner's permission during construction, submit guaranties/warranties within 10 days after first operation.
   2. For items of work delayed beyond date of substantial completion, provide updated guaranty/warranty submittal within 10 days after acceptance, listing date of acceptance as start of guaranty/warranty period.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, and maintenance materials in quantities specified in each Section, in addition to that used for construction of work. Coordinate with Owner’s Representative and deliver to Project site. Provide with a detailed transmittal and obtain receipt prior to Final Acceptance of Work.

1.08 DISPOSAL REPORT

A. Upon completion of Work, and prior to final payment, submit a Disposal Report. Such Disposal Report shall include documentation of hauling and final disposition/disposal of sewage sludge removed from Ponds 1, 2 and 3. If using certified hauler and facility, submit copies of all receipts. If using other than certified facility, summarize the waste generated, sent to landfill, reused, and recycled which is attributed to Work of this Project, including copies of all receipts.

B. Final payment will not be made until the Disposal Report is received and approved by the Owner.

1.09 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting certification of final Acceptance of the Work, complete the following:

1. Submit a certified copy of the Owner Representative's list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance for final inspection.

B. Final Inspection: The Owner's Representative will re-inspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, "(punch-list)", has been completed, except items whose completion has been delayed because of circumstances acceptable to the Owner.

1. Upon completion of final inspection, the Owner's Representative will prepare and submit to the Owner, a certificate of final acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If after the inspection, the Owner determines that the Work is complete, the Owner will accept the Work per the General Conditions of the Contract Documents.

PART 2 PRODUCTS – (NOT USED)

PART 3 EXECUTION – (NOT USED)

END OF SECTION

SECTION 01 71 33

PROTECTION OF ADJACENT CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
1. Protection of improvements
2. Utility potholing
3. Existing utilities
4. Work within Public right of ways
5. Protection of existing pavement
6. Protection of existing hardscape
7. Protection of existing trees
8. Excavation notification.

1.02 SUBMITTALS

A. Potholing Report

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 The contractor shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements, immediately, to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the contract documents.

3.02 The contractor shall protect all private and public property from damage due to its activities. If any damage does occur to public or private property as a result of the contractors operation, the contractor shall be responsible for the repair of the property.

3.03 POTHOLING

A. Designated Pothole Locations: The plans indicate locations where potholing is required. For all such designated locations, the Contractor shall perform the potholing and submit a written report at least 2 working days prior to performing any work or ordering materials for the related underground facilities. The written report shall be signed by a licensed surveyor or engineer and shall include the following information:
1. Size, type, and material of the facility exposed.
2. Accurate horizontal location, determined by survey.
3. Accurate vertical location, determined by survey. The vertical location shall be the top of pipe, flow line, or bottom of the pipe, as shown on the plans, or if not designated, whichever is the critical location for the proposed crossing of connection.

B. Non-designated Potholing: The Contractor shall perform exploratory excavations sufficiently ahead of construction for all known crossings, either shown on the plans, or marked on the pavement, so as to identify any unforeseen conflicts with the proposed construction a sufficient time in advance of construction to avoid possible delays to the Contractor's works. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility. The cost of non-designated potholing shall be considered appurtenant to the bid items requiring such excavation. There will be no separate payment for non-designated potholing.

C. Process Air Piping (16”). Contractor shall pothole along the entire alignment prior to beginning construction. Identify potential utility conflicts, prepare pothole reports, address any alignment issues with Engineer a minimum of 5 working days prior to commencement of utility trenching and construction. Alignment adjustments, fittings, transitions, and other alignment adjustments to install pipeline shall be considered part of the Work, and no additional compensation will be provided therefor.

3.04 EXISTING UTILITIES, WATER, SEWER AND DRAINAGE

A. General: The Contractor shall protect all above ground and underground utility, water, sewer and drainage improvements that may be impaired during construction operations.

B. Locations shown: The known existing buried utilities and pipelines are shown on the Drawings in their approximate location, and also may be marked in the field by the utility representatives. The Contractor shall exercise reasonable care in avoiding damage to all utilities, and be held responsible for their repair if buried facilities so located are damaged.

C. Services Assumed: When underground distribution mains are shown on the plans or marked by the utility companies, the Contractor shall assume that every property parcel will be served by a service connection of each type of facility.

D. Work by Utilities: During the course of the Contract, work may be performed by the utility companies or by the Owner to inspect, operate, relocate, abandon or install facilities. The Contractor shall coordinate with the utility companies regarding such work. Such coordination shall be included within the Contract bid and there will be no separate payment therefore.

E. Utilities to be moved: Should it become necessary to move the property of any public utility or franchise holder. The Contractor shall notify the Engineer a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.

F. Right of Access: The right is reserved to the Owner and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the work of this Contract.

G. Approval of Repairs: All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other work.

H. Maintaining Service: All pipelines, power, telephone, communication cable, gas, water, irrigation, sewer, and storm drain systems within the work area shall remain continuously in service during all the operations under the Contract, unless specifically

shown otherwise in the Contract Documents, or unless other arrangements satisfactory to the Engineer are made (by the Contractor) with the owner of said system.

3.05 RESTORATION OF PAVEMENT

A. General: All paved areas cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents.

B. Pavement repair shall be in accordance with Section 32 12 16 – Asphalt Paving.

C. All temporary and permanent pavement shall conform to the requirements of the affected pavement owner. All pavements that are subject to partial removal shall be neatly saw cut in straight lines.

D. Pavement markers and markings: The Contractor shall replace all pavement markings and markers that are removed or disturbed by construction activities. Pavement markings and markers shall be in accordance with Owner requirements.

3.06 EXISTING HARDSCAPE

A. General: All concrete or other hardscape areas cut or damaged during construction shall be replaced with similar materials and of equal material and quality to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents. All such repairs and replacements shall conform to the requirements of the affected hardscape owner.

B. Partial removal: All concrete that is subject to partial removal shall be neatly saw cut in straight lines. The saw cut lines shall be extended to align with existing score lines or similar feature so as to provide a uniform appearance.

3.07 EXCAVATION NOTIFICATION

A. Notify Prior to Excavation: Prior to any excavation the Contractor shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than 3 days nor more than 7 days prior to excavation so that a representative of said owners or agencies can be present during such work if they so desire.

B. Call USA: The Contractor shall also notify Underground Service Alert (USA) at 1-800-227-2600 at least 2 working days, but no more than 14 calendar days, prior to such excavation. If a utility owner is not equipped to locate its utility, the Contractor shall locate it.

END OF SECTION

SECTION 02 21 00

SURVEYS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. The work under this section includes all construction surveying, setting grades and layout of facilities, and locating, resetting and recording monuments.

B. Related Sections:
1. Section 01 33 00 - Submittal Procedures
Section 01 71 33 – Protection of Adjacent Construction
Section 31 00 00 - Earthwork

1.3 SUBMITTALS

A. Written report of potholing for the locations identified on the plans.

B. Copy of recorded Corner Record or Record of Survey for any disturbed property corner markers or centerline monuments.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

A. Construction Staking:
1. Establish horizontal and vertical control of all facilities to be constructed by this contract.
2. Set stakes for vaults/diversion boxes, headworks improvements, new building, underground facilities and manholes, structures, gravity and force main sewers, and other facilities shown on the plans.

B. Survey facilities exposed for identified required potholes.

C. Replace disturbed centerline monuments.
1. Re-establish any centerline monuments disturbed by the Contractors activities. This work shall be performed by a person licensed to perform surveying in the State of California. Prepare and file for recordation the appropriate corner record or record of survey.

2. Centerline monuments shall be assumed to exist at the intersection of all street centerlines shown on the drawings.

D. Property corner restoration:
1. Re-establish any property corner markers disturbed by the Contractors activities. This work shall be performed by a person licensed to perform surveying in the State of California. Prepare and file for recordation the appropriate corner record or record of survey.
2. Property corner markers shall be assumed to exist at all intersections of property lines shown on the drawings.

E. Potholing Report
1. Comply with Section 01 71 33 – Protection of Adjacent Construction.

END OF SECTION

SECTION 02 42 00

REMOVAL AND SALVAGE OF CONSTRUCTION MATERIALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Surface demolition
2. Underground pipe and structure removal
3. Underground pipe and structure abandonment
4. Removing demolished materials
5. Salvaging Materials to Owner

1.2 SUBMITTALS

A. Include in the project schedule – work plan for maintaining water and sewer service.

B. Include with the Work Plan Submittal, Section 01 11 00, Summary of Work, a preliminary list of items to be removed, salvaged and demolished, for review by Engineer and Owner.

C. Project Record Documents: Accurately record actual locations of:
1. Pipes and structures removed, and to be removed
2. Pipes and structures to be abandoned in place

1.3 QUALITY ASSURANCE

A. Conform to applicable codes for procedures when hazardous or contaminated materials are discovered.

B. Maintain one copy each document on site.

1.4 SCHEDULING

A. Describe demolition, removal and salvage procedures and include in the project schedule.

B. Comply with the requirements for traffic control and maintaining utility service.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the site before demolition. Notify the Owner's Representative immediately of any item in question.

B. Verify with Owner that hazardous material abatement is complete before beginning demolition.

3.2 PREPARATION

A. Call Local Underground Service Alert (USA) not less than seven working days before performing Work.
   1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Notify affected utility companies before starting work and comply with utility's requirements.

C. Erect, and maintain temporary barriers including warning signs and lights, and similar measures, for protection of plant personnel and the public.

3.3 DEMOLITION REQUIREMENTS

A. Use of explosives is not permitted.

B. Conduct demolition to minimize dust and other airborne debris.

C. Apply water to minimize dust. Provide hoses and water connections required for this purpose.

D. Do not burn or bury materials on site. Leave site in clean condition.

3.4 SURFACE DEMOLITION

A. Within the limits shown on the drawings, remove and dispose:
   1. All asphalt paving and base
   2. All concrete curbs, gutters, and walks
   3. All other surface features indicated to be removed such as landscape, fencing, and other surface improvements.
   4. Clear and Grub to the project limits.

B. Coordinate the demolition with the construction schedule to maintain access and utility service.

C. Rough grade the site as described in Section 31 00 00, Earthwork.

D. Continuously clean-up and remove demolished materials from site to an authorized dump site. Do not allow materials to accumulate on site.

3.5 BURIED PIPE AND STRUCTURE REMOVAL

A. Within the limits shown on the drawings, remove and dispose of:
   1. All buried pipe, fittings, valves, thrust blocks and appurtenances
   2. All components of inlets and other structures

B. Coordinate the demolition with the construction schedule to maintain access and utility service.

C. Backfill excavations as described in Section 31 00 00, Earthwork.

D. Maintain utility service as described in Section 01 50 00, Temporary Facilities and Controls.

E. Except for gravity sewers, completely fill indicated pipe to be abandoned, with concrete. To abandon gravity sewers in place, flush clean per Paragraph 3.5.H below, then use concrete plugs to seal both ends. Minimum concrete plug length shall be 2 times the pipe diameter.

F. Record termination or capped location on Record Documents.

G. Continuously clean-up and remove demolished materials from site to an authorized dump site. Do not allow materials to accumulate on site.

H. Sewer pipe removals:
   1. Sewer Pipe to be removed shall first be flushed with water to remove solids and debris, and drained to remove liquids. Dispose of the flush water in the sewer/WWTP.
   2. Coordinate with Owner to verify all sewer flows to utility have been ceased;
   3. Removal of entire system: all pipe, or manholes including rim, cover, grade rings, manhole, manhole base, digging/exposing, backfilling, compaction, hauling and disposing of all waste, unsuitable, and excess material in accordance with the Contract Documents.

I. Handling, Removal Abandonment of Asbestos Cement Pipe (if encountered):
   1. Remove and dispose of asbestos cement pipe (ACP) in accordance with State of California requirements and the contract documents. Removal of ACP shall be performed by a contractor licensed and certified by Cal/OSHA for such removal. Also refer to Article 4.06 of the General Conditions regarding encountering hazardous materials.
      a. Follow the AWWA guidelines for handling, removing and disposing of ACP as stated in the applicable sections of AWWA Standards C400, C401, C402, and C403 covering asbestos cement transmission and distribution pipe.
      b. Accomplish the removal of ACP by removing intact pipe sections, where possible. Pothole and expose the ACP at least two days prior to removal to verify extent of pope to be removed and appro-

priateness of proposed “asbestos cement pipe removal and disposal plan”.

c. Perform all cutting and handling of asbestos cement pipe in accordance with the State of California requirements. Provide sufficient supervision and perform monitoring to assure conformance with State requirements. Under no circumstances shall the Contractor utilize methods of removal that result in the release of asbestos fibers into the air.

2. Equipment:
   a. Snap cutting tools shall be used for the removal of asbestos cement pipe whenever the removal of intact pipe sections is not possible.
   b. Power “cut off” saws, hand-saws, and other devices and methods that result in the release of asbestos fibers into the air shall not be used for the removal of ACP.
   c. The pipe shall be wetted prior to the snapping operation being performed.
   d. Use of a hammer and chisel to gradually split an ACP coupling lengthwise may only be performed if the “asbestos cement pipe removal and disposal plan” developed by the Contractor incorporates measures to prevent the release of asbestos fibers into the air, and is approved by the Owner.
   e. Encapsulate: If during the removal of ACP broken edges occur, the broken edges shall be encapsulated with Certane 1000 Post Removal Encapsulate or approved equal.

3. Continuously wet the ACP around the snap cutting tool during the removal operation. All personnel handling the ACP shall wear properly fitted respirators during the removal and bagging operations, and shall be trained in the use of the respirator equipment. All pedestrian traffic shall be rerouted to maintain 30 feet clear of the removal point. Dispose of liquid and solid waste as follows:
   a. All removed sections or pieces of ACP shall be bagged and prepared for disposal immediately after removal as described below.
   b. Transport and dispose of all sections and pieces of ACP in accordance with State requirements at a legally operating landfill that accepts construction debris. All sections or pieces of ACP shall be wetted and double wrapped or bagged with 6 mil plastic wrap immediately after removal. The outer wrap shall be securely held in place with tape in a manner to prevent the release of airborne asbestos fibers.

J. Perform all related excavation, backfill, and surfacing.

3.6 AREA SPECIFIC DEMOLITION REQUIREMENTS

A. All Ponds:
   1. Remove and dispose of all exposed piping indicated to be abandoned.
   2. Remove existing pipe indicated for removal, or abandon in place. Abandonment in place shall consist of complete filling of pipe cavity with 2-

sack slurry cement or concrete. Remove existing buried pipe a minimum of 12 inches beyond finished surface/finished grade/pond liner.

3. Remove conflicting portions of concrete hydraulic structures designated for removal/abandonment.
4. Protect in place existing Solar-bee mixing units. Temporarily store at a location designed by Owner, during pond refurbishment.

B. Influent 24” sewer pipe:

1. Submit sewer bypass plan as part of Work Plan to address how new diversion structure will be constructed. See Details on Plans showing hy

3.7 MAINTAINING SEWER SERVICE

A. Construct, maintain, and remove temporary facilities necessary to maintain sewer service.

B. If required, provide temporary pumping and piping system.

3.8 DISPOSAL

A. Dispose of all items removed and not salvaged. Comply with all laws and regulations regarding transport and disposal of waste. Pay all disposal and transport fees.

END OF SECTION

SECTION 03 40 00

PRECAST CONCRETE

PART 1 GENERAL

1.1 DESCRIPTION

The work shall include furnishing and placing all materials and labor and equipment to construct precast concrete structures complete as a functional unit with all lids, grates, and appurtenances.

1.2 RELATED SECTIONS

A. Section 31 00 00 – Earthwork

1.3 SUBMITTALS

A. Manufacturer specification (cut sheet) for all precast concrete structures.

B. Manufacturer specification (cut sheet) for all manhole lids, shaft, base, joint sealing details.

C. Shop drawing showing required dimensions of pre-cast components, verifying how components will be dimensioned and assembled to comply with elevations and grades specified and shown on the drawings.

PART 2 PRODUCTS

2.1 PROCESS WATER CONTROL STRUCTURES

Precast concrete boxes shall be of the size and shape as shown on the drawings. The concrete shall be free from defects such as chips, gouges, and excessive pits. If in the opinion of the Engineer, a precast concrete box is defective or has been damaged, the Contractor shall remove it from the site and construct the facility with a new precast concrete vault that meets specification

Precast Concrete Boxes shall be as manufactured by Midstate Concrete Products, Associated Concrete Products (ACP), or approved equal.

A. Design
   1. Design Loads
      a. Design loads shall consist of live load, dead load, impact load, hydrostatic load, and other loads that may occur. Design loads shall be for pedestrian traffic, no HS20-44 loading shall be required.

B. Forms: Forms used in placing concrete shall be sufficiently designed and braced to maintain alignment under pressures of concrete placement.

C. Concrete

1. Aggregates used in the concrete mix either coarse or fine, excluding light-weight aggregates, shall conform to specifications as outlined by ASTM C33.
2. All light-weight aggregates, fine or coarse, shall conform to specifications as outlined by ASTM C33.
3. Both types of aggregates shall be properly graded and free of any deleterious substances so as to produce a homogeneous concrete mix when blended with cement.

D. Cement: Type II low alkali Portland cement; shall meet ASTM C150 Type II standards.

E. Compressive Strength: Sufficient cement content shall be used per batch so as to produce a minimum strength of 3,500 psi at 28 days or other strength by design when required.

F. Placing
1. Concrete shall be made by properly proportioned parts of sand, aggregate and cement with sufficient water to produce a concrete mix of uniform quality and slump.
2. Handling from the mixer or the transport vehicle to the forms for deposit will be in a continuous manner, as rapidly as practicable without segregation or loss of ingredients, until the unit or segment pouring is completed.
3. Compaction by either external or internal mechanical vibration shall be used during the placement of the concrete mix.

G. Curing
1. Concrete while still in the forms may be steam cured after an initial set has taken place.
2. Steam temperature shall not exceed 160°F, nor raised from normal ambient temperature at a rate exceeding 40°F per hour.
3. Steam curing shall be considered complete after sufficient time has elapsed to produce adequate strength to withstand any structural strain that may be subjected during the form stripping operation.
4. Additional curing may be applied by means of water spraying or membrane curing compound to reach the ultimate strength requirements.

H. Reinforcing Steel
1. Reinforcing steel, including welded wire mesh, shall be of the size and in the location required for design loads.
2. Reinforcing shall be sufficiently tied to withstand any displacement during the pouring operation.
3. Bars shall be intermediate grade, or as specified, billet steel conforming to ASTM A615.

I. Catch Basin Gratings: Aluminum per Section 05 53 00, Metal Gratings.

J. Joint Sealer
1. Meet all the requirements of Federal Specifications SS-S-00210.
2. Manufacturers, one of the following or equal:

a. Ram-Nek by K.T. Snyder Company, Inc..
b. Kent-Seal by Hamilton-Kent.

K. Mortar
1. One part Portland Cement, 1 part hydrated lime, and 6 parts sand.

L. Non-shrink Grout
1. Non-shrink epoxy type suitable for pressure grouting.
2. Manufacturers, one of the following or equal:
a. Embeco.
b. Master Builders Co.

PART 3 EXECUTION

3.1 BURIED VAULTS/BOXES

A. Precast buried boxes shall be of the size shown on the plans, and shall be designed for buried service.

B. Excavation and backfill shall be in accordance with Section 31 00 00 Earthwork. Backfill with select backfill unless shown otherwise on the drawings.

C. Boxes/vaults shall be placed on a minimum of 12 inches of crushed gravel or aggregate base, compacted to 95 percent. Structures shall be placed level. In paved areas the frame and lid shall be adjusted to match the finished slope of the pavement.

D. In paved areas, the frame and lid shall be flush with the pavement, or as shown on the plans. In unpaved areas, the top of the frame and lid shall be 6 inches above the highest adjacent grade, unless shown otherwise on the plans.

END OF SECTION

SECTION 05 53 00

METAL GRATINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The scope of work including providing pre-fabricated aluminum bar grating for various hydraulic control structures at the City of Greenfield WWTP, with all appurtenances, accessories and serviceable installation as shown on the Contract Drawings and as specified herein, and in accordance with the requirements of the Contract Documents.

1.02 REFERENCES

A. ASTM B 221 Aluminum Extruded Bars and Shapes.

B. ANSI/NAAMM- MBG-531-09 Metal Bar Grating Manual.

1.03 SUBMITTALS

A. In accordance with Section 01 33 00, Submittal Requirements, submit the following:
   1. Product Data: The contractor shall submit the manufacturer's catalog pages including load tables, anchor details and standard installation details.
   2. Shop drawings: The contractor shall submit for approval shop drawings for the fabrication and erection of all gratings, based on construction drawings of current issue. Include plans, elevations, and details of sections and connections as required. Show type and location of all fasteners.
   3. Samples of Grating and Anchorage system shall be submitted for approval.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualification: A company specializing in the manufacture of metal bar gratings with not less than 5 years of documented experience.

B. Fabrication tolerances shall be in accordance with applicable provisions and recommendations of ANSI/NAAMM 531-09 Metal Bar Grating Manual.

C. Unit Responsibility. Grating, hold-down clips, and other appurtenant hardware and features relating to the grating, shall be provided by a single manufacturer, to ensure compatibility with the product installation.

1.05 PRODUCT DELIVERY AND STORAGE

A. Delivery of Materials: Manufactured materials shall be delivered in original, unbroken pallets, packages, containers, or bundles bearing the label of the manufacturer.

B. Storage of Products: All materials shall be carefully handled to prevent them from abrasion, cracking, chipping, twisting, other deformations, and other types of damage.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Acceptable Manufacturers include Grating Pacific Inc. 3651 Sausalito St., Los Alamitos, CA 90720, 800-321-4314 www.gratingpacific.com, or approved equal.

2.02 MANUFACTURED UNITS:

A. Description: Aluminum Swage Lock Rectangular Bar Grating, Grating Pacific Inc. type 19-SG-4, or approved equal: Fabricated by assembled square cross bars through diamond shaped hole in rectangular bearing bars and are permanently locked in place by swaging.
   1. Bearing Bar Spacing: 1-3/16” on center.
   2. Bearing Bar Depth: 1-¾”
   3. Bearing Bar Thickness: 3/16” to provide 1” space between bars.
   4. Cross Bar Spacing: 4” on center.

B. Fabrication: Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings. Band ends and cuts in grating with bars of same size and material as bearing bars.

C. Design Criteria:
   1. Loading: Grating Products shall be designed and manufactured to meet the live load conditions of 100 lbs/ Sq Ft with maximum deflection of 1/4” for the clear spans shown on the drawings. Bearing bar depth shall be as recommended by the manufacturer to meet the loading requirements, clear span conditions and maximum deflections specified.

