



DEPARTMENT OF
PUBLIC WORKS

ENGINEERING DIVISION

THOMAS M. FINLEY
ENGINEERING DIVISION MANAGER

CITY OF SACRAMENTO
CALIFORNIA

927 TENTH STREET
ROOM 200
SACRAMENTO, CA
95814-2705

916-449-8220

CONSTRUCTION SECTION
640 BERCUT DRIVE
SUITE B
SACRAMENTO, CA
95814-0131

916-449-5282

PN:KB11

July 12, 1990

To Whom It May Concern:

Enclosed herewith is Addendum No. 2 to the Plans and Specifications for Camp Sacramento Slow Sand Filter.

Please attach this addendum to your bid and acknowledge acceptance by so noting on the Sealed Proposal form.

Sincerely,

Garrett Crippett
for Thomas M. Finley
Engineering Division Manager

TMF:cb



ADDENDUM NO. 2
JULY 12, 1990
CONTRACT SPECIFICATIONS FOR
CAMP SACRAMENTO SLOW SAND FILTER
PN:KB11

BIDS TO BE RECEIVED JULY 24, 1990

This addendum is applicable to the work designated herein and shall be a part of and be included in the Contract. The Contractor shall acknowledge acceptance of this addendum by writing the number designation of the addendum on the Sealed Proposal form and initialing the proposal form.

1. Remove the entire Special Provisions section of the Contract Specifications and replace with the attached revised Special Provisions section. Errors in reproduction resulted in omission of portions of the Special Provisions and improper sequence of the Divisions.

SPECIAL PROVISIONS

CITY OF SACRAMENTO
CITY OF SACRAMENTO SLOW SAND FILTER

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SUPPLEMENTARY GENERAL CONDITIONS

GENERAL

These Supplementary General Conditions make additions, deletions, or revisions to the General Conditions of this Contract, as indicated herein. Where not specifically indicated, sections of these Supplementary General Conditions shall be assumed to be additions to the General Conditions. All provisions which are not so added, deleted or revised remain in full force and effect. Terms used in these Supplementary General Conditions have the meanings assigned to them in the General Conditions.

SGC.01 WORK TO BE DONE

The WORK to be performed under this Contract shall consist of furnishing all plant, tools, equipment, materials, supplies and manufactured articles and for furnishing all transportation and services, including fuel, power, water, and essential communications, and for the performance of all labor, work and other operations, all as required for the construction of The Camp Sacramento Slow Sand Filter as indicated on the Plans and as Specified. All work incidental to completing the WORK required by the Contract Documents shall be performed whether or not such work is expressly shown or called for in these Contract Documents.

SGC.02 GOVERNING SPECIFICATIONS

All work performed under this Contract shall be in accordance with the Standard Specifications of the City of Sacramento, Dated June, 1989 (hereinafter called "City Standard Specifications"), and with these Special Provisions. Sections 1 through 8 of the City Standard Specifications shall be the General Conditions of this Contract. The Special Provisions consist of the Supplementary General Conditions and the Technical Specifications. In the event that a conflict exists between the City Standard Specifications, these Special Provisions and the Plans, the Special Provisions shall govern over both the City Standard Specifications and the Plans, and the Plans shall govern over the City Standard Specifications.

SGC.03 DEFINITIONS

In addition to the Definitions given in the City Standard Specifications, where used in the Contract Documents, the following definitions shall apply:

OWNER - the municipal corporation known as the City of Sacramento, State of California.

CAMP MANAGER - The employee of the CITY entitled "Camp Sacramento Supervisor" who is responsible for the day-to-day operations of Camp Sacramento, or in his absence, his designee.

SGC.04 TIME OF COMPLETION

All work under this Contract shall be completed by July 31, 1991.

SGC.05 SITE VISITS

Arrangements for inspecting the site can be made by contacting Mr. Gil Dovalina (Camp Sacramento Manager) at 916-659-7202. Visitors to the site must first check in with the Camp Sacramento Office. Inspection of the work site and access conditions is strongly encouraged.

SGC.06 WORK ON CAMP SACRAMENTO SITE

The CONTRACTOR is advised that the location of the WORK is adjacent to, and access to the work site is through an operating recreational camp known as Camp Sacramento. This facility is owned and operated by the City of Sacramento. Appropriate precautions shall be used to insure that the safety of Camp Sacramento guests, City employees, vehicles and other persons or equipment is not endangered by the CONTRACTOR's activities. When travelling within the Camp Sacramento boundary, or between Camp Sacramento and the work site, a speed of 5 MPH or less shall be maintained by all vehicles operated by the CONTRACTOR, his subcontractors or suppliers.

CONTRACTOR shall not, under any circumstances, interrupt the operation of the existing water supply and treatment system until he has coordinated such interruption with the Camp Manager and the ENGINEER, and has obtained such authorization in writing from the ENGINEER.

SGC.07 PROTECTION OF EXISTING IMPROVEMENTS

Existing facilities, utilities and property shall be protected from damage resulting from the CONTRACTOR's operations. All improvements not shown on the Plans to be removed under this Contract, shall be protected from damage by the CONTRACTOR

throughout the construction period. Existing roadways and other surfaces shall be protected from overloading and from damage by vehicles with tracks or lugs.

Any damage resulting from the CONTRACTOR's operations shall be repaired by the CONTRACTOR to the condition which existed prior to the damage, and to the satisfaction of the ENGINEER, at no additional cost to the CITY.