D. Materials: Bearing bars and banding are Aluminum Type 6063-T6 and Aluminum Cross Bars are type 6063-T1.

E. Fabrication Tolerances shall be in accordance with ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.

F. Finish: Gratings shall be mill finish.

2.03 ACCESSORIES:

A. Provide appropriate fasteners for type, grade, and class required for the approved anchorage system. See Paragraph 1.04.E regarding unit responsibility to provide grating and appurtenances by a single manufacturer.

PART 3 EXECUTION

3.01 FIELD VERIFICATION:

A. Take field measurements prior to preparation of final shop drawings and fabrication where required to ensure proper fitting of the work.

3.02 INSTALLATION

A. Prior to grating installation, contractor shall inspect supports for correct alignment and conditions for proper attachment and support of the gratings. Any inconsistencies between contract drawings and supporting structure deemed detrimental to grating placement shall be reported in writing to the architect or owner's agent prior to placement.

B. Install grating in accordance with shop drawings and standard installation clearances as recommended by ANSI/NAAMM MBG-531-09 Metal Bar Grating Manual.

C. Protection of Aluminum from Dissimilar Materials:
   1. Where aluminum surfaces come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting the dissimilar metal with one coat of bituminous paint or use of other approved insulating material.
   2. Where aluminum surfaces come into contact with dissimilar materials such as concrete, masonry or lime mortar, exposed aluminum surfaces shall be painted with one coat of bituminous paint or use of other approved insulating material.

D. Grating Attachment: Use manufacturer approved attachments.

END OF SECTION

SECTION 09 90 00

PAINTING AND COATING

PART 1 GENERAL

1.01 Work Included

A. Furnish and apply required paints and coatings. Prepare, clean, and finish all surfaces specified, scheduled or otherwise indicated to be field painted.

B. The terms "paint" and "coating" used herein include emulsions, enamels, paints, stains, varnishes, sealers, and other coatings, organic or inorganic, whether used as intermediate, or finish coats.

C. This section covers all labor, material, tools and services for the performance of all painting work specified, shown or scheduled, except for the lining and painting of tanks and pressure vessels.

D. This section also covers painting of all machinery, piping, miscellaneous structural metal hangers and supports, and certain ferrous surfaces exposed to liquids or the weather. This section also covers chemical resistant coating for the sodium hypochlorite storage area.

E. Include painting of all pipe hangers or supports.

F. Complete painting in accordance with specifications, and paint manufacturer's current surface preparation and application instructions.

1.02 References

A. The following is a list of standards which may be referenced in this section:

1. NACE International (NACE): RP0188, Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates.

2. NSF International (NSF): 61, Drinking Water System Components-Health Effects.

3. The Society for Protective Coatings (SSPC):

1.03 Definitions

A. Terms used in this section:

1. Coverage: Total minimum dry film thickness in mils or square feet per gallon.

2. FRP: Fiberglass Reinforced Plastic.

3. HCl: Hydrochloric Acid.

4. MDFT: Minimum Dry Film Thickness, mils.

5. MDFTPC: Minimum Dry Film Thickness per Coat, mils.
6. Mil: Thousandth of an inch.
7. PDS: Product Data Sheet.
8. PSDS: Paint System Data Sheet.
9. PVC: Polyvinyl Chloride.
10. SFPG: Square Feet per Gallon.
11. SFPGPC: Square Feet per Gallon per Coat.
12. SP: Surface Preparation.

1.04 Submittals

A. Action Submittals:

1. Shop Drawings:
2. Product Data Sheets:
   a. For each product, furnish a Product Data Sheet (PDS), the manufacturer's technical data sheets, and paint colors available (where applicable). The PDS form is appended to the end of this section.
   b. For each paint system, furnish a Paint System Data Sheet (PSDS). The PSDS form is appended to the end of this section.
   c. Furnish copies of paint system submittals to coating applicator.
   d. Indiscriminate submittal of manufacturer's literature is not acceptable.
   e. Detailed chemical and gradation analysis for each proposed abrasive material.
3. Samples:
   a. Proposed Abrasive Materials: 5-pound minimum Sample for each proposed.
4. Reference Panel (provide when indicated on drawings):
   a. Prior to start of surface preparation, furnish a 4-inch by 4-inch steel panel prepared to specified requirements for each grade of sandblast specified herein.
   b. Provide panel representative of steel used, and prevent from deterioration of surface quality.
   c. Upon approval by Engineer, preserve panel as reference source for inspection.
5. Paint:
   a. Before painting work is started, prepare minimum 8-inch by 10-inch Sample with type of paint and application specified, on similar substrate to which paint is to be applied.
   b. Furnish additional Samples as required until colors, finishes, and textures are approved.
   c. Approved Samples to be quality standard for final finishes.

B. Informational Submittals:

1. Applicator's Experience: List of references substantiating this requirement as specified.

2. Manufacturer's written verification that submitted products are suitable for the intended use.

3. Factory Applied Coatings: Manufacturer's certification stating factory applied coating system meets or exceeds requirements specified herein.
   a. If manufacturer of finish coating differs from that of shop primer, provide both manufacturers' written confirmation that materials are compatible.

4. Coating Manufacturer's Certificate of Compliance.

C. Special Submittals: If Contractor is required to handle lead based paint as part of additional Work to this Contract, Contractor shall submit certification that they are in compliance with The Environmental Protection Agency's Lead Renovation, Repair and Painting Rule (LRRP).

1.05 Quality Assurance

A. Applicator's Experience: Minimum 5 years' practical experience in application of specified products.

1.06 Regulatory Requirements:

A. Meet federal, state, and local requirements limiting emission of volatile organic compounds.

B. Perform surface preparation and painting in accordance with recommendations of the following:

1. Paint manufacturer's instructions.

2. SSPC PA 3, Guide to Safety in Paint Applications.

3. Federal, state, and local agencies having jurisdiction.

1.07 Delivery, Storage, and Handling

A. Deliver materials to Site in unopened containers that plainly show designated name, date of manufacture, color, and manufacturer.

B. Store paints in a protected area that is heated or cooled to maintain temperature range recommended by paint manufacturer.

1.08 Project Conditions

A. Environmental Requirements:

1. Do not apply paint in temperatures outside of manufacturer's recommended maximum or minimum allowable, or in dust, smoke-laden atmosphere, damp or humid weather.

2. Do not perform abrasive blast cleaning whenever relative humidity exceeds 85 percent, or whenever surface temperature is less than 5 degrees F above dewpoint of ambient air. Strictly adhere to coating manufacturer's recommendations.

PART 2 PRODUCTS

2.01 Manufacturers

A. Paint manufacturer shall be nationally recognized manufacturer of paints and protective coatings and regularly engaged in production of such materials that have essentially identical service conditions as this Project.

B. Minimum of 5 years' verifiable experience in manufacture of specified products.

2.02 Abrasive Materials

A. Select abrasive type and size to produce surface profile that meets coating manufacturer's recommendations for specific primer and coating system to be applied.

2.03 Paint Materials

A. General:

1. Material Quality: Manufacturer's highest quality products and suitable for the intended service.

2. Materials, Including Primer and Finish Coats: Produced by same paint manufacturer.

3. Thinners, Cleaners, Driers, and Other Additives: As recommended by paint manufacturer of particular coating.

4. Paint Coating Systems. All coating systems requiring two or more coats shall be of the same paint manufacturer and compatible with one another.

B. Extra Materials. Provide small quantity kits for touchup painting and for painting other small areas.

C. Fusion Bonded Coating: Provide appropriate liquid repair kits for field use.

D. Acceptable Products:

Product	Definition
Acrylic Latex	Single component, gloss as specified
Acrylic Sealer	Clear acrylic

Product	Definition
Alkyd Enamel	Optimum quality, gloss or semigloss finish as specified, medium long oil
Bituminous Paint	Single-component, coal-tar pitch based
Coal-Tar Epoxy	Amine, polyamide, or phenolic epoxy type; 70% volume solids minimum, suitable for immersion service
Epoxy Filler/Surfacer	100 percent solids epoxy trowel grade filler and surfacer, nonshrinking, suitable for application to concrete and masonry. Approved for potable water contact and conforming to NSF 61, where required
Epoxy Primer	Converted epoxy primer containing rust-inhibitive pigments
High Build Epoxy	Polyamidoamine epoxy, minimum 69% volume solids, capability of 4 MDFT to 8 MDFT per coat
Inorganic Zinc Primer	Solvent or water based, having 85% metallic zinc content in the dry film; follow manufacturer's recommendation for topcoating
NSF Epoxy	Polyamidoamine epoxy, approved for potable water contact and conforming to NSF 61
Epoxy, High Solids	Polyamidoamine epoxy, 80% volume solids, minimum, suitable for immersion service
Polyurethane Enamel	Two-component, aliphatic or acrylic based polyurethane; high gloss finish
Rust-Inhibitive Primer	Single-package steel primers with anticorrosive pigment loading
Silicone/Silicone Acrylic	Elevated temperature silicone or silicone/acrylic based
Stain, Concrete	Acrylic, water repellent, penetrating stain

E. Colors

1. Provide as selected by Owner.
2. Formulate with colorants free of lead, lead compounds, or other materials, which might be affected by presence of hydrogen sulfide or other gas likely to be present at Site.

F. Pipe Identification Painting:

1. Color code nonsubmerged metal piping, except electrical conduit. Paint fittings and valves the same color as pipe, except equipment isolation valves.

2. Pipe and Pipe Support Color Coding: As provided by Owner.

G. Shop Finishes

1. Shop Blast Cleaning: Reference paragraph Shop Coating Requirements, this section.

H. Surface Preparation: Provide Engineer minimum 7 days' advance notice to start of shop surface preparation work and coating application work.

I. Shop Coating Requirements:

1. When required by equipment Specifications, such equipment shall be primed and finish coated in shop by manufacturer and touched up in field with identical material after installation.

2. Where manufacturer's standard coating is not suitable for intended service condition, Engineer may approve use of a tie-coat to be used between manufacturer's standard coating and specified field finish. In such cases, tie-coat shall be surface tolerant epoxy as recommended by manufacturer of specified field finish coat. Coordinate details of equipment manufacturer's standard coating with field coating manufacturer.

2.04 Pipe:

A. Use SSPC standards as a guide for desired prepared surface. Follow recommendations of pipe and coating manufacturers for means and methods to achieve SSPC-equivalent surface.

B. Prior to blast cleaning, grind smooth surface imperfections including, but not limited to, delaminating metal or oxide layers.

C. Surface preparation and application of primer and finish coats shall be performed by pipe manufacturer.

D. For high performance (epoxy) coatings, follow additional recommendations of pipe and coating manufacturers.

PART 3 EXECUTION

3.01 General

A. Surface Preparation Inspection:

1. Inspect and provide substrate surfaces prepared in accordance with these Specifications and printed directions and recommendations of paint

manufacturer whose product is to be applied. In event of conflict, more stringent shall apply.

2. Notify Engineer minimum 7 days' prior to start of surface preparation work or coating application work.

3. Perform work only in presence of Engineer, unless Engineer grants prior approval to perform work in Engineer's absence.

4. For coatings subject to immersion, obtain full cure for completed system. Consult coatings manufacturer's written instructions for these requirements. Do not immerse coating until completion of curing cycle.

5. Perform painting in accordance with recommendations of the following:

B. Paint manufacturer's instructions.

1. Federal, state, and local agencies having jurisdiction.

2. Unless otherwise specified, follow all paint/coating manufacturers' instructions.

3.02 Protection of Materials Not to be Painted

A. Protect all surfaces adjacent to, and downwind of Work area from overspray. Contractor shall be responsible for any damages resulting from overspray.

B. Remove, mask, or otherwise protect hardware, lighting fixtures, switchplates, aluminum surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not specified elsewhere.

C. Provide drop cloths to prevent paint materials from falling on or marring adjacent surfaces.

D. Protect working parts of mechanical and electrical equipment from damage.

E. Mask openings in motors to prevent paint and other materials from entering the motors.

3.03 Field Sandblasting

A. Perform sandblasting for items and equipment where specified, and as required to restore damaged surfaces previously shop or field blasted and primed. Materials, equipment, procedures shall meet requirements of SSPC.

B. Comply with all Air Quality Management District (AQMD) regulations for field sandblasting.

3.04 Preparation of Surfaces

A. Metal Surface Preparation:

1. General:

a. Submit samples prior to surface preparation blasting.

b. Conform to current SSPC specifications as follows:
   1) Solvent Cleaning: SP 1.
   2) Hand Tool Cleaning: SP 2.
   3) Power Tool Cleaning: SP 3.
   4) White Metal Blast Cleaning: SP 5.
   5) Commercial Blast Cleaning: SP 6.
   6) Brush-Off Blast Cleaning: SP 7.
   7) Near-White Blast Cleaning: SP 10.
   8) Power Tool Cleaning to Bare Metal: SP 11.
   9) High Pressure Waterjetting: SP 12.

c. Where OSHA or EPA regulations preclude standard abrasive blast cleaning, wet- or vacu-blast methods may be required. Follow coatings manufacturers' recommendations for wet-blast additives and first coat application.

d. Hand-tool clean areas that cannot be cleaned by power-tool cleaning.

B. Blast Cleaning Requirements:

1. Comply with applicable federal, state, and local, air pollution and environmental control regulations for blast cleaning and disposition of spent aggregate and debris.

2. Alternatives to standard abrasive blast cleaning methods subject to Engineer review.

C. Concrete Surface Preparation, see Paragraph 3.06.H, Coating System 30:

D. Plastic and FRP Surface Preparation:

1. Hand sand with medium grit sandpaper to provide tooth for coating system.

2. Large areas may be power sanded or brush-off blasted, provided sufficient controls are employed so surface is roughened without removing excess material.

E. Galvanized Metal, Copper, and Nonferrous Metal Alloy Surface Preparation:

1. Remove soil, cement spatter, and other surface dirt with appropriate hand or power tools.

2. Remove oil and grease by wiping or scrubbing surface with suitable solvent, rag, and brush. Use clean solvent and clean rag for final wiping to avoid contaminating surface.

3. Obtain and follow coating manufacturer's recommendations for additional preparation that may be required.

3.05 Paint Mixing

A. Multiple-Component Coatings:

1. Prepare using contents of container for each component as packaged by paint manufacturer.
2. No partial batches will be permitted.
3. Do not use multiple-component coatings that have been mixed beyond their pot life.
4. Mix only components specified and furnished by paint manufacturer.
5. Do not intermix additional components for reasons of color or otherwise, even within same generic type of coating.
6. Keep paint materials sealed when not in use.
7. Where more than one coat of material is applied within given system, alternate color to provide visual reference that required number of coats has been applied.

3.06 Paint Application

A. General:

1. Inspection: Schedule with Engineer in advance for cleaned surfaces and all coats prior to succeeding coat.
2. Apply coating in accordance with paint manufacturer's recommendations. Allow sufficient time between coats to ensure thorough drying of previously applied paint.

B. Fusion Bonded Coating Application: Electrostatic, fluidized bed, or flocking.

1. Paint units to be bolted together and to structures, prior to assembly or installation.
2. Extent of Coating (Immersion): Coatings shall be applied to internal vessel and pipe surfaces, nozzle bores, flange gasket sealing surfaces, carbon steel internals, and stainless steel internals, unless otherwise specified.

C. Shop Primed or Factory Finished Surfaces:

1. Inspection: Schedule inspection for compliance with Specifications of shop primed or factory finished items with Engineer in advance of delivery to Site.
2. Hand or power sand areas of chipped, peeled, or abraded coating, feathering the edges. Follow with a spot primer using specified primer.
3. For two-package or converted coatings, consult coatings manufacturer for specific procedures as relates to manufacturer's products.
4. Prior to application of finish coats, clean shop-primed surfaces free of dirt, oil, and grease and apply mist coat of specified primer, 1-mil dry film thickness.

5. After welding, prepare and prime holdback areas as required for specified paint system. Apply primer in accordance with manufacturer's instructions.

D. Manufacturer Applied Paint Systems:

1. Repair abraded areas on factory finished items in accordance with equipment manufacturer's directions.

2. Carefully blend repaired areas into original finish.

E. Film Thickness and Coverage:

1. Number of Coats:
   a. Minimum required, irrespective of coating thickness.
   b. Additional coats may be required to obtain minimum required paint thickness, depending on method of application, differences in manufacturers' products, and atmospheric conditions.

2. Application Thickness:
   a. Do not exceed coating manufacturer's recommendations.
   b. Use wet film thickness gauge to measure proper coating thickness during application.

F. Film Thickness Measurement and Electrical Inspection of Coated Surface:

1. Perform with properly calibrated instruments.

2. Recoat and repair as necessary for compliance with Specifications.

3. Coats will be subject to inspection by Engineer and coating manufacturer's representative.

4. Visually inspect concrete, nonferrous metal, plastic, and wood surfaces to ensure proper and complete coverage has been attained.

5. Give particular attention to edges, angles, flanges, and other similar areas, where insufficient film thickness are likely to be present, and ensure proper millage in these areas.

6. Apply additional coats as required to complete hiding of underlying coats. Hiding shall be so complete that additional coats would not increase hiding.

G. Galvanized Metal, Copper, and Nonferrous Metal Alloys:

1. Concealed galvanized, copper, and nonferrous metal alloy surfaces (behind building panels or walls) do not require painting, unless specifically indicated herein.

2. Prepare surface and apply primer in accordance with System No. 10 specification.

3. Apply intermediate and finish coats of the coating system appropriate for the exposure.

H. Protective Coatings Systems

1. System No. 1 Submerged Metal—Potable Water:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 5, White Metal Blast Cleaning	NSF Epoxy	3 coats, 3 MDFTPC

2. System No. 4 Exposed Metal—Highly Corrosive:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 10, Near-White Blast Cleaning	Epoxy Primer—Ferrous Metal	1 coat, 2.5 MDFT
	High Build Epoxy	1 coat, 4 MDFT
	Polyurethane Enamel	1 coat, 3 MDFT

3. System No. 5 Exposed Metal—Mildly Corrosive:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 10, Near-White Metal Blast Cleaning	Epoxy Primer	1 coat, 2.5 MDFT
	Polyurethane Enamel	1 coat, 3 MDFT

4. System No. 8 Buried Metal—General:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 10, Near-White Blast Cleaning	Standard Hot Coal-Tar Enamel -OR- Coal-Tar Epoxy	AWWA C203 2 coats, 16 MDFT
	For Highly Abrasive Soil, Brackish Water: Tape Coat System	AWWA C214 with Double Outer Wrap

a. For steel pipe and fittings, follow AWWA C209 and AWWA C214 with double outer wrap.

5. System No. 10 Galvanized Metal, Copper, and Nonferrous Metal Alloy Conditioning:

Surface Prep.	Paint Material	Min. Coats, Cover

Surface Prep.	Paint Material	Min. Coats, Cover
In accordance with Paragraph Galvanized Metal, Copper, and Nonferrous Metal Alloy Surface Preparation	Epoxy Primer—Other	As recommended by coating manufacturer Remaining coats as required for exposure

6. System No. 25 Exposed FRP, PVC:

Surface Prep.	Paint Material	Min. Coats, Cover
In accordance with Paragraph Plastic and FRP Surface Preparation	Acrylic Latex Semigloss, Gloss, Flat	2 coats, 320 SFPGPC

7. System No. 27 Aluminum and Dissimilar Metal Insulation:

Surface Prep.	Paint Material	Min. Coats, Cover
Solvent Clean (SP 1)	Prime in accordance with manufacturer's recommendations	
	Bituminous Paint	1 coat, 10 MDFT

8. System No. 29 Fusion Bonded Coating:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 10, Near-White Blast Cleaning	Fusion Bonded Coating 100% Solids Epoxy or Polyurethane	1 or 2 coats, 7 MDFT

a. For steel pipe and fittings, follow AWWA C209 and AWWA C214 with double outer wrap.

9. System No. 30 Concrete in Severe Service (High H_2S Exposure):

Prior to surface application, allow new cast-in-place concrete to cure a minimum of 28 days at 75°F (24°C). Verify concrete dryness. Moisture vapor transmission shall not exceed three lbs. per 1,000 sq. ft. in a 24 hour period (Reference ASTM F 1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride."). Relative humidity shall not exceed 80% (Reference ASTM F 2170 "Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes.").

Surface Prep.	Coating Material	Min. Coats, Cover
Abrasive blast, shot-blast or mechanically abrade concrete surfaces to remove laitance, curing compounds, hardeners, sealers and other contaminants in accordance with NACE No. 6/SSPC-SP13 Joint Surface Preparation Standards and ICRI Technical Guidelines and provide a minimum ICRI-CSP 5 or greater surface profile.	Surfacer: Three-component epoxy mortar. Product: Tnemec Series 218 MortarClad, or equal applied void-free to all concrete surfaces	1 coat, 1/16” (62.5 mils) MDFT
	CR Mortar: Three-component epoxy mortar. Product: Tnemec Series 434 Perma-Shield H2S, no known equal, applied void-free	1 coat, 1/8” (125 mils) MDFT
	Finish: Tnemec Series 435 Perma Shield, no known equal, applied pinhole free at 15.0 to 20.0 dry mils	1 coat, 15.0 to 20.0 mils MDFT

3.07 Field Quality Control

A. Testing Equipment:

1. Provide magnetic type dry film thickness gauge, to test coating thickness specified in mils, as manufactured by Nordson Corp., Anaheim, CA; Mikrotest.

2. Provide electrical holiday detector, low voltage, wet sponge type, to test completed coating systems, 20 mils or less MDFT, for holidays and discontinuities as manufactured by Tinker and Rasor, San Gabriel, CA, Model M-1.

3. Provide high voltage holiday detector for coatings in excess of 20 mils MDFT. Unit as recommended by coating manufacturer.

B. Testing:

1. Thickness and Continuity Testing:
   a. Measure coating thickness specified in mils with magnetic type dry film thickness gauge in accordance with SSPC PA 2.
   b. Check each coat for correct millage. Do not make measurement within 8 hours, minimum, after application of coating.
   c. Test finish coat, 20 mils thick or less, except zinc primer, galvanizing, and elastomeric coatings, for holidays and discontinuities with electrical holiday detector, low voltage, wet sponge type in accordance with NACE RP0188.
   d. Holiday detect coatings in excess of 20 mils MDFT with high voltage units recommended by coating manufacturer, and in accordance with NACE RP0188.
   e. After repaired and recoated areas have dried sufficiently, retest each repaired area. Final test may also be conducted by Engineer.

C. Unsatisfactory Application:

1. Clean and top coat surfaces found to have improper finish color or insufficient film thickness.

2. Evidence of runs, bridges, shiners, laps, or other imperfections shall be cause for rejection.

3. Repair defects in coating system per written recommendations of coating manufacturer.

4. Leave staging up until Engineer has inspected surface or coating. Replace staging removed prior to approval by Engineer.

D. Damaged Coatings, Pinholes, and Holidays:

1. Feather edges and repair in accordance with recommendations of paint manufacturer.

2. Hand or power sand visible areas of chipped, peeled, or abraded paint, and feather edges. Follow with primer and finish coat in accordance with Specifications. Depending on extent of repair and appearance, finish sanding and topcoat may be required.

3. Repair fusion bonded coatings as recommended by original applicator.

4. Apply finish coats, including touchup and damage-repair coats, in a manner, which will present uniform texture and color-matched appearance.

3.08 Manufacturer's Services

A. In accordance with Section 01640, Manufacturers' Services, coating manufacturer's representative shall be present at Site as follows:

1. On first day of application of any coating.

2. Minimum of two additional Site inspection visits as required to resolve field problems attributable to, or associated with, manufacturers' product.

3. As required to verify full cure of coating prior to coated surfaces being placed into immersion service.

3.09 Cleanup

A. Place cloths and waste that might constitute fire hazard in closed metal containers or destroy at end of each day.

B. Upon completion of work, remove staging, scaffolding, and containers from Site or destroy in legal manner.

C. Completely remove paint spots, oil, or stains from adjacent surfaces and floors and leave entire job clean.

3.010 Application Schedule

A. Surfaces Not Requiring Painting:

1. Unless otherwise stated herein or shown, the following areas or items will not require painting:
   a. Concrete and masonry surfaces.
   b. Nonferrous and corrosion-resistant ferrous alloys such as copper, bronze, Monel, aluminum, chromium plate, atmospherically exposed weathering steel, and stainless steel, except where:
      1) Required for electrical insulation between dissimilar metals.
      2) Aluminum and stainless steel are embedded in concrete or masonry, or aluminum is in contact with concrete or masonry.
      3) Color coding of equipment and piping is required.
   c. Prefinished electrical and architectural items such as motor control centers, switchboards, switchgear, panelboards, transformers, disconnect switches, acoustical tile, cabinets, elevators, building louvers, wall panels, color coding of equipment is required.
   d. Nonsubmerged electrical conduits attached to unpainted concrete surfaces.

B. System No. 1 Submerged Metal—Potable Water: Use on the following items or areas:

1. Metal surfaces below a plane 1 foot above maximum liquid surface, metal surfaces above maximum liquid surface which are part of immersed equipment, concrete embedded surfaces of metallic items, such as wall pipes, pipes, pipe sleeves, access manholes, gate guides and thimbles, and structural steel, except reinforcing steel and the following specific surfaces:
   a. Interior surfaces of steel piping noted in Piping Schedule as shown.

C. System No. 4 Exposed Metal—Highly Corrosive: Use on the following items or areas:

1. Exposed metal surfaces, located inside or outside of structures and exposed to weather.

2. Buried valves and similar elements on wrapped pipelines as specified in Section 02500 (Section 33 11 01).

D. System No. 5 Exposed Metal—Mildly Corrosive: Use on the following items or areas:

1. Exposed metal surfaces, located inside or outside of structures and exposed to weather or in highly humid atmosphere, such as pipe galleries and similar areas, and the following specific surfaces:
   a. Equipment as specified in Section 15200, Process Piping—General.
   b. Exterior surfaces of new steel tank.

E. System No. 8 Buried Metal—General: Use on the following items or areas:

1. Buried, belowgrade portions of steel items, except buried stainless steel or ductile iron.

F. System No. 10 Galvanized Metal, Copper, and Nonferrous Metal Alloy Conditioning: Use on the following items or areas:

1. Galvanized surfaces requiring painting.

2. After application of System No. 10, apply finish coats as required for exposure.

G. System No. 25 Exposed FRP, PVC: Use on the following items or areas:

1. All exposed-to-view PVC and CPVC surfaces, and FRP surfaces without integral UV-resistant gel coat.

H. System No. 27 Aluminum and Dissimilar Metal Insulation: Use on aluminum surfaces embedded or in contact with concrete.

I. System No. 29 Fusion Bonded Coating: Use where specified elsewhere in these Contract Documents.

J. System No. 30, Concrete in Severe Service. Use on concrete headworks channel, sidewalls and floor. Do not coat walkways or other exposed concrete surfaces that are not part of headworks hydraulic channel.

3.011 Supplements

A. The supplements listed in the following subsections are a part of this Specification:

1. Paint System Data Sheet (PSDS)

2. Product Data Sheet (PDS).

PAINT SYSTEM DATA SHEET

Complete this PSDS for each coating system, include all components of the system (surface preparation, primer, intermediate coats, and finish coats). Include all components of a given coating system on a single PSDS.

Paint System Number (from Spec.):
Paint System Title (from Spec.):
Coating Supplier:
Representative:
Surface Preparation:

Paint Material (Generic)	Product Name/Number (Proprietary)	Min. Coats, Coverage

PAINT PRODUCT DATA SHEET

Complete and attach manufacturer's Technical Data Sheet to this PDS for each product submitted. Provide manufacturer's recommendations for the following parameters at temperature (F)/relative humidity:

Temperature/RH	50/50	70/30	90/25
Induction Time			
Pot Life			
Shelf Life			
Drying Time			
Curing Time			
Min. Recoat Time			
Max. Recoat Time			

Provide manufacturer's recommendations for the following:
Mixing Ratio: _____

Maximum Permissible Thinning:_

Ambient Temperature Limitations: min.:_____ max.:_

Surface Temperature Limitations: min.:_____ max.:_

Surface Profile Requirements: min.:_____ max.:_
Attach additional sheets detailing manufacturer's recommended storage requirements and holiday testing procedures.

END OF SECTION

SECTION 26 0500

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section Includes:

1. Materials and equipment shall be furnished and installed in support of electrical work described in these plans and specifications including but not limited to, raceways, boxes, enclosures, feeders, branch circuiting, supports, terminal cabinets, sleeves, gutters, panels, switchgear, lighting fixtures, controls, relays, contactors, in order to complete and make fully functional the systems described.

2. Electrical utility company site work as required by the serving companies. All utility company conduits, raceways, trenching, backfilling, utility vaults, equipment pads and substructures shall meet both the respective utility companies requirements as well as those of the authority having jurisdiction, whichever is more restrictive. In no case shall work be completed and covered without the written approval of the serving utility companies both on and off site.

3. Duct banks and raceways for all power systems as shown and/or required. Duct banks shall include all trenching, racking, conduit, concrete, backfill, boxes, pads, substructures required for a fully developed and useable pathway for cables, conductors, as shown on site, etc.

4. Power Distribution: Furnish and install power distribution systems including but not limited to panels, feeders, branch circuits, devices, fixtures, disconnect switches, contactors, controls, etc. for a complete working system.

5. Allocation of time to adequately train the Owner on the use and operation of all systems installed within the facility or on the property. Minimum two week advance notice shall be coordinated with the Owner and his representatives. Training shall be as outlined in individual system specifications identified to follow.

1.03 SYSTEM DESCRIPTION

A. The electrical plans indicate the general layout and arrangement; the civil drawings and field conditions shall determine exact locations. Field verify all conditions and modify

as required to satisfy design requirements as well as code minimums. Maintain all required working clearances as described in CEC Article 110 as well as other applicable articles.

B. Discrepancies shall be brought immediately to the attention of the Engineer for clarification. The Engineer shall approve any changes. Prior to rough-in, refer to civil plans that shall take precedence over electrical plans with respect to locations.

C. Verify all power utility company requirements prior to commencement of utility work. Make proper adjustments to the construction to satisfy the serving utility requirements if they differ from the construction documents. It shall be the Contractor's responsibility to contact each utility company for obtaining finalized utility design drawings and/or approval, and for scheduling inspection of utility infrastructure installations.

D. Charges imposed by the electric and communications utility companies shall be paid by Owner directly to utility companies.

1.04 SUBMITTALS AND SHOP DRAWINGS

A. Before construction, submit in accordance with the General Conditions of this Specification: A complete list of all materials proposed to be furnished and installed under this section.

B. Manufacturers' specifications, catalog cuts and shop drawings as required to demonstrate compliance with the specifications. Identify specific intended use for each component where submittal may be ambiguous. Submit entire bound submittal at one time; partial submittals will not be accepted. At a minimum, submittals will be required for the following:

1. Utility service/site work equipment including ducts, conduits, fittings, concrete manholes, concrete and fiberglass pull, manhole, boxes, vaults, trench racks, accessories, etc.

2. Distribution equipment including main switchboards, distribution switchgear, transformers, distribution panels and breakers, motor controls, distribution and branch circuit panels, grounding, transient voltage surge suppressors, etc.

3. Electrical equipment including disconnects, fuses, raceways, straps and racks, fittings, conductors, boxes, gutters, devices, plates, etc.

4. Conduit including all fittings, etc.

5. Wiring and cable, terminations, etc.

C. The intent of these specifications is to establish a standard of quality for materials and equipment. Therefore, some items are identified by manufacturer or trade name designation. Substitutions shall be subject to the Architect's approval. Samples of the proposed and substitute materials may be required for inspection prior to approval. Costs, if any, for evaluation of substitutions shall be the Contractor's responsibility. The decision of the Architect shall be final. Where the substitution will affect other trades, coordinate all changes with those trades concerned and pay any additional costs incurred by them as a result of this substitution. Approval of substitutions shall

not relieve the Contractor from providing an operational system in accordance with all applicable codes and ordinances.

1.05 DELIVERY, STORAGE AND HANDLING

A. Storage of equipment for the job is the responsibility of the Electrical Contractor and shall be scheduled for delivery to the site, as the equipment is required. Damage to the equipment delivered to the site or in transport to the job shall be the responsibility of the Electrical Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials shall be new and bear the label of or be listed by a nationally recognized testing laboratory. The quality and suitability of all materials shall conform to the standards and practices of this trade.

B. Supplied materials shall be of a current manufactured product line. Discontinued products are not acceptable. Where products are identified on the contract documents by part number, supply the current product model or series which meets the specification and intended use of the specified component.

2.02 SUPPORTING DEVICES

A. Hangers: Kindorf B-905-2A Channel, H-119-D washer, C105 strap, 3/8” rod with ceiling flange.

B. Concrete Inserts: Kindorf D-255, cast in concrete for support fasteners for loads up to 800 lbs.

C. Pipe Straps: Two-hole galvanized or malleable iron.

D. Luminaire Chain: Campbell Chain 75031, 90-lb. test with steel hooks.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Professionalism and appearance of installations shall be in accordance with accepted practices of this trade. Installation methods shall conform to manufacturers' specifications and recommendations. The Contractor shall man the job with qualified journeymen and helpers in this trade for the duration of the job. It is the Contractor's responsibility to communicate with and keep the job superintendent appraised of changes or clarifications, etc.

B. Employment of any person on any job in the capacity of an electrician is not permitted unless such person has qualified for and holds a valid Journeyman Electrician Pocket Card or General Journeyman Electrician Certificate issued by the State of California Division of Apprenticeship Standards except, Contractor may employ electrical helpers or apprentices on any job of electrical construction, new or existing, when the work of such helpers or apprentices is performed under the direct and constant personal supervision of a journeyman electrician holding a valid Pocket Card accepted by the State of California Division of Apprenticeship Standards.

1. Each Pocket Card carrying journeyman electrician will be permitted to be responsible for the quality of workmanship for a maximum of one helper or apprentice during any same time period, provided the nature of work is such that good supervision can be maintained and the quality of workmanship is the best, as expected by Owner and implied by the latest edition of the National Electrical Code.

2. Before each journeyman electrician commences work, deliver to Owner at the project site, a photocopy of the journeyman's valid Pocket Card.

C. Materials shall be installed in accordance with the manufacturers' specification and recommendations. They must conform to the approval AHJ adopted codes and standards, but not less than the 2013 CEC and all applicable codes and standards, including but not necessarily limited to California Code of Regulations Title 24, NFPA, National Electrical Manufacturers Association, ANSI, CBC, and any other adopted ordinances of applicable agencies having jurisdiction. Refer to general conditions of specifications.

D. Electrical Contractor shall lay work out in advance in order to avoid unnecessary cutting, chasing, and drilling of floors, walls, ceilings and other surfaces. Work of this nature shall be carefully done so as not to damage work already performed by other trades. Any damage which results must be properly repaired at no extra cost to the Owner. Such alterations shall not depreciate the integrity of the structure. Approval for cuts or penetrations in structural members shall be by the Architect.

E. Coordinate work with other trades as required to eliminate any delays during construction. Coordinate changes with other prime contractors to avoid construction conflicts.

F. Engineer's Field Observation: Site visits during construction for field observations and reports will be conducted by electrical engineer when directed by the Architect. A list of items that need to be addressed will be submitted to the Architect for forwarding to the Contractor. A written response to all items shall be submitted for Owner's review once complete. When Electrical Engineering representative performs a field observation, the Electrical Contractor shall be present and available to remove equipment covers as needed.

G. Drawings of Record: Provide a full and accurate set of field record drawings marked up in a neat and understandable manner submitted to the Owner Representative, Construction Manager, or Architect upon completion of the work and prior to issuance of a certificate of completion. The drawings shall dimension all electrical facilities including but not limited to underground conduit, vaults, boxes as well as conduit routing scaled to within 12" of actual field conditions and shall be kept up to date on a daily basis reflecting changes or deviations. Electrical facilities shall be accurately

drawn on the plan to scale. Refer to the general conditions of these specifications for additional requirements. Record drawings shall be required to identify both horizontal and vertical dimensions to visible and fixed points such as concrete, asphalt, buildings, sidewalks, etc.

H. Identification: Provide engraved laminated plastic nameplates for all switchboards, panelboards, fire alarm terminal cabinets, telephone and cable television backboards, main devices, control panels, time clocks, contactors and safety disconnect switches accurately identifying each device. Labels shall be attached to the equipment by means of screws or rivets. Self-adhering labels will not be acceptable. Refer to Section 26 0553, IDENTIFICATION OF ELECTRICAL SYSTEMS.

I. Safety: The Electrical Contractor is responsible to maintain equipment in a safe and responsible manner. Keep dead front equipment in place while equipment is energized. Conduct construction operations in a safe manner for employees as well as other work persons or anyone visiting the job site. Provide barriers, trench plates, flags, tape, etc. The Contractor shall hold all parties harmless of negligent safety practices that may cause injury to others on or near the job site.

J. Guarantees: Equipment and labor shall be guaranteed and warranted free of defects, unless otherwise stated to be more restrictive, for a period of one year from the date of final acceptance by the Owner. A written warranty shall be presented to the Architect at the time of completion prior to final acceptance. Equipment deemed to be damaged, broken or failed should be repaired or replaced at no additional cost to the Owner. Materials or system requiring longer than a one-year warranty as described herein shall be separately warranted in separate letters of guarantee stating the duration of warranty.

K. Operating and Installation Manuals: Provide two copies each of manuals, operating and installation instructions for equipment indicated in submittal packages. Instruct the Owner's representative as to the operation and location of equipment necessary to allow them to operate the facility upon final acceptance. This instruction period shall be prearranged with the Owner's representative prior to occupancy of the facility and the weeks prior to training scheduled.

END OF SECTION

SECTION 26 0519

LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
   1. Wires and cables.
   2. Connectors.
   3. Lugs and pads.

1.03 SYSTEM DESCRIPTION

A. Provide wires, cables, connectors, lugs, strain reliefs, racking insulators for a complete and operational electrical system.

1.04 SUBMITTALS

A. Provide product data for the following equipment:
   1. Wires.
   2. Cables.
   3. Connectors.
   4. Lugs.
   5. Splice Kits.

B. Provide the insulation cable testing report in the project closeout documentation, refer to Closeout Requirements in the General Conditions portion of this specification.

1.05 REGULATORY REQUIREMENTS

A. Conform to requirements of the CEC, latest adopted version with amendments by local Authority Having Jurisdiction (AHJ).

B. Furnish products listed by UL or other testing firm acceptable to AHJ.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Wires and Cables: General Cable, Okonite, Southwire, or approved equal.

B. Connectors: Burndy, Ilsco, Thomas & Betts, or approved equal.

C. Wire connectors shall be minimum 75 degree centigrade rated and properly sized for the number of conductors being connected, terminated, spliced etc. All above grade connectors shall be solderless lug or plastic wire nut type, screw on, pressure cable type (wire nut or spring nut type), 600 volt, 105 degree C, with skirt to cover all portions of stripped wires. Connector shall be U.L. rated for number and size of conductors being joined together as a splice.

D. Splices:
   1. Branch Circuit Splices: Ideal, Scotch-Lock, 3M, or approved.
   2. Feeder Splices: Compression barrel splice with two layers Scotch 23 and four layers of Scotch 33+ as vapor barrier.
   3. Screw Terminal Lugs.
   4. Kearney Split Bolt.

2.02 WIRES AND CABLES FOR LINE VOLTAGE SYSTEM AND CONTROLS. WIRE AND CABLE SHALL BE:

A. Copper, 600 volt rated throughout. Conductors 14AWG to 10AWG, solid or stranded. Conductors 8AWG and larger, stranded.

B. Phase color to be consistent at all feeder terminations; A-B-C, top to bottom, left to right, front to back. Phasing tape shall be permitted on sizes #6 and larger.

C. Color Code Conductors as Follows:

PHASE	208 VOLT	480 VOLT
A	Black	Brown
B.	Red	Orange
C.	Blue	Yellow
Neutral	White	Gray
Ground	Green	Green
Isolated Ground	Green w/yellow trace	N/A

D. All conductors shall be copper unless otherwise noted. Minimum size for individual conductors shall be #12 AWG unless otherwise noted. Sizes #8 AWG and larger shall be stranded conductor. Individual conductors shall be insulated with type, XHHW, THW, THHN/THWN 600-volt insulation unless otherwise noted. Control, signal, communication conductors shall be as dictated by the vendor of that equipment or as specified here-in. Proper insulation type shall be used for the proper environmental application (i.e., waterproof, wet location, plenum, temperature rated). If a condition exists where the application is uncertain, contact the Engineer for direction. Contractor is responsible to follow specific cabling requirements described in other sections of this specification relative to various communications and controls systems as well as the respective riser diagrams shown on plans. If a discrepancy occurs, communicate such discrepancy to the Architect and Engineer immediately for resolution.

E. Insulation types THWN, THHN or XHHW. Minimum insulation rating of 90C for branch circuits.

2.03 CONNECTORS

A. Copper Pads: Drilled and tapped for multiple conductor terminals.

B. Lugs: Indent/compression type for use with stranded branch circuit or control conductors.

C. Solid Conductor Branch Circuits: Spring connectors, wire nuts, for conductors 18 through 8AWG.

2.04 LUGS AND PADS

A. Ampacity: Cross-sectional area of pad for multiple conductor terminations to match ampere rating of panelboard bus or equipment line terminals.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation: Conductors shall not be installed until after conduit systems are permanently in place. Use an approved non hardening type wire pulling lubricant if lubricant is to be used. Maintain all conduits and wire pulls free from foreign material. If due to field conditions, more than a total of 300 degrees of bend are required; a pull box shall be furnished and installed for ease of installation. Said pull boxes must be sized and rated for the appropriate application and must remain easily accessible upon completion of the project (approval of the location shall be obtained from the Architect prior to installation). Show these pullboxes on the field record drawings. Conductors installed in underground raceways on site shall be duct sealed and taped where they exit the raceway to prevent the entrance of foreign material and moisture after the conductors are installed. Proper drainage shall be provided for underground pull and splice boxes.

B. Insulation: Use proper insulation types where temperature and environment are a factor.

C. Splices at or below grade level shall be made with wet location rated and approved mechanical connectors and shall be encapsulated in epoxy or plastic molded poured kits. The connections must be assured to be watertight. Splices at or below grade shall always be avoided and minimized. Prior approval is required for feeder splices below grade. Submit proposed materials and exhibit showing location of intended splices for Engineer's review and approval prior to commencing with the work.

D. Labeling: All conductors in panels, switchboards, terminal cabinets, vaults, pull boxes, and junction boxes shall be labeled with tape number markers indicating circuit number and identifying system. All labeling shall be permanent. In manholes and vaults, provide embossed brass tags identifying system serviced and function. See Section 26 0553 IDENTIFICATION OF ELECTRICAL SYSTEMS.

E. All conductors, wiring, cable where installed below floor, slab or underground shall be considered wet locations, and shall be rated accordingly. Non waterproof cabling is not allowed in any below grade or wet application.

F. Cables routed together in cable tray shall be stacked, organized and tie wrapped together in a neat and workman like manner. Random cable routing is not acceptable.

G. Cable and conductors routed through pull boxes and vaults shall be properly supported on porcelain or equal insulators mounted on steel rack inserts. Bend radius of cable or conductor shall not be less than six times the overall cable diameter.

H. Wires and Cables:
   1. Conductor Installation:
      a. Install conductors in raceways having adequate, code size cross-sectional area for wires indicated.
      b. Install conductors with care to avoid damage to insulation.
      c. Do not apply greater tension on conductors than recommended by manufacturer during installation.

d. Use of pulling compounds is permitted. Clean residue from exposed conductors and raceway entrances after conductor installation.

2. Conductor Size and Quantity:
   a. Install no conductors smaller than 12AWG unless otherwise shown.
   b. Provide all required conductors for a fully operable system.
3. Conductors in Cabinets:
   a. Cable and train all wires in panels and cabinets for power and control neatly and uniformly. Use plastic ties in panels and cabinets.
   b. Tie and bundle feeder conductors in wireways of panelboards.
   c. Hold conductors away from sharp metal edges.
   d. Connectors: Retighten mechanical type lugs and connectors for conductors to equipment prior to Notice of Completion.

3.02 FIELD QUALITY CONTROL

A. Tests:
   1. Test conductor insulation on feeders of 400 amp and greater for conformity with 1000 volt megohmmeter. Use Insulated Cable Engineers Association testing procedures. Minimum insulation resistance acceptable is 1 megohm for systems 600 volts and below.

   2. Test Report: Prepare a typed tabular report indicating the testing instrument, the feeder tested, amperage rating of the feeder, insulation type, voltage, the approximate length of the feeder, conduit type, and the measured resistance of the megohmmeter test. Submit report with operating and maintenance manual.

END OF SECTION

SECTION 26 0533

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
1. Conduit and fittings.
2. Junction and pull boxes.
3. Gutters.
4. Concrete boxes and vaults.