The ENGINEER may deduct from payments otherwise due the CONTRACTOR, the estimated cost of repairing any damage created by the CONTRACTOR's operation, until such time that repairs are made by the CONTRACTOR to the ENGINEER's satisfaction. The deduction may be withheld from the Progress and/or Final payment if the CONTRACTOR fails to repair, or adequately repair, any damage.

Where construction is to be performed in the vicinity of existing trees and shrubbery not designated on the plans to be removed, the trees and shrubbery shall be protected from injury or damage resulting from the CONTRACTOR's operations.

Trees branches which must be removed will be cut off at the boles. Scars resulting from the trimming or removal of branches shall be treated with a heavy coat of an approved tree seal. All trees, branches and other vegetation removed during the progress of the work shall be disposed of by the CONTRACTOR at his expense in a manner satisfactory to the ENGINEER. The area adjacent to and surrounding the site of the slow sand filter project shall be left in a neat and finished appearance.

SGC.08 QUESTIONS PRIOR TO BID OPENING

All questions concerning the Contract Documents should be directed to Gary E. Gosse (916) 449-1290 at the City of Sacramento, Department of Public Works, Water Division.

SGC.09 CONTRACTOR'S PLANT AND EQUIPMENT

- A. Security: The Contractor shall at all times be responsible for the security of his plant and equipment. The CITY will not take any responsibility for missing or damaged equipment, tools or personal belongings.
- B. Office: The CONTRACTOR is not required to maintain an office on the site of the work.
- C. Parking Facilities: Parking areas at the project location for the automobiles used by the Contractor's construction employees and his own vehicles shall be as designated by the ENGINEER.

CONTRACTOR'S UTILITIES

- A. Power: The CONTRACTOR shall provide and make arrangements for electric service for all purposes of power and lighting as required for the construction work, and shall maintain such service until the completion of the Contract. The CONTRACTOR may use portable electric generating equipment as an alternative to utility-provided power.
- B. Non-potable Water: A low-pressure source of non-potable water will be made available to the CONTRACTOR for appropriate construction uses. This will be a low pressure source (approximately 5 psi at the existing grade at the slow sand filter location) and is not suitable for human consumption. The source will be a point of connection to the existing raw water line just upstream of the treated water storage tank, at the point and in the manner indicated on the Plans for the permanent raw water connection to slow sand filter. The CONTRACTOR shall coordinate the making of this connection with the Camp Manager and with the ENGINEER, and shall do so only after obtaining written authorization from the ENGINEER.

The CONTRACTOR is advised that the raw water source to which the CITY is allowing him to connect is the water supply for Camp Sacramento (prior to treatment) and therefore, the CONTRACTOR shall use extreme care to prevent back-flow of contaminants into the supply during his operations. No direct connection shall be made by the CONTRACTOR between any source of contamination and the raw water supply; that is, an air gap shall be maintained at all times. Should the CONTRACTOR fail to comply with this requirement, he will be ordered to disconnect from the water supply and shall provide his own source of non-potable water at no additional cost to the CITY, for the remainder of the Contract.

- C. Potable Water: The CONTRACTOR shall provide his own source of potable water for human consumption and any other purposes which require a high-quality water supply.
- D. Sanitary Facilities: The CONTRACTOR shall make arrangements for adequate toilet facilities at or near the site of the work. CITY facilities are not available.
- E. Temporary Heating: The CONTRACTOR shall provide temporary heating, covering and enclosures as necessary to protect all work and material against damage by dampness and cold and to facilitate completion of the WORK. The CONTRACTOR shall supply all fuel, equipment and materials required for temporary heating.

SGC.10 DELIVERY OF EQUIPMENT, MATERIALS AND SUPPLIES

The CITY will not accept deliveries of equipment, materials or supplies for the CONTRACTOR.

SGC.11 FILTERED WATER TIE-IN TO EXISTING WATER SUPPLY SYSTEM

Disinfection of "filtered water" piping and connection of the filtered water pipeline to the existing water supply will be performed by CITY forces. This work will only be done by the CITY after the installation of all piping and appurtenances has been completed by the CONTRACTOR and approved by the ENGINEER, and cleaning and flushing of all piping and appurtenances has been completed by the CONTRACTOR and approved by the ENGINEER.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01090 SUBMITTALS

1.10: GENERAL

1.11 SUBMITTAL PROCEDURE

- A. At least 30 days prior to his need for approval, CONTRACTOR shall forward to ENGINEER all submittals required by the individual sections of the specifications. Unless a different number is called for in the individual sections, submit six copies of each shop drawing, three copies of all operation and maintenance instructions, and one specimen of each sample requested, all of which will be retained by ENGINEER. CONTRACTOR shall submit, in addition, whatever copies he wants returned to him. The ENGINEER may require that the CONTRACTOR submit a legible reproducible print for the ENGINEER'S use in lieu of multiple prints of a single drawing.
- B. Identify all submittals by submittal number on Letter of Transmittal. Specification number shall be identified on the Letter of Transmittal.
- C. Submittals that are related to or affect each other shall be forwarded simultaneously as a package to facilitate coordinated review. Uncoordinated submittals will be rejected. Do not combine unrelated materials in the same submittal.
- D. ENGINEER reserves the right to require submittals in addition to those called for in individual sections at no additional expense to the CITY.
- E. CONTRACTOR shall submit all available manufacturer's installation instructions for all materials and equipment provided. Submittals without these instructions will be rejected.
- F. Unless otherwise approved by the ENGINEER no work shall be started until all required submittals in the individual special provision sections are submitted and approved for the work in question.

1.12 SHOP DRAWINGS:

- A. The term "shop drawings" includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules,

performance and test data, and similar materials furnished by CONTRACTOR to explain in detail specific portions of the work required by the Contract.

- B. CONTRACTOR shall coordinate all such drawings, and review them for legibility, accuracy, completeness, and compliance with contract requirements, and shall indicate his approval thereon as evidence of such coordination and review. Shop drawings submitted to ENGINEER without evidence of CONTRACTOR's approval will be returned for resubmission.
- C. Approval by ENGINEER shall not relieve CONTRACTOR from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with requirements of this Contract, except with respect to variations described and approved in accordance with Paragraph D below.
- D. If shop drawings show variations from contract requirements, CONTRACTOR shall describe such variations in writing, separate from the drawings, at time of submission. All such variation must be approved by ENGINEER.

1.13 ENGINEER'S APPROVAL:

- A. ENGINEER will indicate his approval or disapproval of each submittal, and his reasons for disapproval.
 - 1. If no corrections are required, the copies will be returned marked "NO EXCEPTIONS TAKEN" and work may begin immediately on incorporating the material and equipment covered by the submittal into the project.
 - 2. If limited corrections are required, the copies will be returned marked "MAKE CORRECTIONS NOTED." Work may begin immediately on incorporating the material and equipment covered by the corrected submittal into the project.
 - 3. If insufficient or incorrect data has been submitted, the copies will be returned marked "REVISE & RESUBMIT." No work incorporating the material and equipment covered by this submittal into the project may begin until the submittal has been revised, resubmitted, and returned marked either "NO EXCEPTIONS TAKEN" OR "MAKE CORRECTIONS NOTED."
 - 4. If the submittal is unacceptable, the copies will be returned marked "REJECTED - SEE REMARKS." No work incorporating the material and equipment covered by this submittal into the project may begin until a new

submittal has been made and returned marked either "NO EXCEPTIONS TAKEN" OR "MAKE CORRECTIONS NOTED."

- B. The CONTRACTOR shall not change any drawing after it has been marked NO EXCEPTIONS TAKEN or MAKE CORRECTIONS NOTED, or change any approved equipment or material without written permission of the ENGINEER.
- C. If more than three submittals for a single item are required because of incorrect or insufficient data, or the submittal is unacceptable, or because the CONTRACTOR wishes to change previously approved material, then all costs incurred by the City for the Additional review shall be deducted from monies due the CONTRACTOR.

1.14 OPERATION AND MAINTENANCE INSTRUCTIONS:

- A. The CONTRACTOR shall deliver the ENGINEER three sets of acceptable manufacturer's operating and maintenance instructions covering each item of mechanical, electrical, and instrumentation equipment or equipment assembly provided under this Contract.

The operating and maintenance instruction shall include, as a minimum, the following data for each item of mechanical, electrical and instrumentation equipment:

1. An itemized list of all data provided.
2. Name and location of the manufacturer, the manufacturer's local representative, the nearest supplier and spare parts warehouse.
3. Accepted submittal information applicable to operation and maintenance.
4. Recommended installation, adjustment, start-up, calibration and troubleshooting procedures.
5. Recommended lubrication and an estimate of yearly quantity needed.
6. Recommended step-by-step procedures for all modes of operation.
7. Complete internal and connection wiring diagrams.
8. Complete printed circuit board schematic and assembly drawings.

9. Recommended preventive maintenance procedures and schedule.
 10. Complete parts lists, be generic title and identification number, with exploded views of each assembly.
 11. Recommended spare parts.
 12. Disassembly, overhaul and reassembly instructions.
- B. Following the acceptable installation and operation of an item, the items' instructions and procedures shall be modified and supplemented by the CONTRACTOR to reflect all field changes or information requiring field data.
- C. Before final acceptance of the project, the CONTRACTOR shall bind all three sets in appropriated labeling, expanding post-type binders. Each completed binder shall contain only that material which can be held with the posts in the non-expanded position. A complete table of contents listing all items and their location in the set shall be included in each binder. For ready reference, the CONTRACTOR shall compile a complete list of manufacturer's local representatives for each item provided.

1.15 CERTIFICATES:

For those items called for in individual sections, furnish certificates from manufacturers, suppliers, or others certifying that materials or equipment being furnished under the Contract comply with the requirements of these specifications.

1.16 SAMPLES:

Samples shall be of sufficient size to clearly illustrate functional characteristics and full range of color, texture, and pattern.

1.17 PROGRESS SCHEDULE:

The CONTRACTOR shall submit to the ENGINEER, within twenty (20) days after date of the Notice to Proceed, a progress schedule giving the dates when each part of the work will be started and completed. The schedule shall conform to the calendar days set forth in the Agreement for completion of the work, and shall be subject to modification by the ENGINEER. The ENGINEER shall be advised in advance by the CONTRACTOR

SUBMITTALS

01090-4

when construction work is scheduled and the days when no construction work will take place. If the CONTRACTOR fails to notify the ENGINEER in advance of the day or days when no construction work will be done, the CONTRACTOR will be charged the cost of inspection for that day or days and such charges may be deducted from any payment due the CONTRACTOR.