B. Related Work:
1. Installation of all wire, cable, conductor, boxes/gutters, pull ropes, fiber optic cable raceway, conduit, innerduct, cable sleeve and duct as described on the plans and/or as specified here-in. This scope shall include pathways to be installed underground on site and offsite, underslab, above grade, both concealed and exposed, overhead concealed and exposed as appropriately applied. Raceways/boxes shall be installed in accordance with their intended and allowed uses and as specified here-in whichever is more restrictive. Size and capacity of all raceway/boxes shall be as specified here-in or as depicted on the drawings, but shall not be less than that required by code. Larger raceway sizes may be specified than code would permit. The specifications shall govern.
2. Listed products for termination, coupling, extending, benching supports of raceways shall be used.
3. Raceways/boxes described by this section shall include, but not be limited to, power for site utilities and others as may be required. Raceways, boxes and duct paths required for utility companies shall be installed per plans unless utility company requirements are more restrictive at which time those requirements shall take precedence.
4. Protection of and cleanliness of pathways and raceways must be assured during the construction process in order to eliminate the possibility of debris entering the conduit, duct, pathway resulting in decreased wire capacity and potential damage to installed conductors and cables.
5. Pathways are shown in a diagrammatic way and are generally accurate as to routing, however, it is the Contractor's responsibility as a means and methods process to coordinate with all other trades that require space within a building.
6. Trenching and backfilling for all underground conduit systems installed by the Electrical Contractor shall be the responsibility of the Contractor. Conduits shall have minimum cover requirement of 36" below finish grade with the exception of site lighting conduits which may be 24" below finish grade minimum. More stringent depth requirements may be imposed by the local agency and utility company and shall be adhered to, and / or this specification or as detailed on the plans. Joint trenching may be utilized where practicable and where permitted by this specification. Concrete, native material and sand shall be used as backfill material and shall be compacted in accordance with and coordinated with the grading and site preparation requirements. Conduits shall rest in a minimum of 4" bed of sand prior to backfill and compaction. Locations of existing underground (UG) utility systems shall be determined by calling Underground Service

Alert (USA) at least 48 hours prior to any excavation. Also refer to Section 26 0546.13, ELECTRIC UTILITY SYSTEMS.

7. Minimum conduit size shall be 1/2" except if plan shows or code requires larger size. Exception: Use minimum 3/4" for underslab and below grade applications outside of building exterior walls.
8. All conduit, concrete pads, underground concrete or fiberglass substructures shall be furnished and installed with the approved materials and type for the application. Provide proper traffic control during construction as well as barriers and protection of all excavations and trenching.
9. Empty or future conduits shall be properly plugged with plastic caps or inserts with a 3/8" polyethylene pull rope. Plastic or "duct" tape will not be acceptable.
10. Exterior installations: After conductors are installed, seal conduit ends to prevent entrance of foreign material using pliable duct seal, caps or waterproof expanding foam.
11. No single conduit run of any type shall exceed 300 degrees of radius bend from termination box to termination box.
12. Spare, Future Conduits: Conduits labeled conduit only, spare, or for future use, shall be provided with a pullrope, capped at each end, labeled as spare with destination marked, and turned over to the Owner in an unused state. Contractor shall not utilize these conduits for the installation of cabling or conductors as part of this scope of work. Contractor to verify and install at no additional cost to the Owner, additional conduits as required for the installation of the systems being installed.
13. Code Compliance: Comply with CEC as applicable to construction and installation of electrical boxes and fittings and size boxes according to CEC 312, 314 and 366 except as noted otherwise.

1.03 SUBMITTALS

A. Provide Shop Drawings and Product Data for the Following Equipment:
   1. Conduit and fittings.
   2. Gutters.
   3. Concrete boxes and vaults.
   4. Raceways

1.04 REGULATORY REQUIREMENTS

A. Conform to requirements of the CEC, latest adopted version with amendments by local AHJs.

B. Furnish products listed by UL or other independent and nationally recognized testing firm.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Heavy wall Rigid Non-Metallic Conduit, shall be PVC schedule 40 manufactured in accordance with NEMA Standard TC-2, UL-651 and WC 1094A specifications.

B. Extra heavy wall non-metallic conduit, shall be PVC schedule 80 manufactured in accordance with NEMA Standard TC-2, UL-651 and WC 1094A specifications.

C. Galvanized Rigid Steel (GRS) conduit shall be hot dipped galvanized, zinc coated and shall comply with Underwriters Laboratories UL-6, ANSI Specification C-80.1 and Federal Specification WW-C-581E.

D. Manufacturers:
   1. Junction and Pull Boxes: Circle AW, Hoffman, Wireguard or equal.
   2. Conduit Fittings: O-Z Gedney, Thomas & Betts, or equal.
   3. Vaults: Christy, Brooks, Utility Vault or equal.
   4. Heavy wall rigid non-metallic conduit, Carlon, Certainteed, R&G Sloane or equal.
   5. Extra heavy wall non-metallic conduit, Carlon, Certainteed, R&G Sloane or equal.
   6. Galvanized Rigid Steel (GRS) conduit shall be hot dipped galvanized, zinc coated and shall comply with Underwriters Laboratories UL-6, ANSI Specification C-80.1 and Federal Specification WW-C-581E.
   7. Exterior In-Grade Boxes for Non-Utility Company, Precast concrete or polymer concrete, Utility Vault and Christy.

2.02 OUTLET BOXES

A. NEMA 4X gutter, junction and pull boxes shall be fabricated from code gage galvanized steel with screw cover fronts and concentric knockouts in the bottom only. Any penetrations to the side, top or back shall be weatherproofed in an approved manner such as “MYERS” gasketed type hub or equal.

2.03 JUNCTION AND PULL BOXES

A. Construction: Provide galvanized sheet steel junction and pull boxes, with screw-on covers; of the type shape and size, to suit each respective location and installation; with welded seams and equipped with steel nuts, bolts, screws and washers.

B. Location:
   1. Install junction boxes above accessible ceilings for drops into walls for receptacle outlets from overhead.
   2. Install junction boxes and pull boxes as required to facilitate the installation of conductors and limiting the accumulated angular sum of bends between boxes, cabinets and appliances to 300 degrees.
   3. Locations: Junction boxes shall be located only where necessary and only in equipment rooms, closets, and accessible attic and underfloor spaces. A horizontal distance of 24” shall separate outlet boxes on opposite sides of occupancy separation walls, fire-rated walls or partitions.
   4. Labeling: Junction box covers shall be marked with indelible ink indicated the circuit numbers passing through the box.

2.04 CONDUIT FITTINGS

A. Requirements: Provide corrosion-resistant punched-steel box knockout closures, conduit locknuts and plastic conduit bushings of the type and size to suit each respective use and installation.

B. Steel boxes may allow for field knock-out modifications, but shall in all other ways conform to code requirements.

2.05 EXTERIOR IN-GRADE BOXES FOR NON-UTILITY COMPANY USE SHALL BE:

A. Precast concrete or polymer concrete type with full bottoms and draining into gravel drywell. . Open bottom splice/pull boxes 24” x 36” and smaller shall be open bottom, with minimum 12” of gravel below for drainage.

B. Flushmount in hardscape and 1” above grade in softscape.

C. Provided with correct traffic type lid, i.e., full vehicular, intermediate incidental vehicular or pedestrian-rated as applicable stamped with “ELECTRIC”, “LIGHTING”, COMMUNICATIONS”, etc. cover identification as shown on the drawings or as applicable. All boxes or vaults located in streets, driveways, sidewalks wider than 8’, and turf areas where mowing takes place shall be traffic rated.

D. Provided with brass hold-down bolts in cover.

E. Provided with necessary box extensions to gain proper depth.

F. Seal all conduit in underground boxes with duct seal after conductors have been installed.

2.06 IN-GRADE UTILITY COMPANY BOXES AND VAULTS

A. In-grade boxes and pads for utility company, shall be as specified by the respective utility company with all of the company’s requirements and construction methods met.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Conduit systems listed below are for use in installations where they are permitted to be used by CEC and/or other occupancy restrictions. The below installation methods do not intend to suggest that these materials be installed in conflict with any applicable code. Requirements which are more restrictive than the CEC may be called for by the drawings and / or these specifications. These requirements must be adhered to. The Electrical Contractor shall be responsible to use the proper conduit system for the application. Exposed conduit is not allowed below ceilings or above slab of floor, without the permission and approval of the Architect. All conduits shall be concealed except in electrical and telecommunication rooms or where shown to be surface mounted. Exposed conduit (where allowed) shall be run square and plumb with building lines in an approved manner. Spacing of support shall be a minimum as provided for in the CEC. All exposed conduit mounted below 8’ above finished grade shall be strapped at a minimum of 5’ spacing.

B. Non-Metallic Rigid Conduit shall be used in concrete slabs, below concrete slabs on grade, or underground outside of a building slab or foundation. Maintain minimum depth requirements and cover with appropriate fill material. Minimum 4” of bedding and cover of backfill material 1/4" size grain and smaller maximum. Conduit shall be heavy wall Schedule 40 or 80, rigid PVC only. Rigid utility P&C duct shall not be used in any application. Properly sized grounding conductors shall be installed per CEC article 250, in all non-metallic conduit branch circuit and feeder runs. PVC conduit shall be formed or field bent only with the use of properly approved bending tools such as to not decrease the internal bore of the conduit. All conduits shall be cut square and reamed of burrs. Approved and compatible glue shall be used on all PVC fittings to attain watertight joints. All non-metallic conduit runs over 150’ in length and over 1 1/4" trade size conduit shall utilize galvanized rigid steel elbows.

C. Galvanized Rigid Steel (GRS) conduit shall be used where exposed less than 8’–0” above finished grade to 18” below finished grade and where subject to physical damage. Conduits shall be cut square and reamed to remove burrs and sharp edges. Strap conduit below 8’ above grade at 5’ intervals. Unless otherwise noted, threadless setscrew and threadless weathertight fittings may be used in lieu of threaded fittings. All threaded ends entering a junction box of any type shall require one locknut on the inside and one on the outside of the

enclosure and be provided with a plastic bushing or grounding bushing where necessary for proper grounding. Where exposed to moisture, a watertight hub or other approved method shall be required. All conduits shall be stubbed up straight and uniform into junction boxes, panels, cabinets, etc., and shall be (GRS) properly supported and strapped. All GRS conduit located below grade, shall be tape wrapped.

D. Underground conduits and transition to above grade/slab shall be as follows:
   1. PVC elbows allowed if top of elbow is minimum 18” BFG or below top of slab, otherwise GRS elbows are required.
   2. GRS elbows are required if conduit run is 150’ or greater.
   3. GRS risers are required from elbow below grade to equipment (device, outlet, panel, cabinet, etc.) above grade.
   4. GRS elbows/risers to be PVC coated or 10 MIL taped wrapped (1/2” lapped) to 3” above finish grade or top of slab.

E. Conduit Supports: Conduit runs may be supported by one-hole and two-hole straps or supports as manufactured by Unistrut, Minerallac, Caddy or equals. Supports may be fastened by means of anchors, shields, beam clamps, toggle bolts, or other approved methods appropriate for the application and size of conduit. Pipe nailers (J-hooks) may only be used for 1” conduit and smaller and only in wood frame construction. Conduit support methods are subject to review by the engineer and authority having jurisdiction for adequacy. Installations deemed inadequate shall be corrected by the contractor at no cost to the Owner.

F. Bends and offsets shall be made with approved tools for the type of conduit being utilized. Bends shall be made without kinking or destroying the smooth bore of the conduit. Parallel conduits shall be run straight and true with bends uniform and symmetrical. Minimum radii shall be per CEC 344-24.

G. Conduit Stub-outs below grade shall be capped with plastic cap, and identified by placing a pull box marked with correctly identified utility such as “Elec”, “Tel”, etc. Dimension for exact location on field record drawings. Provide lids for proper field application (i.e. traffic, incidental, pedestrian).

H. Marker tape: Place plastic yellow marker tape at 12” below finish grade along and above buried conduits. Label tape "CAUTION: ELECTRICAL LINES BELOW" or similar wording.

I. Conduits for high voltage (12kv) systems shall be separated from all other conduits by a minimum of 12”. All power system conduits shall be separated from low voltage systems by a minimum of 12” when running parallel to each other and no less than 6” when running perpendicular to each other at conduit crossings.

J. Duct bank defined here-in shall be four or more conduits in a common trench, conduit spacers and saddles shall be required in all trenches where more than two conduits over 2” in diameter travel in the same trench. Proper spacing between systems as outlined above shall be required and spacers shall be located each 5’ (maximum) along trench route from point to point.

K. Anchoring: Secure boxes rigidly to the substrate upon which they are being mounted, or solidly embed boxes in concrete or masonry.

END OF SECTION

SECTION 26 0546.13

ELECTRIC UTILITY SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section Includes:
   1. Manholes, handholes and ducts to form a complete underground raceway system.
   2. “Duct” and “conduit”, and “raceway” are used interchangeably in this specification and have the same meaning. Refer to Section 26 0533, RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS for approved raceway and materials as well as execution.
   3. Scope of Work: Furnishing, installation and connection of manholes, handholes and ducts to form a complete underground raceway system for distribution of electrical and signal systems and utility service entrance facilities. This specification shall also provide guidance for construction of the utility company underground and substructure requirements. Contact serving company directly and obtain current detailed requirements of installation and adhere by same. Provide trenching, conduit, backfill, boxes and equipment pads as applicable. Nothing here in shall be construed to be in conflict with the requirements of the utility company, which shall take precedence over any possible conflicting requirement.

B. Related Work:
   1. SITEWORK.
   2. FLATWORK.
   3. Section 26 0500, COMMON WORK RESULTS FOR ELECTRICAL.
   4. Section 26 0533, RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS: Conduits, fittings and boxes for raceway systems.

1.03 SUBMITTALS

A. Submit in accordance with Section 26 0500, COMMON WORK RESULTS FOR ELECTRICAL.

B. Shop Drawings:
   1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.
   2. Include manholes, handholes, duct materials, and hardware. Proposed deviations from details on the drawings shall be clearly marked on the submittals.
   3. If necessary to locate manholes or handholes at locations other than shown on the drawings, show the proposed locations accurately on scaled site drawings.
   4. Precast manholes and handholes: Submit detail drawings and design calculations for approval prior to installation.

1.04 APPLICABLE PUBLICATIONS

A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

B. Underwriters Laboratories, Inc. (UL):
   1. UL 467 Grounding and Bonding Equipment
   2. UL 651 Schedule 40 and 80 Rigid PVC Conduit
   3. UL 6 Electrical Rigid Metal Conduit-Steel

C. National Fire Protection Association (NFPA):
   1. 70 California Electrical Code (CEC)

D. National Electrical Manufacturers Association (NEMA):
   1. RN 1 Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit
   2. TC 2 Electrical Polyvinyl Chloride (PVC) Tubing And Conduit
   3. TC 3 PVC Fittings For Use With Rigid PVC Conduit And Tubing

E. American Concrete Institute (ACI):
   1. 318 Building Code Requirements For Structural Concrete

F. American Society for Testing and Materials (ASTM):
   1. C478 Standard Specification for Precast Reinforced Concrete Manhole Sections
   2. C478M Standard Specification for Precast Reinforced Concrete Manhole Sections (Metric).
   3. F512-95 Standard Specification for Smooth-Wall Polyvinyl Chloride (PVC) Conduit and Fittings for Underground Installation

G. Utility company Handout Package and Construction Requirements for Underground and Substructure Installation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Concrete: ACI 318, 3000 psi minimum 28 day compressive strength.

B. Reinforcing Steel: Number 4 minimum.

C. Manhole Hardware:
   1. Frames and covers (traffic type).
   2. Sump frames and gratings.
   3. Pulling Irons: 7/8” diameter hot dipped galvanized steel bar with exposed triangular shaped opening.
   4. Cable supports:
      a. Cable stanchions, hot rolled, heavy duty, hot dipped galvanized "T" section steel 2 1/4" by 1/4" in size and punched with 14 holes on 1 1/2" centers for attaching cable arms.
      b. Cable arms, 3/16” gage, hot rolled, hot dipped galvanized sheet steel pressed to channel shape. Arms shall be approximately 2 1/2" wide and 14” long.
      c. Insulators for cable supports, high glazed, wet process porcelain.
      d. Spares: Equip each cable stanchion with two spare cable arms and six spare insulators for future use.

e. Miscellaneous hardware, hot dipped galvanized steel.

D. Handhole Hardware:
1. Frames and covers configuration as shown on the drawings.
2. Pulling irons, 7/8” diameter galvanized steel bar with exposed triangular shaped opening.

E. Cable supports are not required.

F. Ground Rod Sleeve: Provide a 3” PVC sleeve in manhole floors so that a driven ground rod may be installed.

G. Manholes and Handholes shall be precast units and be constructed as described below. Units shall comply with ASTM C478, C478M.
1. Size: Plan area and clear height shall be not less than that shown on the drawings.
2. Accessories, hardware, and facilities shall be the same as required for poured in place type.
3. Assume ground water level 3’ below ground surface unless a higher water table is shown in the boring logs and adjust design accordingly.

H. Ducts:
1. Size shall be as shown on drawings.
2. Ducts (concrete encased):
a. Plastic Conduit:
1) NEMA TC6 & 8 and TC9 plastic utilities conduit UL 651 and 651A Schedule 40 PVC.
2) Duct shall be suitable for use with 90 degree C rated conductors.
3. Ducts (direct burial):
a. Plastic duct:
1) NEMA TC2 and TC3, EPC-40, Type II.
2) UL 651 and 651A, Schedule 40 Schedule 80 PVC.
3) Duct shall be suitable for use with 75 degree C rated conductors.
b. Rigid metal conduit, PVC-coated: UL6 and NEMA RN1 galvanized rigid steel, threaded type, coated with PVC sheath bonded to the galvanized exterior surface, nominal 0.040” thick.

I. Ground Rods: Per Section 26 0526, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS.

J. Ground Wire: Stranded bare copper No. 6 AWG minimum.

K. Conduit Spacers: Prefabricated plastic.

L. Warning Tape: Standard 4 mil polyethylene 3” wide tape, detectable type, red with black letters, imprinted with “CAUTION BURIED ELECTRIC CABLE BELOW”.

M. Pull Rope: Plastic with 200 pound minimum tensile strength.

PART 3 - EXECUTION

3.01 TRENCHING

A. Refer to EARTHWORK section of specification for trenching back-filling, and compaction requirements.

B. Work with extreme care near existing ducts, conduits, cables, and other utilities to avoid damaging them.

C. Cut the trenches neatly and uniformly for utility company trenches, notify for inspections by utility company a minimum of 48 hours in advance.

D. Conduits to be installed under existing paved areas, roads, and railroad tracks which are not to be disturbed shall be protected into place. Conduits shall be minimum 36” cover.

E. Trench Preparation: A 4” sand bedding is required if trench bottom is not rock free. A 4” sand covering over the cable is required if the native backfill is not rock free. Backfill and compaction should meet City, County, State and utility company requirements. The serving utility company may required 100% sand backfill. All backfill requirements shall also meet or exceed those set forth in the earthwork or civil section of this specification.

F. Excavation: Provide 6” gravel in bottom of excavated holes for subsurface transformers and all concrete boxes. Spare gravel shall be available for final adjustment. The Contractor is responsible for final grade level of enclosures and boxes. Non-conformance will be corrected by electrical contractor at his expense.

G. Conduit Routing: Sharp turns, bends, or other irregularities in the conduit must be avoided. Minimum radius bends shall be as required by the serving utility company. Every effort should be made to obtain a straight water tight conduit line. The end of all spare conduits must be capped. The utility company Inspector must approve deviation from layout.

H. Conformance: All work must conform to the utility company “handout package” and Specification 59 and/or 99. Copies are available from the utility company upon request.

I. Joint Trenching: Maintain all required depths, clearance and separations as required by code, ordinance or utility company policies. Coordinate with other utilities to confirm requirements.

3.02 OTHER PADMOUNTED EQUIPMENT

A. Provide adequately sized and reinforced concrete pads with openings for conduit(s) as necessary by the utility company and or the equipment manufacturer.

B. A grounding system shall be installed at each padmounted piece of equipment including, but not limited to, a ground rod, grounding conductor, ufer, and ground grid (if called for).

C. Padmounted equipment shall be bolted to concrete pad with minimum 5/8” x 7 1/2" anchor bolts, one in each of 4 corners of each section of padmounted equipment.

END OF SECTION

SECTION 26 0553

IDENTIFICATION OF ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section Includes:
   1. Nameplates and warning signs where specified herein and as shown on contract documents including the following:
      a. Nameplates and warning signs permanently installed on all electrical equipment and devices including, but not limited to, the following items:
         1) Enclosures for transformers, switchboards, motor control, panels, pullboxes, cabinets, motors, generators, transfer switches.
         2) Enclosures for all separately enclosed devices including, but not limited to, disconnect switches, circuit breakers, contactors, time switches, control stations and relays, fire alarm panels and lighting control panel.
         3) Wall switches not within sight of outlet controlled.
         4) Special systems such as, but not limited to, telephone, fire alarm, warning and signal systems. Identification shall be at each equipment rack, terminal cabinet, control panel, annunciator and pullbox.
         5) Devices mounted within and part of equipment including circuit breakers, switches, control devices, control transformers, relays, indication devices and instruments.
   2. Conductor and Cable Identification.

B. Related Work:
   1. Section 26 0500, COMMON WORK RESULTS FOR ELECTRICAL.
   2. Section 26 0519, LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES.
   3. Section 26 2816, ENCLOSED SWITCHES AND CIRCUIT BREAKERS.

PART 2 - PRODUCTS

2.01 EQUIPMENT LABEL DESIGNATIONS

A. Equipment labels indicating equipment designations both emergency and normal. Designation data per drawings or to be supplied with shop drawings approval.

B. Panelboard labels showing panel designation, voltage, phase and source.

C. In accordance with CEC 110.16, provide arc flash protection warning labels on all switchboards, panelboards, distribution panels, transformers, safety switches, transfer equipment, etc. Labels shall be per ANSI Z535.4 guidelines.

2.02 MATERIALS

A. For Labels: Three layer laminated plastic or micarta with engraved white letters over black background.

B. For Emergency Equipment: Use engraved white letters over red background.

C. For Warning Signs: Minimum 18 gauge steel with red lettering on white porcelain enamel finish.

D. Arc flash labels shall be provided as required by CEC Article 70E.

E. Conductor tape number markers: TayMac MX4280 Series non-fading permanent adhesive.

PART 3 - EXECUTION

3.01 MOUNTING

A. Equipment labels shall be mounted by self-tapping, threaded screws and bolts, or by rivets. Adhesive types are not acceptable unless specifically noted in this section.

B. Conductor tape markers shall be consistently placed for ready conductor identification.

3.02 HEIGHTS ON LABELS

A. Panelboards, Switchboards and Motor Control Centers and Special Systems Enclosures: 1/4" identify equipment designation; 1/8” identify voltage rating and source.

B. Individual Circuit Breakers, Switches, and Motor Starters in Panelboards, Switchboards, and Motor Control Centers: 3/16” identify circuit and load served, including location of equipment.

C. Enclosed Circuit Breakers, Enclosed Switches, and Motor Starters: 3/16” identify load served.

D. Transformers: 3/16” identify equipment designation; 1/8” identify primary and secondary voltages, primary source and secondary load. Include location of primary source or secondary load if remote from transformer.