The CONTRACTORS attention is directed at Section 7-4 of the City Standard Specifications in preparation of progress schedule. Progress schedule shall be CMP (Critical Path Method) or approved equal.

When, in the judgment of the ENGINEER, it is necessary to accelerate any part of the work ahead of schedule, the CONTRACTOR shall, when directed, concentrate his efforts on such part of the work.

1.20: MATERIALS - Not used.

1.30: EXECUTION - Not used.

END OF SECTION

SUBMITTALS
01090-5

DIVISION 2 - SITEWORK

SECTION 02110 EARTHWORK

2.10: GENERAL

The work in this section shall include performing all clearing, grubbing, removal of trees, excavation, backfill, and construction of embankment required for the construction of the slow sand filter. Included in this section is the removal and disposal of excess or unsuitable material as well as the removal and disposal of any large rocks and boulders encountered during excavation.

All excavation and embankment construction shall meet the requirements of Section 14 in the City's Standard Specifications. Excavation and backfill of pipe trenches shall meet the applicable requirements of Section 27 except as modified by these Special Provisions.

2.20: MATERIAL

- A. Earth materials used for backfill and embankment shall be free from detrimental quantities of organic material, concrete, and other unsuitable materials. The backfill and embankment material shall also be free of rocks or hard lumps larger than 3 inches in size.
- B. Crushed rock shall meet the requirements of Section 10-12 of the City Standard Specifications.
- C. Cobbles used for the cobblestone spillway shall be 3 to 6 inches in size and may be either rounded or angular in shape.

2.30: EXECUTION

The CONTRACTOR shall perform all required excavation, backfill, grading, and embankment construction as required to completely grade the site to the lines and grades shown on the Plans. The CONTRACTOR shall realign and regrade a portion of the access road at the site as indicated on the Plans.

- A. Clearing, Grubbing, and Tree Removal: Prior to beginning of excavation or embankment construction, the CONTRACTOR shall clear all roots, rocks, debris, vegetation, and

other objectionable matter from within the area of the slow sand filter as well as from the area within the earth embankment.

All trees designated on the plans to be removed shall be cut down to the level of the existing ground and disposed of away from the site. Stumps of trees located within the area of embankment shall be removed and disposed of away from the site.

All cleared material shall become the property of the CONTRACTOR and shall be disposed of at a location off the site in a manner satisfactory to the ENGINEER at the CONTRACTOR'S expense.

- B. Excavation: The CONTRACTOR shall remove all materials of whatever nature encountered, including soil, rocks, tree stumps, etc., and all other obstructions of any nature that will interfere with the completion of the work.

All excavated material, with the exception of large rocks and boulders, that is not used for embankment construction, trench backfill, or is otherwise unsuitable for any purpose shall become the property of the CONTRACTOR and shall be disposed of at a location away from the site.

The CONTRACTOR shall excavate all existing earth and rock material and portions of rock to a depth of at least 12 inches below the underside of the base slab for the proposed structure.

In excavating trenches for placement of underground piping, the CONTRACTOR shall excavate and remove all earth material, rocks, and portions of rock to a depth of at least 6 inches below the planned depth of the pipes.

- C. Removal of Rock: The CONTRACTOR is advised of the presence of large rocks and boulders of varying sizes throughout the project site. All such large rocks or boulders encountered during excavation shall be removed and disposed of away from the project site in an area designated by the ENGINEER. The number and size of large rocks that may need to be removed and disposed of is unknown.

- D. Backfill of Structure: Twelve inches of crushed rock shall be placed in the excavated area beneath the base slab of the structure. The crushed rock shall meet the requirements for coarse (1/2" x No. 4) crushed screenings as set forth in Section 10-12 of the City Standard Specifications.

Crushed rock used as base material shall be placed and compacted according to the applicable requirements of Section 17 of the City Standard Specifications.

The CONTRACTOR shall exercise caution when placing backfill around the perimeter of the structure in order to prevent cracking of the walls. Backfill material shall not be placed against newly constructed walls until test cylinders of the concrete within the walls indicate an ultimate compressive strength of 3000 pounds per square inch has been attained.

No rocks or hard lumps of earth material over 3 inches in size shall be placed within one foot of the walls of the filter basin.

- E. Backfill of Pipe Trenches: Bedding material placed beneath the underground piping as well as initial backfill material placed to a depth of 6 inches over the top of the pipes may consist of job excavated material free of rocks or lumps greater than 3 inches in size, tree roots, and other objectionable substances. Crushed rock meeting the requirements for coarse (1/2" x No. 4) crushed screenings may also be used for bedding and initial backfill.

Trench backfill shall be made with job excavated earth material free of rocks or hard lumps greater than 3 inches in size, tree roots, organic matter, and other objectionable material.

Placement and compaction of bedding, initial backfill, and trench backfill shall meet the applicable requirements of Section 27 of the City Standard Specifications except as modified by these Special Provisions.

- F. Earth Embankment: The construction of earth embankment shall meet the applicable requirements of Section 14 of the City Standard Specifications and these Special Provisions and shall be placed and compacted to the lines, grades, and elevations indicated on the Plans and as directed by the ENGINEER.
- G. Cobblestone Spillway: Cobbles shall be placed at the location indicated on the Plans to the lines, grades, and details given. The cobbles shall be placed to provide slope protection at the outlet end of the various drain pipes from the slow sand filter.

Rocks obtained at the project site that fall within the size limits of 3 inches to 6 inches may be used for the cobblestone spillway.

END OF SECTION

EARTHWORK
02110-4

DIVISION 3 - CONCRETE

SECTION 03100 CONCRETE

3.10: GENERAL

The work in this section shall include furnishing, placing, and finishing Portland cement concrete and Portland cement grout. This section shall also include furnishing, constructing, and erecting all required forms as well as furnishing and placing reinforcing steel, water stops, and embedded items.

3.20: SUBMITTALS

Submittals shall be in accordance with Section 01090 of these Special Provisions and with the applicable requirements of Section 5-6 of the City Standard Specifications.

- A. Concrete: As specified in Section 10-5 of the CITY Standard Specifications the Contractor shall submit to the ENGINEER for approval the mix design for the concrete proposed to be used. The concrete mix design submittal shall include the gradation of the coarse and fine aggregate.

Certificates of compliance confirming the constituents of the concrete mix meets the requirements of these Special Provisions shall also be submitted to the ENGINEER for approval.

- B. Reinforcing Steel Shop Drawings: Before starting concrete work, submit drawings complying with requirements of ACI 318, detailed in accordance with ACI SP66, and adapted to the proposed placement schedule, showing size, dimension, bending, placing and construction joint details. Submit drawing showing locations of all construction joints. Drawing shall be on a minimum 18-inch by 24-inch drafting paper. Submit type, size, and location of all slab and bar supports. Shop fabrication shall not begin until corrected drawings bearing the ENGINEER's review stamp are returned in accordance with Section 01090. Reproduced copies of plans are not acceptable shop drawings.
- C. Formwork Shop Drawings: Before starting concrete work, submit drawings of all exterior wall formwork showing form plywood pattern, formwork, ties, vertical limits of

concrete placements, horizontal lifts, and construction joints.

- D. Shoring: If shoring is required, the CONTRACTOR shall submit detail drawings and structural calculations showing the sizes of all members, connection details, lateral bracing, and anchorage of the proposed shoring system.

All structural calculations used in the design of the shoring systems shall be prepared and signed by a civil or structural ENGINEER registered in the State of California.

- E. Mill Certificates: Submit certificate copies of mill test reports for each lot or heat of all reinforcing steel.
- F. Repair Procedures: Concrete repair procedures shall be submitted with the concrete mix designed to minimize potential delays in the construction process.
- G. Materials: Submit catalog cut sheets, manufacturer's installation procedures for waterstops and waterproofing.

3.30: MATERIALS

- A. Concrete: All constituent materials for Portland cement concrete shall meet the applicable requirements of Section 10 of the City Standard Specifications.

All concrete shall contain seven sacks of Portland cement per cubic yard and shall develop a minimum ultimate 28 day compressive strength of 4000 pounds per square inch.

- B. Reinforcing Steel: All reinforcing steel shall be Grade 60 and shall meet the applicable requirements of Section 10-25 of the City Standard Specifications.

- C. Grout:

1. Drypack Grout: Portland cement grout shall be used as drypack grout. If proportioned by volume, shall consist of one part cement, one and one-half to two parts sand, and sufficient water to make a stiff but workable mix. A water reducing agent may be used in formulating the grout mix at the option of the CONTRACTOR.

2. **Epoxy Grout:** Epoxy grout shall be used for repairing cracks by pressure grouting, and repairing structural concrete. Epoxy grout shall be Adhesive Engineering Concrete 1380, Sika Corporation Sikastix 350, or equal.
- D. **Waterstops:** Waterstops shall be the ribbed center bulb type, 4 inches in width by 3/16 inch nominal thickness. Waterstops shall meet the requirements of Section 51-1.14 of the State Specifications as indicated in Section 20-11 of the City Standard Specifications.
- E. **Waterproofing Coating:** Waterproofing coating shall be a smooth white thixotropic liquid and shall be EPA approved. Acceptable products are American Chemical Corporation, AQUATA POXY Paint, or equal.

3.40: EXECUTION

- A. **Formwork:** All forms for the concrete structure of the slow sand filter shall meet the applicable requirements of Section 20 of the City Standard Specifications.

Forms shall remain in place and not removed until test cylinders taken of the concrete within the forms indicate an ultimate compressive strength of 3000 pounds per square inch has been attained.

Forms shall be cleaned of all dirt, mortar, and other foreign matter before being used. Where the bottom of the forms are inaccessible from within, panels to permit the removal of extraneous material from inside the forms prior to the placing of concrete shall be provided.

All exposed horizontal and vertical edges, both interior and exterior, shall be chamfered in the manner specified in Section 20 of the CITY Standard Specifications.

- B. **Waterstops and Embedded Items:** All waterstops pipe sleeves, pipe support inserts, anchor bolts, and other embedded items shall be securely and accurately positioned at the locations indicated on the Plans or as directed by the ENGINEER. The voids in sleeves, inserts, and anchor slots shall be temporarily filled with readily removable material to prevent the entry of concrete.
- C. **Reinforcing Steel:** Placement of reinforcing steel shall meet the applicable requirements of Section 21 of the City Standard Specifications.

- D. Concrete: Placement of concrete shall meet the requirements of Section 20 of the City Standard Specifications and these Special Provisions.

All surfaces on which concrete is to be placed shall be thoroughly moistened with water immediately prior to placing concrete.