3.03 WARNING SIGNS

A. Warning signs shall be permanently mounted with cadmium plated steel screws or nickel-plated brass bolts.

B. Warning signs to read "DANGER - HIGH VOLTAGE", with letters 1 1/2" high, 3/16” stroke minimum.

C. Provide warning sign on all doors or immediately next to door for equipment rooms, enclosures or closets containing equipment energized above 150 volts to ground as per CEC, and/or as directed by the Architect. For interior finish spaces and interior doors, signage shall be coordinated and approved with the Architect in advance of installation.

END OF SECTION

SECTION 26 2413

SERVICE AND DISTRIBUTION SWITCHBOARD

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section Includes:
   1. Service and distribution switchboard where shown on the contract drawings and specified herein.

1.03 QUALITY ASSURANCE

A. Conform to applicable Codes and NEMA, ANSI and IEEE Standards.

1.04 SUBMITTALS

A. Conform to applicable provisions of Section 01 3300 of Division 01, Submittals and of Section 26 0500, COMMON WORK RESULTS FOR ELECTRICAL.

B. Shop Drawings shall show and contain the following information:
   1. Plans showing top and bottom of switchboards.
   2. Front, rear and side elevations of switchboards.
   3. Schematic Wiring Diagrams showing the following:
      a. One-line diagram with each circuit numbered.
      b. Schedule showing circuit number, description and rating of protective device(s).
      c. Complete short circuit with standability of bus.
   4. One-half inch equal to one-foot scale drawings of electrical rooms or areas overall dimensions for equipment layout including space available for conduits and protective devices.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Each switchboard shall be U.L. listed deadfront, deadrear, completely self-supporting, with the required number of vertical sections bolted together to form one floorstanding switchboard. Construction shall be NEMA Class II with line and load and main bus connections accessible. Provide switchboards with copper bussing insulated bus bars. Overcurrent protective devices shall be grouped in convertible type construction. Vertical sections shall have full height bussing and where space for future devices is indicated on the Drawings all the necessary mounting hardware shall be furnished. Switchboards shall include all protective devices and other equipment indicated on the Contract Drawings with the necessary interconnections, instrumentation, and control wiring. Bus shall be copper with plated joints, or tin plated

aluminum. Bus bars shall be mounted on supports of high impact-resistant, non-tracking insulating material, and braced to withstand the maximum available fault current as indicated on the Contract Drawings. Other ratings shall be as indicated on the Contract Drawings. Series-connected or "integrated equipment" short circuit ratings shall not be applied in lieu of, or to comply with, short circuit and interrupting capacity ratings indicated on the Drawings, unless specifically approved by the Engineer.

B. Service and distribution sections shall contain circuit breakers, fusible switches, and combination motor starters, with shunt trips, motor operators, ground fault protection, and other accessories, as indicated on the Drawings, as well as provisions for utility metering in accordance with the serving electric utility requirements. Each disconnecting means shall be provided with a means for individual padlocking. Switches shall be heavy-duty, quick-make and quick-break, and horsepower rated through 500 HP. Switches rated over 600 amperes shall be bolted pressure contact type. Ratings of disconnecting means and overcurrent protective devices shall be as indicated on the Drawings.

C. Finish: Interior finish shall be a gray lacquer or enamel; exterior finish shall be a gray baked-on enamel or lacquer. Apply all finish coatings over a rust-inhibiting metal primer.

D. Identification: Each switchboard shall have an engraved laminated plastic nameplate identifying the switchboard as designated and located on the Contract Drawings, and indicating voltage, phase, and number of system conductors. For example, "Switchboard MS 277/480V. 3Ø 4W. Lettering shall be white on black finish and 2” high minimum. Nameplates shall be affixed by a minimum of two escutcheon pins or screws. Each device on the switchboard shall be provided with an engraved plastic nameplate as specified in Section 26 0553, IDENTIFICATION OF ELECTRICAL SYSTEMS.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

A. Switchboard(s) shall be securely bolted to the flooring or structure. Final attachment means shall be in compliance with the seismic requirements of governing authority. Shop Drawings indicating the bolt down requirements shall be provided by the manufacturer along with all necessary calculations and shall be submitted with the Shop Drawings of the switchboard equipment. Refer to other Sections of the Specifications related to seismic requirements.

B. Switchboard(s) shall be installed on a level floor, with shims provided where necessary to attain both horizontal and vertical "plumb" conditions.

C. Switchboard(s) equipment shall be protected during construction in such a manner to prevent plaster, paint, dust, etc. from defacing the finish of equipment. Prior to final acceptance of the equipment, the interior of the equipment shall be cleaned of all foreign materials and debris. Any blemishes or defects on the exterior of the equipment shall be repaired by painting the equipment with paint supplied by the manufacturer of the equipment to match the factory finishes.

D. All floor mounted switchgear and panelboards shall be sealed with caulking between bottom of metal housing and the concrete pad or slab to prevent entrance of dust and debris.

E. All openings in switchgear and panelboards that are unused shall be sealed with bolts and washers. Use caulking where holes or openings cannot be sealed by way of a washer, or bolts or conduit seals.

F. All ventilated openings in panelboards and switchboards shall be furnished with dust filters to prevent entrance of dust and debris.

G. No operating handles in any switchboard shall be located above 6'- 6" above finish floor. Code clearances on all sides of the switchboard equipment shall be maintained.

H. Switchboards shall be mechanically grounded to the grounding system.

I. Furnish ammeters, voltmeters, current and potential transformers, test blocks, control switches, fuses and circuit breakers, and other devices as indicated on the Drawings. Meters shall be switchboard type semi-flush mounted, with phase selector switches. The height of all devices shall comply with Code and utility company requirements with the switchboard installed on a 2" high concrete pad.

J. For solidly grounded "wye" services of more than 150 volts to ground, but not exceeding 600 volts phase to phase, provide ground fault protection of equipment for each service disconnecting means for services rated 1000 amperes or more, without a single main disconnecting means. Provide ground fault protection of equipment for other systems as indicated on the Drawings.

K. Ground fault sensors shall be zero sequence type unless indicated otherwise on the drawings. Trip settings shall be as indicated on the drawings or as directed by the Engineer.

L. Protection: Keep switchboards covered during construction operations. Clean interior and exterior after all connections are completed. Factory connections shall be checked and re-torqued tight as required. Damage shall be field or factory repaired to a condition acceptable to the Engineer at no added cost to the Owner.

M. Operational Test of the ground fault protection system using the primary current injection method shall be performed by qualified personnel with suitable testing/recording equipment in the presence of the Owner. Provide the Owner with a "Certified Test Report" including test parameters.

3.02 ACCEPTANCE TESTING OF SWITCHGEAR AND SWITCHBOARD ASSEMBLIES

A. General:
   1. Inspect for physical damage.
   2. Compare equipment nameplate information with latest single line diagram and report discrepancies.
   3. Inspect for proper alignment, anchorage and grounding.
   4. Check tightness of accessible bolted bus joints by calibrated torque wrench method. Refer to manufacturer's instruction for proper foot pound levels.
   5. Key interlock systems shall be physically tested to insure proper function.
      a. Closure attempt shall be made on locked open devices. Opening attempt shall be made on locked closed devices.
      b. Key exchange shall be made with devices operated in off-normal positions.
   6. All doors, panels and sections shall be inspected for paint, dents, scratches.

END OF SECTION

SECTION 26 2419

MOTOR CONTROL CENTERS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section Includes:
   1. Motor control centers where shown on the contract drawings and specified herein.

B. Related Work:
   1. Section 26 2413, SERVICE AND DISTRIBUTION SWITCHBOARD

1.03 QUALITY ASSURANCE

A. Legal Requirements and Standards: Comply with applicable provisions of Section 26 0500, COMMON WORK RESULTS FOR ELECTRICAL and NEMA, IEEE, UL and ANSI Standards.

1.04 SUBMITTALS

A. Shop Drawings:
   1. Shop drawing submission shall indicate coordination with Mechanical Contractor, automation and temperature controls contractor and all other contractors supplying motors connected to the motor control centers furnished under this Contract.
   2. Dimensional location drawings.
   3. Single line diagram.
   4. Schedule of all units, accessories and nameplates.
   5. Elementary control diagrams indicating all contacts, relays, wiring and terminations required for execution of controls specified under other work.
   6. Short circuit with standard rating.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Type: Floor standing switchboard type, U.L. listed NEMA II, Type B wiring, dead-front, dead-rear, with all bussing and connections accessible from the front; arranged in accordance with wiring diagrams on the approved shop drawings. Square D. Co. Class 8998 Model 4 or equal.

B. Finish: As specified for service switchboards in Section 26 2413, SERVICE AND DISTRIBUTION SWITCHBOARD.

C. Controls: As specified elsewhere herein and as indicated on the drawings. Each magnetic starter shall be provided with a hand-off-auto selector switch and a red "on" pilot light. Control power shall be 120 volts from integral transformer(s) unless indicated otherwise on the drawings. Control transformer insulation shall be Class H. Provide suitable primary and secondary over current protection, and ground the secondary of control transformers. The secondary grounded conductor shall be identified with continuous white insulation. Where external control circuits are used a disconnecting means shall be provided in the control center and identified with a red laminated plastic nameplate marked "120 volt external control". Provide each motor control unit with a wiring diagram and overload heater chart affixed to the inside of the unit door or cover. Overload heaters shall be installed only after verification of actual motor FLA ratings.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General: Motor control center equipment shall be installed square, level, and secure by bolting to the building structure. Flush enclosures shall be installed with the front edge flush with combustible finish surfaces and not more than 1/4 inch behind noncombustible finish surfaces, and shall be secured to framing or blocking except where embedded in masonry or concrete.

B. Construction: Dimensions and electrical ratings shall be in accordance with the Drawings. Height of all devices shall comply with Code when the control center is mounted on a 2” high concrete pad. Vertical sections shall have full height buss in. Bus shall be copper with plated joints or tin-plated aluminum, and braced to withstand the maximum available fault current as indicated on the drawings. Other ratings shall be as indicated on the drawings.

C. Control Wiring: Shall be in accordance with the drawings and approved wiring diagrams.

D. Locations: Diagrammatic, coordinated with space conditions.

END OF SECTION

SECTION 26 2816

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section Includes:
   1. Disconnect and safety switches where shown on the contract drawings and specified herein.

B. Related Work:
   1. Section 26 0553, IDENTIFICATION OF ELECTRICAL SYSTEMS.

PART 2 - PRODUCTS

2.01 GENERAL

A. Approved Manufacturers: Cutler Hammer, General Electric, ITE-Siemens and Square-D.

B. Disconnect Switches: Provide with devices enabling the switch to be locked in the open or closed positions.

C. Externally Operable Safety Switches: To have quick-make, quick-break mechanism, capable of switching 10 times switch rating, with cover interlock to prevent opening with switch in ON position and defeat mechanism for maintenance.

D. Switches: Shall be heavy duty (HD) for 277/480 volt type unless otherwise indicated. Provide NEMA 4X enclosures for exterior or wet locations. Provide with number of poles, ampacity, voltage and HP rating, fusible or nonfusible as indicated. Copper blades shall be visible in off position.

E. Fusible Switches: Equip them with rejection clips for UL Class R fuses. Switches having a dual rating when used with dual element fuses shall have a rating so indicated and shall be confirmed by equipment vendor being connected.

F. 600 Amperes or Less Fuses: UL Class RKI with a minimum interrupting rating of 200,000 Amperes, Bussmann "Low-Peak Type" or equal.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

A. Locations: Install switches, disconnects and safety where indicated on the Contract Drawings or as required by CEC.

B. Fastenings: Securely fasten switches to structural members or unistrut support as directed by the manufacturer.

C. Manual Motor Switches: Install flush mounted in finished areas.

D. Manual Motor Switches: Install surface mounted in equipment rooms and non-finished areas. Where installed above inaccessible ceilings provide access panels.

E. Label all disconnect switches in accordance with Section 26 0553, IDENTIFICATION OF ELECTRICAL SYSTEMS.

F. Fuse: All fuses shall be as indicated on the plan or as required by the equipment. Verify fuse size with equipment manufacturer requirements, prior to installation. Use current limiting fuses as indicated on plan. Provide one spare fuse cabinet in each electrical room with one complete set of spare fuses for all sizes of main fuses, subpanel fuses, HVAC equipment fuses and fire alarm.

G. Terminals shall be minimum 75 degree rated.

END OF SECTION

SECTION 31 00 00

EARTHWORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
1. Excavation (cut)
2. Embankment (fill)
3. Clearing and Grubbing
4. Subgrade Preparation

B. Excavation (cut) shall include excavating all materials, of whatever character and subsurface conditions, as required for the construction of the project, including the following:
1. Excavation for roadways.
2. Excavation for the construction of pavement and hardscape areas.
3. Excavation for structure foundations, vaults, wetwell.
4. Excavation for ditches and channels, jacking and receiving pits.
5. Excavation for mass grading.
6. Excavation for finish grading.
7. Overexcavation of areas to be recompacted.

C. Embankment (fill) shall include the construction of embankments and placing material, including the following:
a. Embankment for Roadways.
b. Embankment for the construction of pavement, and hardscape areas.
c. Backfilling of structures.
d. Embankment for Mass Grading
e. Embankment for Finish Grading
f. The placement of native, select and other backfills.

D. Unless separately specified, earthwork shall include all clearing and grubbing.

E. Earthwork shall also consist of the control of ground and surface waters, the application of water for grading operations, the control of dust and mud, erosion control, the removal of unsuitable materials, the furnishing of all labor, materials, tools, equipment and incidentals, and for doing all work that is necessary to construct and maintain the required facilities.

F. Whenever the term finished grade is used, it shall mean the finished surface of the completed facility.

G. Unit Prices: Administrative and procedural requirements for unit prices are specified in Section 01 20 00, Price and Payment Procedures.

1.03 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work

B. Section 01 33 00 - Submittal procedures.

C. Section 02 21 00 - Surveys

D. Section 31 23 33 - Trenching and Backfilling

E. Section 31 41 00 – Sheeting,- Shoring and Bracing

1.04 SUBMITTALS

A. Delivery certifications (load slips) for all aggregate base supplied.

B. Delivery certifications (load slips) for all sand base and backfill.

C. Delivery certifications (load slips) for concrete slurry backfill.

D. Furnish, without additional cost to the City, such quantities of import or native materials as may be required by the Geotechnical Engineer for test purposes.

PART 2 PRODUCTS

2.01 NO MATERIALS SHALL BE DELIVERED TO THE SITE THAT ARE NOT IN CONFORMANCE WITH THESE SPECIFICATIONS, UNLESS ACCEPTED BY THE GEOTECHNICAL ENGINEER IN WRITING PRIOR TO DELIVERY.

A. Select Backfill: Backfill designated as “select”, or “sand” shall conform to be the Caltrans Standard Specifications, Paragraph 19-3.025B for sand.

B. Slurry Backfill: Where specified, slurry backfill shall be 1-sack mix sand-cement slurry, or 3-sack sand mix sand-cement slurry, and shall conform to the material requirements described in Caltrans Standard Specifications, Section 19-3.062.

C. Native Material: Native material may be used as excavation backfill in open areas where adequate compaction efforts can be provided, and provided such material meets the requirements of Paragraph 2.01E of this Section, subject to approval from the Geotechnical Engineer. In restricted or narrow areas, and areas between excavations and shoring, native backfill material shall not be allowed. General Fill: See restrictions stated in Paragraph 2.01C of this Section..

D. Imported Nonexpansive Material: Imported nonexpansive material shall be coarse grained (ASTM D 2488-00) and shall have an expansion index of less than 10 (ASTM D 4829-03). Nonexpansive materials proposed for import shall be approved by the Geotechnical Engineer prior to being transported to the site, and shall be subject to further sampling and/or review during construction.

E. Crushed Gravel: Crushed gravel shall be free draining crushed rock, ½-inch to 1 ½-inch size. Float Rock or river run gravel is not acceptable.

F. Filter Fabric. Filter fabric, where shown or specified on the drawings, shall be Caltrans Standard Specifications (2010) Section 88 1.02B, Class A Mirafi 140N or approved equal.

2.02 DEFINITIONS

A. Compacted: Unless stated otherwise, compacted, or recompacted, shall mean material placed in level lifts not exceeding 8 inches in loose thickness and compacted as specified in this Section. For trench backfill level lifts, refer to Section 21 23 33, Trenching and Backfilling.

B. Compaction: Maximum dry density as defined by ASTM D 1557-02.

C. Field density: ASTM D 2922-01.

PART 3 EXECUTION

3.01 EARTHWORK MAINTENANCE

A. The Contractor shall be responsible for all maintenance related to the earthwork operations, both on and offsite. Maintain all areas clean of dust, mud and debris, and control erosion during the earthwork operations.

B. Street Cleaning: Exercise care in the use of WWTP access roads, parking areas, and repair damage thereto caused by operations, at no additional cost to City. Such repair shall be to the satisfaction of the City. The Contractor shall take whatever means are necessary to prevent tracking of mud onto access roads and parking areas, public roads, and shall keep said areas roads free of debris. The Contractor shall utilize street cleaning machines as necessary to maintain the streets free of dirt and debris from its operations at all times.

C. Dust Control: Take proper and efficient steps to control dust. Contractor to supply water for dust control. Coordinate with City for temporary construction water.

D. Storage of Materials: Neatly place excavated materials far enough from the excavation to prevent stability problems. Keep the materials shaped so as to cause the least possible interference with drainage. Provide all such erosion control measure as are required to prevent loss of material or damage to property. The cost of maintaining and protecting stockpiled materials shall be

considered to be included in the price paid for excavating, filling, or furnishing the materials, and there will be no separate payment allowed therefore.

E. Existing Facilities: Maintain access to existing facilities to permit continued operation of the WWTP as required by the City. Maintain access for fire fighting equipment, access to fire hydrants, and other emergency vehicles.

F. Erosion and sediment control shall be per Section 01 57 13, Temporary Erosion and Sediment Control.

G. Finished Condition: Grades shall be maintained in a finished condition and true to grade until acceptance of the contract as complete.

3.02 SITE PREPARATION

A. The ground surface shall be prepared for grading by removing existing hardscape, asphalt, vegetation, large roots, debris, other deleterious material, AC, and other items noted for removal.

B. Voids created by the above removals shall be filled and recompacted with the material and to the requirements of the area in question.

3.03 CLEARING AND GRUBBING

A. Unless shown otherwise on the drawings, the entire area to be graded shall be cleared and grubbed.

B. The natural ground surface shall be cleared of all vegetation including trees, logs, upturned roots, roots of down trees, brush, grass, weeds and other objectionable material including concrete and masonry.

C. Within the limits of clearing, the areas below the natural ground surface, shall be grubbed to a depth necessary to remove all stumps, roots, buried logs, and all other objectionable material.

D. Voids created by the above removals shall be filled and recompacted with the material and to the requirements of the area in question.

E. Properly dispose of all removed objectionable material, including vegetation, asphalt, PCC.

3.04 EXCAVATION

A. Perform all construction excavation, including hand digging, shoring, de-watering, asphaltic concrete removal, concrete removal, and grading necessary or required for the construction of the Work as covered by these Specifications and indicated on the Drawings. The excavation shall include, without classification, the removal and disposal of all materials of whatever nature encountered, including buried tree roots/root balls, water and all other obstructions that would interfere with the proper construction and completion of the required work.

B. Contractor shall determine suitability of soils used for general backfill per Paragraph 2.01 of this Section.

C. Temporary Excavation Slopes: Temporary excavation slopes shall comply with Cal-OSHA requirements for the soil types and conditions encountered and the Soils Report. Refer to Section 31 41 00 for shoring requirements. Unless other materials are encountered, temporary excavation slopes shall be constructed as follows:

D. Simple excavation slopes shall have a maximum slope of 1.5:1 (horizontal to vertical) in non-water bearing soils less than 20 feet deep). Flatter slopes and/or a shoring system shall be utilized as the soil conditions dictate.

E. Overexcavation for structures:
   1. General.
      a. Excavate to a level plane a minimum depth indicated.
      b. Overexcavated includes the foundation area, plus 3 feet to each side of any structures. Such structures include walkways, ramps, concrete equipment slabs, pre-cast concrete boxes/valults.
      c. Following overexcavation, the areas shall be scarified to a minimum depth of 12 inches, moisture conditioned, and recompacted to a minimum of 90 percent relative compaction.
   2. Equipment Pads.
      a. Overexcavate minimum 12 inches below pad grade.
      b. Moisture condition and compact exposed surface.
      c. Previously removed soil shall be cleared of organic matter, moisture conditioned and compacted as fill up to 6 inches below pad grade.

F. Barriers: Barriers shall be placed around all excavations and at such places as may be necessary to warn all pedestrian and vehicular traffic of such excavations.

G. Sawcutting Pavement: Where trenching or excavation occurs in paved areas, the pavement shall be saw-cut and broken ahead of the trenching or excavation operation in areas that are not indicated to be re-paved. The extent of paving removed shall be limited to the minimum necessary for the excavation. However, the sawcut limits shall be extended for the following reasons:
   1. To form neat, straight and square lines.
   2. To include areas of pavement damaged by the Contractor.
   3. To allow for sloped excavation walls.

3.05 EMBANKMENT (FILL)

A. The Contractor shall perform all construction embankment and filling including shoring, de-watering, backfilling, structural fill, non structural fill, sand and aggregate bases, compaction and grading necessary or required for the construction of the Work as covered by these Specifications and indicated on the Drawings. Embankment (fill), shall include, without classification, the

preparation, placement, compaction and finishing of all earth materials to the lines and grades prescribed by the Contract Documents.

B. Scarification: Areas to receive fill shall be prepared by clearing and grubbing, and scarifying to a minimum depth specified in Paragraph 3.04.E of this Section, moisture conditioning and recompacting to the minimum relative compaction specified for the fill to be placed above.
   1. Voids created by dislodging cobbles and/or debris during scarification shall be backfilled and recompacted, and the dislodged materials shall be removed from the work area.
   2. The Geotechnical Engineer will review the bottom of the excavation prior to placement of fill materials.

C. Gravel Bed for Diversion Boxes
   1. All new diversion boxes, whether at the time of installation appear to be above the groundwater table or not, shall be placed level and founded on a minimum 1-foot thick bed of crushed gravel.
   2. If sand, aggregate base, decomposed granite, or similar materials are used as nonexpansive materials, they shall be moisture conditioned and compacted to a minimum of 95 percent of maximum dry density.
   3. Where free draining crushed gravel is used, it shall be track rolled, wheel rolled, or compacted with a vibratory plate. Compaction testing of crushed gravel is not necessary if the above procedures are used.
   4. Wrap gravel fill beneath boxes with filter fabric, unless otherwise specified.