The concrete in each integral part of the structure shall be placed continuously. Work shall not commence on any integral part unless sufficiently inspected and approved material for the concrete is on hand and sufficient forces and equipment are available to complete the part without interruption in the placement of the concrete.

For the base slab, the concrete shall be placed in a continuous or monolithic operation to the full thickness of the slab. Each batch of concrete shall be deposited against previously placed concrete and not away from it. Concrete shall not be placed in separate piles and then worked together.

Concrete placed in walls shall be deposited continuously in horizontal layers of 2 feet maximum depth so as to maintain a horizontal plastic surface until completion of the wall unit. No new concrete shall be deposited on already placed concrete which has hardened sufficiently to cause the formation of cold joints or planes of weakness within the wall section.

Concrete for horizontal members or deck slabs shall not be placed until the concrete in the supporting vertical members has been in place for at least 2 hours and is no longer plastic.

Tolerances or deviations from established lines, grades, dimensions, and elevations are as follows:

1. Variations in the thickness of the base slab, and deck slab shall be plus 1/2 inch or minus 1/4 inch.
2. Variations from slopes specified for floors and horizontal lines shall be plus or minus 1/8 inch (floor length of 10 feet or less) and plus or minus 1/4 inch (floor length up to 20 feet).
3. Variations in the size and location of openings in the base slab, embedded sleeves, and wall openings shall be plus or minus 1/4 inch.
4. Variations from plumb of vertical lines and walls

10 feet or less in height shall be plus or minus 1/8 inch.

5. Variations of horizontal or vertical dimensions from any specified position on the Plans shall be 1/4 inch.
6. Variation from planned dimensions in a flight of stairs shall be plus or minus 1/8 inch for each rise and plus or minus 1/4 inch for each tread.

Construction joints shall be provided only at the locations indicated on the Plans.

- E. Grout: Portland cement grout shall be mixed and placed at the locations indicated on the Plans. Grout shall be used for built-up surfaces, setting of miscellaneous metal items, and for minor repairs.

Surfaces to receive grout shall be roughened by wire brushing, cleaned, and primed in accordance with the grout manufacturer's instructions.

3.41: CONCRETE FINISHING

Curing and protecting concrete and grout shall meet the applicable requirements of Section 20 of the CITY Standard Specifications.

3.42: FINISHES FOR FORMED SURFACES

- A. Surfaces to be waterproofed shall be finished in accordance with the requirements and recommendations of waterproofing manufacturer's.
- B. Exposed and foundation surfaces shall have form finish except that all fins and defects shall be removed as directed by the ENGINEER, and in accordance with Section 20-15 of the City Standard Specifications.

3.43: FLOOR SLAB FINISHING

The surface of the floor slabs within the several compartments or sections of the slow sand filter structure shall be a wood float finish. The stairway and top landing shall be broom finished.

3.44: WATERPROOFING

Waterproofing shall be applied as shown on the Plans and in accordance with the manufacturer's recommended application procedures.

3.45: TESTING

- A. Three compression test specimens shall be taken for every 20 cubic yards of concrete placed or for each major placement during the day. The ENGINEER has the option to direct the required test specimens to be taken as he deems necessary to insure the concrete meets the specification.
- B. Specimens shall be taken, cured, and tested for compressive strength in accordance with ASTM C31, ASTM C39, and ASTM C172, respectively.
- C. Standard age of compressive test shall be 28 days: however, 7 day tests may be used provided that the relation between the 7 day and 28 day strengths of the concrete is established by test for the materials and proportions used.
- D. Test reports shall be sent to the ENGINEER with copies to the CONTRACTOR.
- E. Initial costs for testing will be paid by the City of Sacramento and any required retesting due to noncompliance will be paid by the CONTRACTOR.

3.46: TESTING FOR WATER TIGHTNESS

The filter basins and presedimentation tanks shall be separately hydrostatically tested for water tightness. The hydrostatic tests shall be performed prior to application of any waterproof coating. Testing of presedimentation tanks shall occur first and shall be de-watered prior to testing of filter basins.

Testing for water tightness shall consist of filling the individual tanks one at a time with clean water to a level one inch below the top of each tank. The 4 inch openings between the presedimentation tanks and filter basins shall be plugged water tight prior to filling with water, and all valves leading from the basins shall be closed. The tanks adjacent to the tank being tested shall be empty and dry. The water level in the tank

being tested shall be allowed to stabilize for a period of 12 hours. The water level shall then be measured at three separate time intervals during a 24 hour period with a minimum of 6 hours between time intervals.

Maximum allowable leakage during the 24 hour period shall not exceed one-half of one percent of the contents of the tank.

All visible leaks from any tank shall be corrected. Procedures for repairing any tanks failing the test for water tightness shall be submitted to the ENGINEER for approval prior to beginning any repair method. Waterproofing shall be applied after all leakage testing and repairs. Retesting will be required at the ENGINEERS discretion at no additional cost to the CITY.

END OF SECTION

CONCRETE
03100-7

DIVISION 5 - METALS

SECTION 05500 METAL FABRICATIONS

5.10: GENERAL

The work of this section shall include providing structural steel and other miscellaneous metals as shown on the Plans, and as specified in these Special Provisions.

Included in this section is the fabrication and installation of the stainless steel ladder, galvanized steel angles (on which the wood deck planks bear), anchor bolts, and any other miscellaneous metal fabrications indicated on the Plans.

The CONTRACTOR shall furnish all labor, materials, tools and equipment to fabricate and install all structural steel and miscellaneous steel shapes, steel ladders, base plates, anchor bolts, nuts, various bolts and threaded fasteners as indicated on the plans and as specified herein.

5.20: SUBMITTALS

- A. Shop drawings, product data, and other descriptive information shall be submitted in accordance with the requirements of Section 01090 of these Specifications.

The CONTRACTOR shall submit shop drawings prior to fabrication of steel items and such fabrication shall not begin until the ENGINEER has reviewed and approved the submittals.

- B. Data to be Submitted:

1. Materials list of items proposed to be provided under this section.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Shop drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this section with the work of other sections in these Special Provisions.

4. Manufacturer's recommended installation procedures which, when approved by the ENGINEER, shall become the basis for accepting or rejecting actual installation procedures used in the work.

5.30: MATERIALS

- A. All structural steel shapes, plates, and their products shall conform to ASTM Designation A36, and shall be galvanized after fabrication.
- B. All metal items submerged in water shall be of stainless steel, and all expansion anchors submerged or otherwise shall be stainless steel. All stainless steel shall be type 316.
- C. Unless noted otherwise, stainless steel metalwork shall be AISI Type 304 Chromium Nickel Steel.
- D. Welding rods and electrodes used in the submerged ARC welding process shall conform to AWS 517. Electrodes for welding stainless steel shall conform to AWS E308-16.

5.31: HANDLING, SHIPPING AND STORING STEEL WORK

- A. Material shall be fabricated, shipped, handled, and stored in a manner which will prevent distortion or other damage.
- B. Material shall be stored in a clean dry location out of contact with the earth.
- C. Any damaged material shall be repaired by a favorably reviewed method by and at the expense of the CONTRACTOR prior to installation.

5.32: GALVANIZING

- A. All structural steel shapes, angles, anchor bolts, miscellaneous metal and threaded fasteners shall be hot dipped galvanized after fabrication, unless noted otherwise.
- B. Stainless steel items shall not be galvanized.
- C. Steel to be galvanized shall be thoroughly cleaned of rust and scale and galvanized in accordance with ASTM A123, "Specification for Zinc (Hot Galvanized) Coatings

on Products Fabricated from Rolled, Pressed and Forged Steel Shapes, and Strips."

- D. Bolts, anchors, nuts, and similar threaded fasteners, after being properly cleaned, shall be galvanized in accordance with ASTM A153, "Specification for Zinc Coating (Hot Dipped) for Iron and Steel Hardware".

5.40: EXECUTION

- A. Workmanship shall be in accordance with standard commercial practice. Fabrication and assembly shall be done mostly in the shop. CONTRACTOR shall coordinate all work with favorably reviewed certified shop drawings to provide any openings needed in the structure and all attachments to the structure.
- B. Equipment used in the erection of steel work shall be suitable for the work and in first class working order. Erection of structural steel shall be conducted in a safe manner in compliance with applicable safety codes.
- C. Where parts cannot be assembled or fitted properly as a result of fabrication errors or of deformation, the materials shall be considered damaged and the CONTRACTOR shall submit his method of correction for favorable review by the ENGINEER. Corrections or repairs shall not be made without approval of the ENGINEER.
- D. The damaged material shall be removed from the job and replaced at the CONTRACTOR's expense if, in the opinion of the ENGINEER, correction or repair would adversely affect the materials, structurally or aesthetically.
- E. The CONTRACTOR shall furnish and/or set equipment anchor bolts at locations shown on the Plans and shall coordinate such installation with the equipment manufacturer's favorably reviewed certified shop drawings.

5.41: WELDING

- A. All welding shall be by the shielded arc method and shall be performed in accordance with the specifications of the American Welding Society "Structural Welding Code". Welders shall be certified in accordance with AWS Procedures, Specifications for Standard Qualification Procedure".

5.42: EXPANSION ANCHORS

- A. Expansion anchors shall be used for connections to concrete or masonry as shown on the Plans. Unless noted otherwise, minimum length of expansion anchors shall be three (3) inches. Expansion anchors shall be a preassembled unit designed to expand over the entire length of the anchor.
- B. Expansion anchors shall be type 316 stainless steel, such as Trubolt Wedge as manufactured by ITW Ramset/Red Head or equal.
- C. Expansion anchors shall be installed in strict accordance with the manufacturer's recommendation. Spalled concrete or masonry, loose anchors, or anchors set deep or shallow shall be considered improper installation and shall be repaired as directed by the ENGINEER. Expansion anchors shall not be placed until a minimum of ten (10) days after placing of concrete.

END OF SECTION

DIVISION 5 - METALS

**SECTION 05521
HAND RAILING**

5.50: GENERAL

The work of this section shall include providing means to furnish and install aluminum handrails as shown on the Plans.

5.60: QUALITY ASSURANCE

- A. Handrailing shall conform to the requirements of the Uniform Buildings Code.
- B. All handrails shall be fabricated by one manufacturer, including hardware, accessories, mounting, and installation components.