D. Imported nonexpansive fill material shall be placed as follows:
   1. A minimum of 18 inches shall be placed below the bottom of slab elevation for the building overexcavation area, and below exterior flatwork.
   2. Nonexpansive material shall be placed in level lifts not exceeding 8 inches in loose thickness.
   3. If sand, aggregate base, decomposed granite, or similar materials are used as nonexpansive materials, they shall be moisture conditioned and compacted to a minimum of 95 percent of maximum dry density.
   4. Where free draining crushed gravel is used, it shall be track rolled, wheel rolled, or compacted with a vibratory plate. Compaction testing of crushed gravel is not necessary if the above procedures are used.
   5. Immediately prior to placing nonexpansive material, the exposed soils shall be moisture conditioned to at least optimum moisture content. Nonexpansive material shall not be placed if desiccation cracks present in the underlying soil.

E. General fill and backfill soils shall be placed in level lifts not exceeding 8 inches in loose thickness, moisture conditioned, and compacted. All materials used as fill shall be cleaned of all debris and any rocks larger than 3 inches in diameter. When fill material contains rocks, the rocks shall be placed in a sufficient soils matrix to ensure that voids caused by nesting of the rocks will not occur and that the fill can be properly compacted.

F. Moisture Content: At the time of compaction, the moisture content of fill materials shall be such that the specified relative compaction will be obtained and the fill will be in a firm and stable condition. Fill material which contains excessive moisture shall not be compacted until the material is dry enough to obtain the required compaction. Full compensation for any additional work involved in drying fill material to the required moisture content shall be considered included in the contract price paid for excavating or furnishing the material and no additional compensation will be allowed therefore.

G. Compaction: Fill shall be placed and compacted as indicated on the plans or specifications. If no compaction level is specified, the following shall be used as the minimum relative compaction.

1.	Upper 12-inches of subgrade	95%
2.	All aggregate Bases	95%
3.	Other fill areas:	90%
4.	Trench Backfill: Per Section 31 23 33 Trenching and backfill	
5.	Select Backfill	95%

3.06 POND EMBANKMENT SUBGRADE PREPARATION

A. Pond embankment subgrade preparation shall be in accordance with Section 26-1.03 of the Caltrans Standard Specifications, except as specified herein. Subgrade preparation shall include scarification and re-compaction of the upper 12 inches below base material.

B. Subgrade shall be scarified to a minimum depth of 12 inches. The soil shall then be moisture conditioned for proper compacting and then compacted to a relative compaction of not less than 95% in the upper 12-inches.

C. Tolerances: The Subgrade elevation shall not vary more then 0.05 feet above or below the plan specified, except that if the subgrade elevation is more than 0.05 feet below the specified grading plane, the Contractor may place and compact Class 2 aggregate base to raise the surface to within tolerances. There shall be no additional payment for such Class 2 aggregate base.

D. Proof rolling: Materials shall be firm and unyielding when proof-rolled with rubber-tired grading equipment prior to paving operations. When compaction of the subgrade areas on fill and embankments has been properly obtained, only such additional rolling will be required as necessary to obtain a thoroughly compacted subgrade immediately prior to placing the aggregate base thereon.

3.07 UNSUITABLE SOIL

A. Unsuitable soil is soil that due to its nature, cannot be properly compacted to or is yielding and cannot provide support for the overlying structural section.

B. A condition of soil moisture exceeding optimum moisture content to a degree that causes yielding or prevents proper compaction shall not be cause to consider soil as unsuitable.

C. The Geotechnical Engineer shall determine whether soil shall be considered unsuitable. If the soil is determined to be unsuitable, the Geotechnical Engineer may direct the Contractor to follow an alternative method of construction to provide additional support. Such alternative measures will be paid for as extra work.

3.08 TESTING

A. Material Quality: When requested by the Geotechnical Engineer, the Contractor shall provide samples of earthwork materials furnished or excavated in sufficient quantities for materials testing. There shall be no additional payments made for providing such samples. Should any materials fail to meet the Contract requirements, the Contractor shall remove all such nonconforming material, and replace it with conforming material at no cost to the Owner.

B. Field Testing and Observation:
   1. The Contractor shall coordinate his activities to allow for the following inspection by the City:
      a. Review and test materials proposed for use.
      b. Observe excavations prior to backfilling or pouring concrete.
      c. Observe placement and test compaction of fill.
   2. The Contractor shall excavate holes for in-place soil sampling. The City will pay for initial testing. If initial tests fail inspection, the failed portions shall be removed, re-compacted, and re-tested. The Contractor shall be responsible for costs of additional inspection and re-testing resulting from non-compliance.

C. Testing Methods:
   1. Relative Compaction: In-place density divided by the maximum dry density laboratory compaction expressed as percentage.
   2. Durability Index: Manual of Test, State of California, Department of Transportation
      a. R Value Testing: California Test 301
      b. Specific Gravity: ASTM D854.
      c. Laboratory Compaction: ASTM D1557, Method A or C
      d. In-place Density: ASTM D1556 or ASTM D2922
      e. Particle Size Analysis of Soils: ASTM D422
      f. Plastic Limit and Plasticity Index: ASTM D4318
      g. Soil Classification: ASTM D2487
      h. In-place Moisture Content: ASTM D3017

3.09 CONTROL OF WATER

A. General: The Contractor shall be responsible for the control of surface drainage and subsurface water throughout the construction project.

B. Surface Water: The Contractor shall be responsible for furnishing temporary drainage, sediment and erosion control facilities to convey and dispose of

surface water falling on or passing over the site and to minimize water quality impacts.

C. Subsurface Water: The Contractor is responsible for the control of groundwater during general and trench excavations. Methods that may be required during construction include over-excavation, pumping, drying soil, and shoring. The Contractor shall include the cost of such measures in the bid items requiring such excavation. Dewatering shall be in accordance with Section 31 23 19, Dewatering, and all costs for site dewatering activities shall be included in the contract lump sum price for Dewatering per the Bid Schedule.

D. Disposal of water: Dispose of water in such a manner as to cause no injury or nuisance to public or private property or be a menace to the public health. De-watering devices must be adequately filtered to prevent the removal of fines from the soil.

E. For construction dewatering permit requirements, refer to Section 31 23 19, Dewatering.

3.010 DISPOSAL OF EXCAVATED MATERIAL

A. Use as trench backfill: Excavated material shall not be used as trench or select backfill, unless it is designated as such in these specifications or if approved in writing by the Geotechnical Engineer.

B. Use as onsite fill: Excavated soil may be used as onsite fill, subject to the restrictions in these specifications.

C. Export: Where excavated material will not be reused onsite, the Contractor shall haul the material away. The Contractor is responsible for determining the nature of the material to be exported, for the proper location to deliver the material to, for obtaining all permits and processing, and for the proper placement and handling of the material at the offsite location.

END OF SECTION

SECTION 31 23 33

TRENCHING AND BACKFILLING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
1. Trench excavation.
2. Trench Backfill.
3. Control of surface waters and groundwater.
4. Temporary and permanent resurfacing.
5. Removal and disposal of materials.

B. SUBMITTALS
1. Delivery certifications (load slips) for all aggregate base and backfill.
2. Delivery certifications (load slips) for concrete slurry backfill.
3. Material samples as may be required by the Geotechnical Engineer for test purposes.

PART 2 PRODUCTS

2.01 SELECT BACKFILL: SECTION 31 00 00 - EARTHWORK

2.02 Native Material as Trench Backfill: Native soil materials may not be used as trench backfill in the pipe zone, unless approved in writing by the Geotechnical Engineer. Native material may be used as subsequent backfill provided requirements of Paragraph 2.01E, Section 31 00 00, are met, and such material is approved for use by the Geotechnical Engineer. Site soils shall be considered Type C.

2.03 Bedding and Pipe Zone: Select backfill per Paragraph 2.01A, Section 31 00 00, and meeting sand equivalent of 30 or greater.

2.04 Subsequent Backfill: Imported or native non-expansive material meeting the requirements of Paragraph 2.01E, Section 31 00 00.

2.05 Thrust Blocks (where shown on the drawings): 1,500 psf dead load plus live loads maximum allowable vertical bearing capacity. Minimum size 3 SF size.

PART 3 EXECUTION

3.01 TRENCH EXCAVATION

A. Trenches shall be constructed in accordance with the details shown on the Drawings, and the following:

B. Excavation limits: Excavate trenches to the minimum and maximum trench widths shown on the drawings.

C. Open Trench Construction: Trench construction shall be by open trench excavation unless shown otherwise on the plans.

D. Maximum Length of Open Trench: Except by permission of the Geotechnical Engineer, the maximum length of open trench shall be 200 feet, or the length of pipe that can be installed in a single day, whichever is less. The length of open trench includes open excavation, areas with active pipe laying and backfilling, and those areas not yet temporarily resurfaced.

E. Utility Crossings: Protect all existing facilities to be crossed. Hand digging of trenches may be necessary.

F. Trench Excavation in Existing Paved Areas to be Restored to Pre-Construction Condition: In paved areas, the trench excavation limits shall be sawcut. The sawcut lines shall be straight and neat in appearance and shall be parallel or perpendicular to the trench construction, unless allowed by the Geotechnical Engineer. The sawcut limits shall be extended as necessary to include the entire excavation, and any edges damaged during construction.

G. Trench Excavation in Areas of New Pavement: The trench excavation limits need not be sawcut in areas where new pavement will be installed. All trench excavation and backfilling operations shall be completed prior to final paving.

H. Sloped excavation along Quintana Road shall not be allowed. The Contractor may elect to use sloped wall construction, provided that adequate room is left for parking, utility protection, and traffic according to the traffic control plan and any encroachment permit or other Owner requirements. The Contractor shall receive no additional compensation for additional excavation, backfill, or for replacing the additional pavement required due to selection of a sloped trench construction.

I. Over-Excavation: If the trench is over excavated below the limits necessary, backfill and compact to 95 percent relative compaction with select backfill. There shall be no additional payment to the Contractor for over-excavations not directed by the Geotechnical Engineer.

J. Unsuitable Material: Unsuitable soil is soil that due to its nature cannot be properly compacted to or is yielding and cannot provide support for the overlying structural section. Excessive moisture content shall not be cause for a material to be considered unsuitable. The Geotechnical Engineer shall determine whether soil shall be considered unsuitable. If the soil is determined to be unsuitable, the Geotechnical Engineer may direct the Contractor to remove the material and replace it with select backfill or other material as directed by the Geotechnical Engineer. Such alternative measures will be paid for as extra work.

K. Wet soil: A condition of soil moisture exceeding optimum moisture content to a degree that causes yielding or prevents proper compaction shall not be cause to consider soil as unsuitable. If wet soils are encountered, the Contractor shall take such measures as are required to dry the soil to a degree that it can be compacted and form a firm and unyielding surface. These measures shall be included in the bid items requiring trench construction and there shall be no separate payment therefore.

L. Trenches in Fill Areas: For trenches to be excavated through fill, including previously placed trench backfill (such as at manholes or for building connections), the structural backfill shall be first compacted at a level at least 3 feet from the top of the piping or conduit elevation and then retrenched to pipe grade.

M. Disposal: Disposal of excavated material shall be as specified in Section 31 00 00 - Earthwork.

3.02 PIPE BEDDING AND PIPE ZONE

A. Unless shown otherwise on the plans, trench bedding shall be defined as that material 6” below the pipe, supporting, surrounding and extending 12” above the top of pipe.

B. Bedding Placement: Sand bedding shall be placed to provide uniform support for the pipe or conduit prior to lowering the pipe or conduit in place. Holes shall be shaped for pipe bells, and the bedding shall be rounded to the shape of the pipe barrel. If the bedding exceeds 6 inches below the bottom of the pipe, it shall be compacted to a relative compaction of 95% prior to placing the pipe. Bedding shall be completed and compacted prior to placing any pipe zone backfill.

C. Cement Slurry Bedding Placement: Prior to placing cement slurry bedding, the Contractor shall employ a method to prevent the pipe from floating or shifting position. If the pipe or conduit does float or shift position, the contractor shall be responsible for removing and reinstalling the pipe or conduit. Plugs and/or barriers shall be used to prevent the cement slurry from flowing to unwanted areas of the trench or into the pipe.

D. After placing cement slurry bedding, subsequent backfill may not be placed for 8 hours unless the subsequent backfill is also cement slurry, except that if the when concrete sand is used for the aggregate and the in-place material is free draining, backfilling may commence as soon as the surface water is gone.

3.03 TRENCH BACKFILL

A. Inspection Prior to Backfill: Backfill material shall not be placed over the pipe or conduit until after the joints have been completed and inspected by the Geotechnical Engineer.

B. Protect trench from sloughing of material that is underlying existing PCC pavement to remain. Owner will not pay extra for additional backfill required by Contractor to fill such voids.

C. Protect pipes from flotation during backfill and compaction.

D. Backfill in existing paved areas where the depth of cover will be 2 feet or less shall be 1-sack sand-cement slurry. For HDPE pipe, cement slurry backfill shall be used in existing streets, if the depth of cover is less than 3 feet.

E. Placement of Trench Backfill: Trench Backfill shall be placed in level lifts not exceeding 6 inches in loose thickness, moisture conditioned, and mechanically compacted.

F. The minimum compaction (percent of maximum dry density) shall be:
   1. 90 percent for general trench compaction in pipe bedding, pipe zone and subsequent backfill.

2. 95 percent in the top 12-inches below subgrade

G. Compaction of backfill by jetting or flooding shall not be allowed.

H. No Trenches Left Open: All trenches shall be backfilled to the surface as soon as possible after the installation of the facilities. Prior to stopping work each day, all open trenches shall be backfilled to the surface or protected with non-skid traffic-rated steel plates.

3.04 TRENCH RESURFACING

A. Steel Traffic Plates: When approved by the Geotechnical Engineer, steel traffic plates may be used in lieu of backfilling. The Contractor shall monitor the condition of the traffic plates and maintain their placement to provide a safe driving condition.

3.05 TESTING

A. Compaction Testing: The Owner will hire an independent testing company to perform compaction testing. The Contractor shall make the trench available to the tester, at the depths and locations required by the Geotechnical Engineer. When testing requires personnel to enter into a deep trench, the Contractor shall provide all shoring or other methods necessary for a safe working condition in compliance with the approved trench safety plan, The cost of providing safe access to the trench backfill for testing purposes shall be included in the bid items requiring such trench backfill, and there will be no separate payment therefore.

B. Failed Compaction Tests: The Owner will pay for the initial cost of compaction tests. Should any initial or subsequent test indicate that the material fails to meet the required level of compaction, the Contractor shall be responsible for all such measures necessary to bring the material into compliance, at no additional cost to the Owner. The backfill shall then be retested. The Contractor is responsible for the cost of such retesting following a failed test, and the Owner may deduct the cost of such from the amounts owed under the Contract.

3.06 CAL-OSHA COMPLIANCE

A. See Section 31 41 00, Sheeting, Shoring and Bracing.

END OF SECTION

SECTION 31 41 00

SHEETING, SHORING AND BRACING

PART 1 GENERAL

1.01 DESCRIPTION

Provide protective installation consisting of shores, wales, braces, posts, piling, sheeting, anchorages and fastenings, both temporary and permanent, for accomplishment and protection of work.

A. Work Included.
   1. Shoring and sheeting for structure excavation.
   2. Temporary sheeting and bracing for piping work.
   3. Materials for permanent sheeting and bracing.

1.02 SUBMITTALS

A. Submit for record purposes only, not for review or approval, calculations of the shoring systems including sheeting size, wales, rakers, anchor system, struts, earth anchors, anchor piles, tie rods or any other components pertinent to the design prior to the start of any work involving sheeting and bracing. All designs submitted shall be signed by an engineer duly registered in the State of California.

B. Cal-OSHA compliance: Nothing in this section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the construction safety orders. Failure to comply with any of the Cal-OSHA rules, orders, and regulations shall be sufficient cause for the Engineer to immediately suspend all work. No compensation for costs incurred by such emergency suspension will be allowed.

C. Designation of the Competent Person for trench safety as defined by Cal-OSHA.

D. Trench Safety Plan: Prior to performing excavation for any trench over five feet in depth, the Contractor shall submit for approval by the Engineer, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of trenches. If such plan complies with the Construction Safety Orders, it shall be submitted at least 5 working days prior to the start of trench excavation. If such plan varies from the Cal-OSHA Construction Safety Orders, the plan shall be prepared and signed by a registered Civil Engineer, and shall be submitted at least 4 weeks prior to any trench excavation. No trenching shall begin until such plan has been approved by the City.

1.03 JOB CONDITIONS

A. The description of job conditions under Section 31 00 00 - Earthwork, and 31 23 33 – Trenching and Backfilling, form a part of this subsection. Federal, state and local requirements for safety of job personnel and public apply to work under this Section.

1.04 CAL-OSHA COMPLIANCE

A. Excavation Safety: The Contractor's attention is directed to the provisions in Sections 6705, and 6707 of the State Labor Code, California Civil Code Section 832, the United States Department of Labor Rules 29 CFR, Part 1926, the Cal-OSHA Construction Safety Orders, Section 5.47, Safety and Trenching of these Specifications.

B. Permit: The Contractor shall have a Cal-OSHA permit as required by California Labor Code Section 6500. Prior to beginning any excavation, the Contractor shall submit a copy of the Cal-OSHA permit and shall identify in writing the Competent Person designated to be in charge of trench safety for this project.

C. Adjacent Improvements: Provide support for excavations adjacent to existing improvements and structures to prevent damage or settlement. Attention is directed to the Soils Engineering Report and to Section 832 of the Civil Code of the State of California relating to lateral and subjacent supports.

D. Removal of trench supports: The support for excavation shall remain in place until the pipeline or structure has been completed. During the backfilling of the pipeline or structure, the shoring, sheeting, and bracing shall be carefully removed so there shall be no voids created and no caving, lateral movement, or flowing of the subsoil.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

Install sheeting and bracing for trench and structure excavation progressively as the removal of excavated material requires. Butt planks to exclude groundwater and fines, preventing the erosion of voids outside sheeting. In soft, wet ground drive sheeting to a lower level as excavation progresses so that sheeting is embedded in undisturbed earth. Bracing of sheet piling may be permitted to penetrate the structural concrete only as approved by the Engineer. Install wales and struts at close intervals so as to prevent displacement of the surrounding earth and to maintain safe conditions in the work area. Any damage proven to result from improper installations shall be the responsibility of the Contractor. Withdraw individual planks alternately as the backfill is raised, maintaining sufficient sheeting and bracing to protect the Work and workmen. Remove bracing

completely. Where unstable conditions occur in the underlying strata from any cause, and withdrawal of sheeting will endanger the Work, a portion of the sheeting, including bracing, may be left in place with approval of the Engineer. Remove all wood within the zone extending below a depth of four (4) feet from finished grade. Leaving such material in place shall not be cause for an increase in Contract Price.

END OF SECTION

SECTION 33 31 00

SANITARY UTILITY SEWARAGE PIPING

PART 1 GENERAL

1.01 DESCRIPTION

Furnish and install all HDPE sewer process piping; fittings, pipe penetrations, and appurtenances shown and specified in accordance with the requirements of the Contract documents. The pipelines shall be complete with all necessary fittings, supports, connectors, testing, excavation, backfill, to provide a functional installation. Coordinate alignment and installation of all new and existing site utilities, including electrical, water, sewer, and others as shown on the plans. It shall be the Contractor's responsibility to coordinate alignments of utilities required as part of the Work, at no additional cost to the Owner.

1.02 RELATED SECTIONS

A. Section 31 23 33 – Trenching and Backfilling

B. Caltrans 2010 Standard Specifications, Section 64 "Plastic Pipe".

1.03 SUBMITTALS

In accordance with Section 01 33 00, Submittal Procedures, submit the following:

A. Manufacturer's Literature for pipe, couplings, fittings, and other pipeline components.

PART 2 PRODUCTS

2.01 HDPE GRAVITY PIPE, 4" THROUGH 60" DIAMETER

A. Unless shown otherwise on the plans, all process piping shall be Type S corrugated polyethylene pipe with smooth interior, in accordance with applicable sections of Caltrans Section 64, ADS N-12 WT (watertight) pipe or approved equal.

B. All joints shall be water-tight unless otherwise specified. Joints shall be capable of withstanding 10.8 psi in accordance with ASTM D3212. Test per Caltrans Section 61 "Culvert and Drainage Pipe Joints", Para. 61-1.01D(1)(a).

PART 3 EXECUTION

3.01 TRENCH CONSTRUCTION:

Comply with trench detail on the plans, and Section 31 23 33, Trenching and Backfilling, and Caltrans Section 64.

SECTION 33 47 13

POND LINERS

PART 1 GENERAL

1.1 WORK INCLUDED

A. Furnish all labor, materials, tools, equipment, and perform all work and services necessary for the installation of the high-density polyethylene geomembrane as shown on the Contract Drawings and as specified, in accordance with provisions of the Contract Documents, and completely coordinated with work of all other trades.

B. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete liner system.

1.2 RELATED WORK

A. Special Conditions and Division 1 - General Requirements

B. Section 02200 - Earthwork

C. Section 02225 – Trenching, Bedding and Backfill

1.3 SUBMITTALS

A. Contractor shall submit before ordering materials or work start, the following:

1. Submit shop drawings including information on materials properties, manufacturing quality and control.

2. Manufacturer's Certificate of Proper Installation.

3. Proposed installation panel layout.

1.4 QUALITY STANDARDS

A. The manufacturer shall meet the National Sanitation Foundation Standard 54 requirements for Flexible Membrane Liners, and shall have at least five (5) years continuous experience in the manufacture of polyethylene geomembrane and/or experience totaling 10,000,000 square feet of manufactured polyethylene geomembrane.

B. The installation contractor shall be the manufacturer or a dealer trained and licensed to install the manufacturer’s geomembrane.

C. Ensure polyethylene membranes contained in this and referenced sections are produced in full compliance with specified items and any references to codes and standards. Abbreviated forms of more commonly referenced standards are as follows:

1. ASTM – American Society for Testing and Materials
2. GRI – Geosynthetics Research Institute
3. FTMS – Federal Test Method Standards

D. All polyethylene geomembranes, neoprene seals, water cut-off mastic, welding rods, miscellaneous hardware under this section shall be the product of one supplier. Approved manufacturers are Poly-Flex, Inc., Watersaver, or approved equal.

PART 2 PRODUCTS

2.1 GENERAL

A. The geomembrane shall be High-Density Polyethylene (HDPE), smooth both side (non-textured).

B. Gasket material shall be neoprene, closed cell medium, ¼ inch thick, 25 foot lengths with adhesive on one side.

C. Metal battens, banding, adjustable clamps, and all hardware shall be stainless steel.

D. Water cut-off mastic shall be Neoprene Flashing Cement, or approved equivalent.

E. Sealant shall be General Electric Silicone, RTV 103, or approved equivalent.

F. The membrane shall be underlain with 10 ounce cushion textile.

2.2 LINER MATERIAL REQUIREMENTS

A. Liner material properties shall be as follows:

PROPERTY	**TEST METHOD**	**VALUE**
Thickness	ASTM D 5994	60 mils
Sheet Density	ASTM D 1505	0.94 g/cc
Carbon Black Content	ASTM D 1603	2.5%
Carbon Black Dispersion,	ASTM D 5596	A2
Tensile Properties:	ASTM D6693	CAT.1
Tensile Strength at Yield		126 ppi
Elongation at Yield	12%	
Elongation at Break	100%	
Tensile Strength at Break		90 ppi

Tear Strength	ASTM D 1004	42 lb
Puncture Resistance	ASTM D 4833	90 lb
Stress Crack Resistance	ASTM D5397	300 hours
UV Resistance, High Pressure OIT	ASTM D5885	50% retained after 1600 hours

PART 3 EXECUTION

3.1 STORAGE

The geomembrane shall be stored so as to be protected from puncture, dirt, grease, moisture and excessive heat. Any damaged material shall be stored separately for repair or replacement. The rolls shall be stored on a prepared smooth surface (not wooden Pallets) and should not be stacked more than two rolls high.

3.2 EARTHWORK

A. General

Inspect the subgrade preparation. Prior to liner installation the subgrade shall be compacted in accordance with Section 31 00 00, Earthwork. All surfaces to be lined shall be steel roller compacted, raked smooth, free of all foreign and organic material, sharp objects, or debris of any kind. The subgrade shall provide a firm, unyielding foundation with no sharp changes or abrupt breaks in grade. Standing water or excessive moisture shall not be allowed.

The Contractor's installer, on a daily basis, shall document and approve in writing, the surface on which the geomembrane will be installed. After the supporting soil surface has been approved, it shall be the Contractor's responsibility to indicate to the inspector any changes to its condition that may require repair work.

B. Vegetation Control

If necessary, sterilize the area using an effective soil sterilant specifically formulated for vegetation present in the area. The sterilant shall not be harmful to the liner and shall be applied according to the recommendations of its manufacturer.

C. Cushion Textile Underlay

A 10 ounce cushion textile shall be placed on the prepared soil sub-base prior to the installation of the textured high density polyethylene liner. The cushion textile to be placed only after the soil sub-base has been documented and approved in writing by the Engineer.

D. Anchor Trench

The anchor trench shall be excavated to the line, grade, and width shown on the project construction drawings, prior to liner system placement. Minimum 4" rounded corners shall be provided in the trench to avoid sharp bends in the geomembrane.

3.3 METHOD OF PLACEMENT

A. The rolls shall be deployed using a spreader bar assembly attached to a loader bucket or by other methods approved by the Engineer.

B. The installer shall be responsible for the following:

1. Equipment or tools shall not damage the geomembrane during handling, transportation and deployment.

2. Personnel working on the geomembrane shall not smoke or wear damaging shoes.

3. The method used to unroll the panels shall not cause scratches or crimps in the geomembrane and shall not damage the supporting soil.

4. Adequate loading (e.g., sand bags or similar items that will not damage the geomembrane) shall be placed to prevent uplift by wind (in case of high winds, continuous loading is recommended along edges of panels to minimize risk of wind flow under the panels).

Geomembrane deployment shall proceed between ambient temperatures of 32°F to 104°F. Placement can proceed below 32° only after it has been verified by the Engineer that the material can be seamed according to manufacturer's recommendation, and Paragraph 3.4 of this Section. Geomembrane placement shall not be done during any precipitation, in the presence of excessive moisture (e.g., fog, rain, dew) or in the presence of excessive winds, as determined by the Engineer.

3.4 FIELD SEAMING

A. Approved seaming processes are fusion and extrusion welding. On side slopes, seams shall be oriented in the general direction of maximum slope, i.e., oriented down, not across the slope. In corners and odd-shaped geometric locations, the number of field seams shall be minimized.

B. No base T-seam shall be closer than 5 feet from the toe of the slope. Seams shall be aligned with the least possible number of wrinkles and "fishmouths." If a fishmouth or wrinkle is found, it shall be relieved and cap-stripped.

1. Seam Overlap. Geomembrane panels must have a finished minimum overlap of 4 inches for fusion welding and 6 inches for extrusion welding.

Cleaning solvents may not be used unless the product is approved by the liner manufacturer.

2. Seaming Equipment and Accessories. Approved equipment for field seaming are fusion welders and extrusion fillet welders.

3. Test Seams. Field test seams shall be conducted on the liner to verify that seaming conditions are satisfactory. Test seams shall be conducted at the beginning of each seaming period and at least once each 4 hours, for each seaming apparatus and personnel used that day.

   All test seams shall be made in contact with the subgrade. Welding rod used for extrusion welding shall have the same properties as the resin used to manufacture the geomembrane. The test seam samples shall be 10 feet long for fusion welding and 3 feet long for extrusion welding with the seam centered lengthwise. Five specimens shall be cut from each end of the test seams by the inspector. The inspector shall use a tensiometer to test 5 specimens for shear and 5 specimens for peel. Each specimen shall be one inch wide with a grip separation of 4 inches plus the width of the seam. The seam shall be centered between the clamps. The rate of grip separation shall be 2 inches per minute. Test results for seam strength properties shall be the average of five specimens. Four out of five specimens shall pass seam acceptance criteria. Shear and peel tests shall result in Film Tearing Bond (FTB), which is a failure in ductile mode of one of the bonded sheets by tearing prior to complete separation in the bonded area. If a test seam fails to meet field seam specifications, the seaming apparatus and/or seamer shall not be used for seaming until the deficiencies are corrected an a successful test seam is achieved.

4. Non-Destructive Seam Testing. The Installer shall non-destructively test all field seams over their full length.

5. Destructive Seam Testing. Destructive seam testing should be minimized to preserve the integrity of the liner. The installer shall provide the inspector with one destructive test sample per 500 feet of seam length from a location specified by the inspector.

6. Defects and Repairs. All seams and non-seam areas of the geomembrane shall be inspected by the inspector for defect, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter. The surface of the geomembrane shall be clean at the time of inspection.
   Each suspect location in seam and non-seam areas shall be non-destructively tested as appropriate in the presence of the inspector. Each location that fails the non-destructive testing shall be marked by the inspector, and repaired accordingly.

   Each repair shall be non-destructively tested. Repairs that pass the non-destructive test shall be taken as an indication of an adequate repair. Failed tests indicate that the repair shall be repeated and retested until passing test results are achieved.

The inspector shall keep daily documentation of all non-destructive and destructive testing. This documentation shall identify all seams that initially failed the test and include evidence that these seams were repaired and successfully retested.

3.5 BACKFILLING OF ANCHOR TRENCH

The anchor trench shall be backfilled by the earthwork contractor. Trench backfill material shall be placed and compacted in accordance with the project specifications.

Care shall be taken when backfilling the trenches to prevent any damage to the geomembrane. If damage occurs, it shall be repaired prior to backfilling.

3.6 TESTING

The geomembrane quality control testing shall be conducted by the manufacturer and shall meet the following frequency requirements.

	TEST DESCRIPTION	**METHOD**	**FREQUENCY**
1.	Thickness	ASTM D 5994	Every Roll
2.	Asperity Height	GRI GM 12	Every SecondRoll
3.	Tensile Properties:	ASTM D 6693	Every 20,000 lb.
	Tensile Strength at Yield		
	Tensile Strength at Break		
	Elongation at Yield		
	Elongation at Break		
4.	Tear Resistance	ASTM D 1004	Every 45,000 lb.
5.	Puncture Resistance	ASTM D 4833	Every 45,000 lb.
6.	Carbon Black Content	ASTM D 1603	Every 20,000 lb.
7.	Puncture Resistance	ASTM D 4833	Every 45,000 lb.
8.	Carbon Black Dispersion	ASTM D 5596	Every 45,000 lb.
9.	Density	ASTM D 1505	Every 200,000 lb.
10.	Oxidative Induction Time	ASTM D 3895	Per each formulation
11.	Environmental Stress:		
	Crack Resistance	ASTM D 5397	Once per resin lot

Resin lot shall be equal to one railcar of resin or 180,000 lbs.

The welding rod quality control testing shall be conducted by the manufacturer and shall meet the following frequency requirements.

A sample welding rod shall be tested at the frequency of once per 25 rolls of welding rod. The following tests shall be performed on the sample:

1.	Thickness	ASTM D 751
2.	Density	ASTM D 1505
3.	Melt Index	ASTM D 1238

4. Carbon Black Content ASTM D 1603

Results from the testing shall be reviewed by the Engineer. Material that does not meet specifications shall be identified and placed on hold. The test date shall then be transferred to the product date file for roll certification.

3.7 MATERIALS WARRANTY

The geomembrane shall be free from defects in materials and be able to withstand normal weathering from date of installation, for a period of 20 years for use in an unprotected aerated lagoon with a minimum exposed free-board of 9 linear feet (full sun exposure) around the full perimeter of the lagoon. The Contractor shall warranty installation for a period of 2 years from completion.

END OF SECTION

3.02 PIPE LAYING

A. Install to the grade and invert elevations shown on the plans. Allow on-site visual inspection by Owner's Representative of all piping prior to backfilling, upon request.

B. Temporary Plugs: When, for any reason, pipe laying is discontinued for an hour or more, the open end of each line shall be closed with a close-fitting stopper.

3.03 TESTING FOR PIPING

A. Test per Caltrans Section 61 "Culvert and Drainage Pipe Joints", Para. 61-1.01D(1)(a).

END OF SECTION

SECTION 33 47 99

SLUDGE REMOVAL FROM PONDS

PART 1 GENERAL

1.01 DESCRIPTION

A. The Work to be performed under this Section shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles, and furnishing all labor, transportation, and services, including fuel, power, water and essential communications and performing all work and other operations required for the fulfillment of the Contract in strict accordance with the Contract documents.

B. Work includes necessary equipment, materials, services and labor to remove/dredge, dewater sewage sludge from Ponds 1, 2 and 3 at City of Greenfield Wastewater Treatment Plant (WWTP), and haul dewatered biosolids to an approved composting or recycling facility, while allowing City staff to properly operate the existing WWTP without process disruption or plant upset.

C. The Work shall also include mobilization/demobilization of sludge removal/dredging and dewatering equipment, equipment, tools, personnel and all necessary items required to perform the Work defined.

D. The existing WWTP primary treatment facilities convey primary effluent directly into the ponds. Wastewater is generated on-site predominantly from residential homes with some commercial and restaurant wastewater flows. Contractor shall anticipate the character of municipal sludge to be dredged, dewatered, and removed from the site, and include the costs for any screening required prior to composting, at no additional charge to the Owner.

E. Use of geotextile bags to dewater sludge shall not be allowed.

F. Use of Percolation Ponds 4 and 5, and the effluent percolation fields for the purposes of sludge dewatering, shall not be allowed.

1.02 WORK BY OWNER

A. Pond and sludge removal activities specified herein shall be the full and complete responsibility of the Contractor. Coordinate closely with City operations staff, and Engineer as part of this Work.

1.03 CONTRACTOR'S USE OF SITE

A. Limit use of site to allow City occupancy/access, and unimpeded WWTP operations.

B. Time Restrictions for Performing Work: All work shall be in accordance with the work schedules stipulated in the General Conditions. Work on weekends shall not be allowed, without the prior approval of the City, for the purposes of meeting Contract Time.

C. Rights-Of-Way: The Work at the WWTP is on City-owned property. Contractor shall maintain all Work areas in City-owned or controlled property, clean of debris on a daily basis, and at a minimum shall restore to original conditions at the completion of the Work. Do not access neighboring agricultural fields at any time, and do not allow any biosolids or supernatant liquids to escape to such areas.

D. Daily Cleanup. Dewater and remove sludge materials from the WWTP ponds in a manner that does not cause disruption of WWTP processes (no bypassing will be allowed), and does not cause objectionable odors to nearby residences, buildings and public use areas. Haul all materials in a proper manner to avoid emanation of odors from transport vehicles. All sludge materials shall be properly covered to avoid flying debris and odors, and mechanically dewatered sludge shall be removed from the premises daily.

E. Final Cleanup: The Contractor shall promptly remove from the vicinity of the completed work, all rubbish, unused materials, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the Work by the City will be withheld until the Contractor has satisfactorily complied with the foregoing requirements for final cleanup of the project site

F. Access to Site: Limited to Contractor, Sub Contractors, City, and Engineer.

G. Construction Operations: Limited to areas adjacent to the WWTP ponds, as shown on the drawings.

1.04 WORK SEQUENCE

A. Prior to commencement of work and within 7 calendar days of Notice to Proceed, verify and confirm, to the City in writing, that existing areas in and around the WWTP are sufficient to allow Contractor to proceed with sludge removal/dewatering operations.

B. Remove and dewater sludge in a manner to allow continued un-interrupted service to the existing WWTP and effluent storage/disposal system. Relating to the treatment ponds, sludge removal operations shall be conducted one pond at a time (see work sequencing, Section 01 11 00, Summary of Work).

C. Contractor is advised that Pond 1 had sludge removed approximately two years ago; however, some sludge accumulation is expected from this pond.

D. Supernatant from all dewatering operations shall be returned to the upstream end of existing operational oxidation ponds to maximize detention time and aeration treatment through the plant process.

E. Once sludge dredging and mechanical dewatering operations begin, such sludge dredging and dewatering shall continue each consecutive Work Day until such time the sludge removal and dewatering operation is complete. This operation shall not be “piece-mealed”.

1.05 DEWATERING EQUIPMENT

A. Dewatering equipment shall of the mechanical type, such as belt press, centrifuge or other approved mechanical dewatering equipment. Regardless of proposed dewatering equipment, Contractor shall adequately address how odors will be effectively managed and controlled, and what mitigation measures shall be employed should odor generation be deemed to be objectionable. This shall be addressed in the Work Plan required. City and Engineering will determine the adequacy of such Work Plan prior to work commencement.

B. All equipment requiring power shall be powered by Contractor’s use of on-site portable generators or other means of power source(s). Such power sources and equipment shall meet the requirements of the local noise ordinance.

C. Provide a list of three references at municipal WWTPs where similar dewatering means and methods have been successfully used, in the past 3 years.

1.06 SUBMITTALS

A. Submit Construction Work Plan as part of the overall Work Plan required in Section 01 11 00, Summary of Work, delineating overall plan and sequence of Work, setup, coordination with Plant staff, location and space set up of equipment, sludge dewatering methodology, power requirements, chemicals proposed, odor and noise control plan, overall project schedule, and other details required to allow City and Engineer review of proposed Work Plan to conform to these Contract Documents.

B. Prior to sludge removal/disposal, provide necessary analytical sampling of sludge in accordance with disposal/composting facility requirements. Provide City with copies of such analytical testing at the same time submitted to disposal/composting facility. The cost of sampling and analytical testing shall borne by the Contractor, included in unit price for the Work, and no additional compensation shall be allowed therefore.

C. Final Submittals: Prior to requesting final payment, obtain and submit the following items to the Engineer for transmittal to the Owner:

1. Sufficient sludge moisture content analytical results (minimum of one sample per truck load of sludge hauled) to demonstrate adequate characterization of moisture content, calculation of quantity of sludge removed from ponds, expressed in dry tons.

2. Copies of all load and haul tickets, sludge analytical results, proof of final disposal/delivery to recycling or composting facility. See Section 01 70 00, Execution and Close-out Requirements.

3. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.

1.07 TESTING AND REPORTING REQUIREMENTS

A. Provide copies of all sludge sampling necessary to confirm sewage sludge is non-hazardous and acceptable to be received at Contractor's composting or recycling facility.

B. Provide load ticket for each truckload of sludge hauled from site. Provide a minimum of one moisture content analysis per truckload of sludge hauled from site. Calculate dry solids hauled and present data in an excel spreadsheet for review by Engineer and Owner. Update calculation spreadsheet and submit on a weekly basis to Engineer, no later than the following Monday of the prior work week.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 PROTECTION OF EXISTING IMPROVEMENTS

A. Existing Ponds 1, 2 and 3 are un-lined earthen oxidation ponds. Contractor shall adequately remove/dewater sludge and dry existing ponds prior to excavation and pond liner installation. Due care shall be taken to avoid removal, damage, or alteration of the newly installed pond liner system.

B. The contractor shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements, immediately, to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the contract documents.

C. The contractor shall protect all private and public property from damage due to its activities. If any damage does occur to public or private property as a result of the contractors operation, the contractor shall be responsible for the repair of the property.

D. The Contractor shall protect all above ground and underground utility improvements that may be impaired during construction operations.

Approval of Repairs: All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other work.

END OF SECTION

SECTION 40 05 59.26

FIBERGLASS REINFORCED SLUICE GATES

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes fabricated FRP sluice gates required for the complete installation of the work, at the City of Greenfield wastewater treatment plant, Monterey County, California.

1.02 REFERENCES

A. Design, fabricate and test valves and materials in accordance with manufacturer's recommended procedures and the following codes and standards:

1.	ASTM A193		Stainless Steel Anchor Bolts
2.	ASTM A276	-	Stainless Steel Bars
3.	ASTM B584	-	Alloy 865 Manganese Bronze
4.	ASTM D256	-	Izod Impact Strength
5.	ASTM D570	-	Water Absorption Rate
6.	ASTM D638	-	Tensile Strength
7.	ASTM D695	-	Compressive Properties of Rigid Plastic
8.	ASTM D696	-	Coefficient of Linear Expansion
9.	ASTM D790	-	Flexural Properties
10.	ASTM D792	-	Density and Specific Gravity at 230 C
11.	ASTM D1056	-	Polymer Grade
12.	ASTM D2563-0		-Visual Defects
13.	ASTM D2583	-	Indentation Hardness
14.	ASTM D2584	-	Resin, Glass & Filler Content
15.	AWWA C-563		Fabricated Composite Slide Gates
16.	AWWA C-540		Power Actuating Devices - Sluice Gates
17.	NSF-61	-	Potable Water

B. Composition of the sluice gate laminate shall be in accordance with the recommendations shown in the Quality Assurance Report for Reinforced Thermoset Plastic (RTP) Corrosion Resistant Equipment prepared under the sponsorship of the Society of the Plastics Industry, Inc. (SPI), and the Material Technology Institute (MTI) of the Chemical Process Industry for "Hand Lay-UP Laminates," and shall meet the specifications for Type I, Grade 10 laminates shown in Appendix M-1 of said report.

1.03 QUALITY ASSURANCE

A. Manufacturer shall be experienced in the design and manufacture of specific gates and accessories for a minimum period of 5 years.

B. Manufacturer shall have a qualified Engineer on staff with at least 5 years experience with hydraulic control gates.

1.04 WARRANTY

A. Manufacturer shall provide warranty for 25 years against corrosion.

1.05 SUBMITTALS

A. Submit the following for acceptance:
   1. Approval Drawings:
      a. showing all critical dimensions.
      b. Showing principal parts and materials.
      c. Spare parts list (when applicable).

1.06 DELIVERY, STORAGE AND HANDLING

A. Ship all gates with suitable packaging to protect products from damage.

B. Protect stem threads, flanges, stems and operators from damage.

PART 2 PRODUCTS

2.01 SLUICE GATE MANUFACTURERS:

A. Plasti-Fab Inc., or approved equal

B. Shall be Model No. HDTS 2’ x 2’ (width x height of opening), or approved equal.

C. Gate shall meet or exceed the requirements of AWWA C-563:
   1. Leakage:
      a. Sluice/slide gates shall have a maximum leakage rate of 0.10 GPM per Wetted Foot (1.24 LPM/m) of wetted linear seal under seating and unseating head pressures and shall provide adjustment to zero leakage.

D. Sluice/slide gates shall be wedging and have adjusting bolts to allow for a zero leakage rate.

2.02 MATERIALS

A. Gate body shall be:
   1. Engineered composite fiberglass reinforced plastic (FRP) completely encapsulating an internal steel reinforcing structure.
      a. Infusion molded to create a seamless corrosion barrier impervious to moisture.
      b. FRP resin shall be polyester.
      c. Internal Steel Reinforcing: Carbon Steel as needed for deflection requirements.
      d. Internal Core Foam: 2lb (0.9kg) polyisocyanurate closed cell rigid foam.

B. Guide Frame
   1. Head Frame: Type T-316L stainless steel.
   2. Guide Frame Rails: Type T-316L stainless steel.
   3. Operator Support Yoke: Type T-316L stainless steel.

C. Stems and Gate Hardware

1. Stem: Type T-316 stainless steel.
2. Gate Hardware: Type T-316 stainless steel.

D. Seals
1. Side, Top and Flush Bottom Seals: Hollow Bulb J Seal molded of extruded virgin neoprene.

E. J-Seal Clamping Bar and Fasteners
1. Clamping Bar: Type T-316L stainless steel.
2. Fasteners: Type T-316 stainless steel.

F. Lift Nuts and Thrust Nuts
1. Manganese Bronze, ASTM B-584, Alloy 865.

G. Thrust Collar
1. Type T-316L stainless steel.

H. T-Handle Wrench
1. Painted steel.
2. Provide two T-handle wrenches.

I. Anchor Bolts
1. Type T-316 stainless steel.

J. Stem Guides (When applicable)
1. Ultra High Molecular Weight (UHMW) polyethylene

2.03 DESIGN CRITERIA

A. Composition of the sluice gate laminate shall be in accordance with the recommendations shown in the Quality Assurance Report for Reinforced Thermostat Plastic (RTP) Corrosion Resistant Equipment prepared under the sponsorship the Society of the Plastics Industry, Inc. (SPI) and the Material Technology Institute of the Chemical Process Industries, Inc. (MTI) for “Hand Lay-up Laminates” and shall meet the specifications for Type 1, Grade 10 laminates shown in Appendix M-1 of said report.
1. Visual inspection for defects shall be made without the aid of magnification and defects shall be classified as to type and level as shown in Table 1 of ANSI/ASTM D2563-0, approved 2008. Allowable surface tolerances are as follows:

DEFECTS	ALLOWABLE TOLERANCE
Cracks Crazing Blisters Chips Pits Dry Spots Fish Eyes Burned Areas Entrapped Air	None

Wrinkles and solid blisters, not to exceed 1/8”	Maximum Deviation: 10% of thickness
Surface porosity (pinholes or pores in the laminate surface)	None
Exposed Glass Exposure of cut edges	None
Scratches	None more than .002” deep (.05mm)
Foreign Matter	None

B. Maximum Fiber Stress
   1. Ultimate maximum fiber stress shall not exceed 2.5 times the working stress.

C. Deflection
   1. Deflection across the gate width shall be limited to: L/360 or ¼” (6mm), whichever is less, at the maximum operating head.

D. Surface Conditions
   1. All sluice gates shall be installed flat and level.
   2. Warpage throughout the entire gate shall not produce a crown of more than 1/16” (1.6mm) in any direction.
   3. Gates having reinforcing members bolted or bonded to flat sheet stock will not be acceptable.

E. Sealed Area
   1. Sluice gate shall seal on all four sides.
   2. Design head pressure (feet), seating and un-seating, shall be designed for 6.0 feet for all gates, regardless of listed actual head pressure indicated in the table below.

Gate Schedule:

Hydraulic Control Structure	Gate QTY	Opening Size (diameter, Inches)	Gate Size	Head Pressure (feet): Seating and Unseating	TOW (Grate) Elevation	Invert Elevation	Operator
Influent Splitter Box	2	24”	2’ x 2’	5.34	229.60	223.00	2” Nut
Intermediate Control Structure 1	2	24”	2’ x 2’	4.84	229.60	223.00	2” Nut
Intermediate Control Structure 2	2	24”	2’ x 2’	4.84	229.60	223.00	2” Nut
Intermediate Control Structure 3	2	24”	2’ x 2’	4.00	229.60	223.00	2” Nut
Intermediate Control Structure 4	2	24”	2’ x 2’	6.00	229.60	221.00	2” Nut
Effluent Control Structure 1	2	24”	2’ x 2’	4.84	229.60	223.00	2” Nut
Effluent Control Structure 2	2	24”	2’ x 2’	4.84	229.60	223.00	2” Nut

Legend:

1. Seating/Unseating heads are measured from the invert of the gate opening to the high water level.
2. A quantity of two (2) T-Handle wrenches will be supplied for use with the gates.

2.04 CONSTRUCTION

A. Gate Body

1. Sluice gate body shall be manufactured of fiberglass reinforced polyester totally encapsulating an internal reinforcing structure.
2. Each gate shall be infusion molded individually to the exact dimensions specified. Seams and joints in and on the body are not acceptable.
3. Sluice gates shall be manufactured of reinforced thermoset plastic.
4. Gate body shall have UV Stabilizing pigment in the Resin to provide long-term protection from UV.
5. The surface shall be resin rich to a depth of .010 inches to .020 inches (.25 - .51mm) and reinforced with C-glass and/or polymeric fiber surfacing material.
6. The surface shall be free of exposed reinforcing fibers.
7. The composition of these layers shall be approximately 95% (by weight) resin. The remaining laminate shall be made up of copolymer composite and reinforcing fibers in a form, orientation and position to meet the mechanical requirements.
8. Structural reinforcing shall be utilized to attain the necessary stiffness to meet deflection requirements, and shall be well encapsulated with a laminate not less than 1/4” (6mm) thick on each side to ensure against any permeation by water to the core areas.
9. A Type T-316 stainless steel stem mounting bracket shall fasten to the gate with through bolts. The through holes shall not pass through or be in contact with the internal mild steel reinforcing.
10. Core material shall be 100% resistant to decay and attack by fungus and bacteria and be resistant to hydrocarbons.
11. Gate body shall be manufactured using advanced technology vacuum infusion resin transfer processes. The closed mold vacuum process must completely evacuate all air from the mold prior to infusing the mold with premium quality resin as specified. The vacuum infusion process must eliminate the potential of

air entrapment and/or voids in the matrix of the gate body (which cause defects and performance-detracting irregularities) thus producing a finished product that is one-piece, seamless and uniformly impenetrable by fluids eliminating interior corrosion as is produced by techniques that employ adhesives or mechanical fasteners to attach individual panels to a pre-fabricated framework resulting in seams along vertical and horizontal axes of the gate body which create stress-potential areas, portals for fluid infiltration, subsequent de-lamination and product failure due to corrosion.

B. Seals

1. The gate shall be equipped with elastomeric seals to reduce leakage.
2. Elastomeric J-seals shall be made of molded or extruded *neoprene* having a hardness range of 55 to 65 shore A durometer and conforming to ASTM spec. D-2000 having a maximum compression set of 25%, and low temperature brittleness to meet suffix F-17 (-40^0).
3. Seals, including bottom seals, shall be mounted on gate covers with type *T-316 stainless steel* cap screws and type *T-316L stainless steel* clamping bars thus providing a means of repair, and replacement without dewatering the channel.
4. Gates/penstocks shall be designed and manufactured with the seals mechanically affixed to the sluice/slide gate body, and not the guide frames. When replacement of seals eventually becomes necessary (variables such as frequency of open-close cycles, chemical composition and abrasiveness of the fluid will ultimately determine the effective life of the seals) the slide shall be removable from the guide frame without de-watering the channel and, in a suitable work area, easily and economically refitted with new seals. Gates/penstocks designed with seals integral to the guide frames, which require channel de-watering, scaffolding/lifts/ladders and time-consuming “non workshop” conditions shall not be permitted.

C. Frames and Guides

1. Guides shall be styled for *wall mounting* as shown on the contract drawings and/or gate schedule.
2. Guides shall be fabricated from *type T-316L stainless steel* and shall have a slot suitable for mating with the gate body.
3. The head rail shall be affixed so as to allow the gate to be removed from the guide without disassembly.
4. The head rail shall have a maximum deflection of 1/4” (6mm) when subjected to a horizontal force of four times the 40 lb. (2.8 ksc) maximum hand wheel pull.
5. Where required, as shown on the drawings, gate inverts shall be flush with the channel bottom.
6. Guides to be bolted to the head wall shall be equipped with heavy duty mounting angle for ease of mounting to the wall by means of Type *T316* stainless steel anchor bolts.
7. No wall thimbles shall be required for installation.

D. Adjustable Wedging Device

1. Sluice/slide gates shall be fitted with an adjustable wedging assembly comprised of a *Type T316L* stainless steel wedging bar and silicon bronze adjusting bolts with locking nuts. The adjusting bolts shall be non-galling for long-term easy adjustment. Sluice/slide gate wedging assembly shall be initially adjusted at the factory; however, they shall be easily adjusted to achieve the specified leakage rate.

E. Lifts & Operators

1. Operators shall be sized to start the gate moving under a maximum head pressure with a pull of not more than 40 lbs (2.8 ksc).
2. A 2-inch nut operator capable of being operated using a standard T-Handle operating wrench shall be supplied for each gate.

F. Operating Stems
1. Each sluice/slide gate shall be equipped with a *non-rising* operating stem. The stem shall be Type *T316* stainless steel.
2. The stem will have Acme threads and shall be provided with adjustable stop collars to limit upward and downward travel.
3. Stems shall have a maximum L/R of 200.
4. Stem guides with bronze or FRP bushings shall be used to maintain an L/R of 200.

2.01 PHYSICAL PROPERTIES

A. Structural characteristics for a 1/8" (3mm) glass mat laminate shall meet the following minimum physical properties:

Tensile strength	15,000 psi (1034 ksc)
Flexural Modulus	1,000,000 psi (70307 ksc)
Flexural Strength	20,000 psi (1406 ksc)
Compressive Strength	22,000 psi (1547 ksc)
Impact Strength	9.0 ft-lbs/in. (1.24 kgf.m/25mm)
Water absorption	0.13% (in 24 hours)

B. Seals: Extruded Virgin Neoprene Seals shall have the following physical characteristics:

Specific Gravity	1.25
Hardness	55 – 65 Shore A Durometer
Tensile Strength	1500 psi min. (0.07ksc)
Elongation	300%
Low temperature brittleness	- 40°

C. Wear Strips UHMW Polyethylene:

Tensile Strength	5,600 psi (0.7kg/cm^2)
Flexural Modulus @ 73^{0}F (23^{0}C)	130,000 – 140,000 psi (9140 – 9843kg/cm^2)
Coefficient of Friction	0.15
Water Absorption	0.01% in 24 hours

PART 3 EXECUTION

3.01 INSTALLATION

A. Thoroughly clean and remove all shipping materials prior to setting.

B. Install gates per Manufacturer's recommendations.

C. Operate all gates from fully opened to totally closed.

3.02 FIELD TESTING

A. A qualified factory representative shall provide one trip/one day of field service to inspect the first set of installed gates to provide field training, and verify the gates have been installed per the manufacturer's submittal drawings and owner's manual instructions. The inspection and training shall be performed after the first set of gates have been installed, but before they have been grouted. The installing contractor shall request this service a minimum of 15 working days prior to the scheduled testing day.

END OF SECTION

SECTION 46 51 13

FLOATING MECHANICAL AERATORS

PART 1 GENERAL

1.01 SUMMARY

A. This section covers floating mechanical aerators suitable for municipal wastewater service, in accordance with the specifications noted herein. Each aerator shall consist of a motor, a direct drive propeller driven at a constant speed, integral flotation unit, mooring cable and accessories, power cable, in conformance with this Specification.

1.02 REFERENCES

1.03 SUBMITTALS

A. Provide manufacturer's catalog cut sheets and shop drawings depicting details of the equipment, and demonstrating full compliance with these specifications.

1.04 QUALITY ASSURANCE

1.05 DELIVERY, STORAGE AND HANDLING

1.06 PROJECT/SITE CONDITIONS

A. The project site is located east of the City of Greenfield, California

B. Approximate Coordinates: 36° 20' 40"N, 121° 13' 6"W

C. Elevation, 229 feet above mean sea level.

D. The high average temperature in Greenfield is 61 degrees F in August, with a range of minimum temperature of 48 degrees F and maximum temperature of 93 degrees F. The lowest average temperature occurs in December/January, with an average temperature of 49 degrees F, with a minimum temperature of 22 degrees F and maximum temperature of 81 degrees F.

E. Prevailing winds westerly. Design wind for the purposes of mooring shall be 100 mph.

1.07 WARRANTY

A. Manufacturer's warranty that products materially conform to the requirements of this specification and are free from defects in material and workmanship, shall be a minimum of 12 months from date of Owner's filing of substantial completion, or 18 months from the date of delivery to the Project site, whichever is greater.

PART 2 PRODUCTS

2.01 AERATOR EQUIPMENT

A. Model 511-SS-AE Aqua-Lator®

2.02 AERATOR DRIVE MOTOR

A. The motor shall deliver 5 HP at a nominal speed of 1800 RPM and shall be 230/460 volt, 3-phase, 60 cycle service.

B. The motor shall be totally enclosed, fan-cooled and rated for severe chemical duty, and shall have a 1.15 service factor.

C. The motor windings shall be non-hygroscopic, and insulation shall equal or exceed NEMA Class F.

D. A condensate drain shall be located at the lowest point in the lower end-bell housing.

E. A labyrinth seal shall be provided below the bottom bearing to prevent moisture from penetrating around the motor shaft.

F. All motor parting surfaces shall be deep registered and Permatex sealed.

G. All through bolts, nuts, and screws shall be of type 18-8 stainless steel.

H. A stainless steel nameplate shall be provided with each motor and shall be securely fastened thereto. The voltage, speed, insulation class, amperage, service factor, wiring diagram, motor serial number, and the manufacturer's name and address shall be steel stamped or otherwise permanently marked.

I. The motor supplied shall be U.S. Electric Motors, Baldor Motors, Reliance Motors, or approved equal.

J. The motor shall be manufactured of cast iron, with a 304 SS rain shield. Steel stamped rain shields are not acceptable.

K. Performance: Each aerator shall deliver a minimum of 88% and a maximum of 95% of nameplate horsepower as evidenced by measured operating ampere load and voltage readings.

Horsepower is computed by:

$$HP = \frac{(\text{Volts}) \times (\text{Amps}) \times (\text{Efficiency}) \times (\text{P.F.}) \times (1.732)}{746}$$

Where: HP = Delivered Horsepower
P.F. = Power Factor of Motor

2.03 MOTOR SHAFT

A. The motor shaft shall have a one-piece shaft continuous from the top motor bearing, through the lower bearing, and down to and through the propeller.

B. The one-piece shaft shall have a minimum diameter of 1.375 inches and be manufactured of 17-4PH stainless steel, in the 1150-HT condition.

C. The one-piece shaft shall have a minimum yield strength of 135,000 PSI.

D. The one-piece shaft shall be machined to a tolerance of plus or minus .003 inches total indicated run out.

E. The one-piece motor shaft shall be keyed and threaded to mate to a keyed propeller. Shafts that require pinning and gluing are not acceptable.

2.04 MOTOR BEARINGS

A. Motor bearings shall be re-greasable. Sealed bearings are not acceptable.

B. The top and bottom motor bearings shall be of the combined radial and axial thrust type and will be packed at the factory with Chevron Black Pearl Grease.

C. The top motor bearing shall be shielded on the bottom side only.

D. The bottom motor bearing shall be open.

E. The lower motor bearing inner race shall be locked to the motor shaft via a special washer and locking nut arrangement. The shaft shall be threaded just below the lower bearing and shall have a keyway cut into the motor shaft. This key shall accept a tab from the I.D. of the locking washer, and the locking nut shall have recesses to accept a tab from the O.D. of the locking washer to prevent the nut from backing off. Snap ring type retainers will not be acceptable.

2.05 DISCHARGE CONE

A. The discharge cone casting shall act as a base for the aerator motor, and alignment of the motor to this base shall be controlled by machined index fittings that engage the P-base of the motor.

B. The discharge cone casting shall act as a thrust block to deflect the high velocity, pumped volume of the aerator from the vertical to the horizontal direction. In order to minimize vibration and to provide adequate strength, the discharge cone casting shall weigh no less than 55 pounds. The bottom side of the casting shall have a 90-degree radiused transition to effect the hydraulic change in direction with a minimum of head loss.

C. The discharge cone shall absorb normal and shock loads encountered by the propeller and transmitted to the discharge cone via the shaft and motor end bell. The discharge cone shall distribute these forces into the float via the webs that terminate in a flange or ring that is an integral part of the discharge cone. This flange shall mate with a similar flange that is an integral part of the float to spread the stresses generated by the propeller uniformly around the float so that no point loading of the float is allowed. The alignment of the discharge cone to the float shall be by use of a 360-degree pilot. The use of boltholes only shall not be acceptable. Specifically, discharge cone designs that use studs and spacers, shoulder bolts, or fiberglass are not allowed. Load bearing, machined flat, flange-to-flange connections are mandatory.

D. The discharge cone shall contain an anti-deflection journal insert to limit the radial deflection of the motor shaft. This anti-deflection journal insert shall be located in the lower extremity of the discharge cone, approximately one-half the distance between the motor base and the lower end of the shaft. The journal insert shall be machined from Delrin and shall be a minimum of 0.020” larger through the bore than the diameter of the motor shaft. Units featuring a one-piece unsupported shaft will not be acceptable.

E. There shall be a fluid deflector located on the motor shaft, immediately below the anti-deflection journal insert and the lower portion of the discharge cone. The fluid deflector will be machined from Delrin and attached to the motor shaft by recessed allen head stainless steel set screws. Fluid deflectors that are press fit onto the shaft are not acceptable.

F. The discharge cone shall be a minimum of 15” diameter with a minimum overall opening dimension of 5-7/8”. The top of the discharge cone shall be 7-3/8” above the float.

G. The design of the discharge cone shall be such that the liquid spray will discharge at an angle of 90 degrees to the motor shaft, and over a 360-degree spray pattern in the horizontal plane.

H. The discharge cone shall be a monolithic casting of Type 304 stainless steel. No fabricated, welded, or non-metallic discharge cones will be allowed.

2.06 FLOAT

A. The float shall be manufactured of polyester fiberglass resins and shall have a resin/glass content of 70% resin and 30% glass. A minimum of 0.014” thick gel coat shall cover the entire outer float shell. A moisture inhibitor, such as N.P.G. (neopenthal glycol) or equal, and an ultraviolet inhibitor, such as UV9 or equal, shall be used to protect the float from moisture and sunlight damage. The construction of the float shall be such that no under-water joints shall be used.

B. Joints used to connect the top coverlid shall be overlapped a minimum of 1-1/2”, both parts of all joints shall be ground to glass fiber and a resin/glass adhesive shall be applied to complete a 100% monolithic glass-to-glass bond.

C. The float construction shall be such that the volute will distribute the load of the entire motor, drive, discharge cone, and volute static load, plus the entire dynamic load from the propeller thrust and radial forces by spreading these forces uniformly around the full 360-degree circumference of the float’s central core.

D. Point connected joints or point stressed connections will not be acceptable. The minimum flexural strength of the fiberglass materials shall be 28,000 psi and the minimum tensile strength shall be 11,000 psi.

E. The float shall be a minimum of 64.5” in diameter and 11” thick, and shall be manufactured of fiberglass construction as described herein. The float shall be constructed so that all stress imposed from wave action and mooring line tension shall be transmitted from each mooring line to another by pulling across the float in such a manner as not to flex the structure. All floats shall be constructed so that the internal void will be filled full of closed cell polyurethane foam having a minimum 2.0 lbs/cubic foot density and shall be completely sealed water tight.

F. Floats shall have six mooring points, spaced for 3 or 4 – point mooring around the outer circumference. No mooring connections will be allowed as embedments in the upper or lower float covers. Only tension type connections perpendicular to the outer sidewall will be approved. All mooring connections shall be stainless steel.

G. Each aerator shall have a minimum of 850 pounds reserve buoyancy to ensure stability. Floats shall be one piece. Segmented floats will not be acceptable.

Floatation stability will be mandatory. Under no circumstances will unstable floatation designs requiring counter balancing, ballast of liquid, solid mass or submerged major fabricated assemblies to stabilize the operation of the aerator be allowed. Only aerators demonstrating stable operational characteristics, without rocking or oscillating will be acceptable.

2.07 PROPELLER

A. The propeller shall be a two-bladed; marine precision casting specifically designed for the application intended and will be manufactured of Type 316 stainless steel.

B. The propeller shall have a diameter of 8-1/4".

C. The blade design shall be anti-fouling with dual sweptback leading edges so that it will not accumulate fibers, rags, stringy materials, etc.

D. The propeller shall have a diameter not allowing a greater clearance with the volute of 0.25".

E. Each propeller blade shall be pitched so that the pitch angle and rake angle is within +/- 2 percent of the other blade.

F. The propeller shall be pitched so that the drive motor is loaded between 88% and 95% of full load nameplate horsepower. Data confirming the pitch, diameter, and rake will be supplied with the submittals.

G. The propeller shall be keyed to mate to the keyed shaft for ease of maintenance and assembly.

H. The propeller shall be secured to the shaft by a locking nut.

I. Propellers that are pinned and require gluing to the shaft will not be acceptable.

J. Aerators using inclined screw propellers will not be acceptable.

2.08 VOLUTE

A. The propeller shall operate in a volute made of 304 stainless steel and shall be a minimum of 9".

B. The volute shall be round and true so that the propeller blade tips clearance is uniform within the volute as the propeller rotates.

C. The volute shall have a minimum of 3/16" wall thickness, and a minimum of four full-length gussets welded on a 90-degree spacing around the circumference of the volute between the top and bottom flanges.

D. The volute shall have a large machined flange at its top extremity that completely encircles the volute. This flange shall match a similar flange on the bottom of the discharge cone to provide for a bolted, machined flange-to-flange fit to provide uniform distribution of the dynamic loads generated by the propeller and the static weight of the motor module.

E. There shall be a 360 degree machined index in the upper flange that will provide concentric alignment of the propeller in the volute by engaging the inside diameter of the mating flange on the discharge cone. Boltholes alone will not be acceptable to locate the alignment of the propeller.

F. Fiberglass volutes, carbon steel volutes, or fiberglass volutes, or stainless steel lined volutes will not be acceptable.

2.09 ANTI-EROSION ASSEMBLY

A. The anti-erosion assembly shall be fabricated of Type 304 stainless steel, 0.075” in thickness and having a gradually expanding opening outward to the intake end.

B. The anti-erosion assembly shall force the aerator to draw inlet water from the sides rather than directly beneath the aerator to protect the lagoon bottom.

C. The length and inlet diameter shall be sufficient to provide uniform inlet hydraulics so that no increase in vibration is caused due to its shape or size.

D. The minimum acceptable length for the anti-erosion assembly cone is 12”.

E. The minimum acceptable inlet diameter is 12-1/4”.

F. The stainless steel used to fabricate the anti-erosion assembly shall be structurally sufficient to support the weight of the entire aerator assembly when the aerator is free standing on dry ground.

G. The anti-erosion assembly shall have anti-vortex cross vanes of Type 304 stainless steel.

H. Fiberglass anti-erosion assemblies are not acceptable.

2.010 BALANCING

A. The entire rotating assembly including the motor, shaft, shaft accessories, and propeller shall be dynamically balanced to within 2.0 mils peak-to-peak, measured at the upper and lower bearings.

B. Measurements shall be taken at a frequency equal to 1800 RPM and at a 3600 RPM.

C. Measurements shall be taken with the motor in a vertical, shaft down position with the entire motor module mounted on resilient pads.

D. Certified copies of the balance inspection reports shall be supplied with each aerator.

2.011 MOORING

A. Stainless steel mooring cable can be used when the water level variation is not very large.

B. The mooring cable shall be installed as recommended by the manufacturer so the aerator shall be permitted to rise and fall with some water level variations, but will have a minimum of lateral movement.

C. The maximum amount of anticipated water level variation is 2 feet.

D. Mooring cable shall be 7 x 19-strand construction, Type 304 stainless steel and 3/16" in diameter.

E. Mooring hardware, consisting of thimbles and clips, shall be of Type 316 stainless steel.

F. Galvanized hardware is not acceptable.

2.012 ELECTRICAL SERVICE CABLE

A. Power cable shall be #12/4 in the appropriate lengths to connect the aerator from the motor junction box to shore connection without splicing. The installing contractor must confirm these lengths.

B. The cable shall have three power conductors and a ground conductor.

C. The conductors shall be flexible type annealed copper stranded.

D. Each conductor, including the ground conductor, shall be insulated. Cables containing an uninsulated ground conductor will not be acceptable.

E. The insulated conductors shall be assembled together with a non-hydroscopic filler material.

F. The outer jacket shall be high quality CPE, PVC, TPE, or equal, and shall be rated at a conductor operating temperature of not less than 90 degrees centigrade.

G. The cable shall be rated for hard usage outdoor service and shall be resistant to oil, sunlight, ozone, grease, acids, water, abrasion and impact.

H. Insulation tensile strength shall be 2600 psi nominal.

I. Dielectric withstand shall be 3,000 volts AC.

J. Spark test shall be 7,000 volts AC.

K. Color codes of the insulation for the cables shall be black, white, red, and green.

L. Jacket tensile strength shall be 2300 psi nominal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in conformance with manufacturer's recommendations.

B. Mooring and securing the aerators in the pond system shall be the sole responsibility of the Contractor.

3.02 STARTUP AND TESTING

A. In conjunction with manufacturer's representative, startup and test each aerator to verify conformance to these specifications.

END OF SECTION