5.70: SUBMITTALS

- A. In accordance with Section 01090 of these special provisions.
- B. Shop Drawings: Prior to fabrication of the aluminum handrailing, drawings and manufacturer's data shall be submitted to the engineer for approval of the ENGINEER. The drawings shall clearly show all materials, finishes, connecting and joining methods, dimensions, installation details, and relationship to adjoining work by others. No fabrication work shall be started until shop drawings have been approved. Any errors in dimensions shown will be the responsibility of the CONTRACTOR.
- C. Manufacturer's Data: Submit six copies of manufacturer's installation instruction and recommendations with shop drawings.

5.71: PRODUCT HANDLING

- A. All necessary precautions shall be taken to protect all handrails, and components from damage or discoloration. Pack and ship in individual plastic film to protect the anodized finish.
- B. Store handrails above ground on platforms or other supports to prevent damage.

5.80: MATERIALS

ALUMINUM PIPE HANDRAILING

- A. Aluminum Railings: Shall be Reynolds Metals Co. "Reynorail II", Eastman, GA. 31023, Crane Vendor Corp., So. El Monte, CA. 91733, or equal.
- B. Hand Rails: Shall be 1-1/2" diameter, Schedule 40 (1.89 in O.D. x 1.61 in. I.D.), 6063-T6 aluminum pipe alloy. All other aluminum parts shall be fabricated from 6063 or 6061 extruded aluminum. All fittings, except cast bases, shall be a one-piece extrusion machined to final shape. Blind rivets and self-tapping screws shall be as furnished by manufacturer. Fasteners shall be 305 stainless steel.
- C. Wall Support Bracket: Support brackets shall be mounted as indicated on plans. Brackets shall be secured to concrete with 3/8 inch type 316 stainless steel expansion anchor bolt with break-away stainless steel nut. Expansion anchor bolts shall be trubolt wedge as manufactured by ITW Ramset/Red Head, Wood Dale, IL; or equal.
- D. Finishes: All aluminum pipe, brackets, and other fittings shall receive an 0.7 mil Aluminum Association standard clear Architectural Class I satin anodized finish AA-M12-C22-A41.

5.90: EXECUTION

WORKMANSHIP

All fabrication shall be done to the dimensions shown or approved. All items shall be free from any defects which mar appearance or impair strength.

FABRICATION

- A. All fabrication in this section shall be done by persons skilled in the required trade. Fastenings and connections shall impart no stresses or distortion on any members, and allowance for expansion and contraction shall be made where necessary.
- B. Assembly of components shall be performed in strict accordance with manufacturers' recommendations for assembly.

- C. Carbide tipped circular saw blades with approximately four teeth per inch plus chip gap is recommended. Cuts must be free of burrs, nicks, and sharp edges. Deburr with care; do not chamfer edges of cuts.
- D. For all exterior installations, provisions must be made to drain water from the railing system to prevent damage from freezing of entrapped water. Predrill 15/64" diameter weep holes in all bends and elbows at low points.

DISSIMILAR MATERIALS

All surfaces of railing components in contact with concrete and other materials and permanently exposed to moisture shall be painted with a coating of asphaltic paint to prevent contact between the two surfaces. All railing components shall be installed so that no drainage over them has previously been contaminated from copper, caustics or alkalies.

Where protection is applied for prevention of dissimilar materials electrolysis, care should be taken that none of the protective materials is visible when assembly is completed.

PROTECTION

Protect the railing component finish from scratches, nicks, gouges, dents, etc. during storage, assembly and installation. Insofar as possible, the plastic film shall be left intact on the pipe until inspection and acceptance.

END OF SECTION

DIVISION 8 - METAL DOOR

SECTION 08100 METAL DOORS, FRAMES, AND HARDWARE

8.10: GENERAL

The work of this section includes supplying a hollow metal door, pressed metal frame, door closer, finish hardware, and stop for opening.

Except as herein modified, all work shall conform to Steel Door Institute (SDI) "Technical Data Series 100". The metal door shall be 2500 series and the door frame shall be 400 series as manufactured by Amweld Building Product Inc., or approved equal.

8.20: SUBMITTALS

A. Shop Drawings

1. Submit for approval in accordance with following requirements and Section 01090 of these special provisions.
2. Indicate dimensions, gauges, profiles, joint construction, location and gauge of hardware reinforcement; door clearances; type, gauge, size and location of frame anchors; and shop finishes.

B. Manufacturer's Installation Instructions.

C. Operation and Maintenance Data.

8.30: MATERIALS

- A. Factory prefit hollow metal door to the respective pressed metal frame.
- B. Prepare hollow metal door and pressed metal frame at factory for installation of hardware. Welding of hinges to frames is not permitted. Mortise, reinforce, drill and tap the door and frame to template to receive mortised hardware. Provide reinforcing plates for surface applied hardware. Reinforcing shall be concealed. Use of bolts or rivets for reinforcement is not permitted. Preparation for hardware shall conform to ANSI A115 where applicable, except reinforcing for butts shall be minimum 3/16-inch thick, and except that reinforcing for closers and applied hardware shall be of size and

location as required for specific hardware to be installed. Fabricator shall verify type, size and location of all required hardware.

8.31: STANDARD STEEL DOOR AND FRAME

- A. Door shall be fabricated from two sheets of 16 gauge hot dipped galvanized steel, conforming to ASTM A525 class A60. The door shall be nominal 1-3/4 inches thick with a solid polystyrene core permanently bonded to the panels with thermosetting adhesive. The door shall be the full flush type with no visible seams on either face. Fabrication shall utilize projection type welds on nominal 2 inch centerlines around the door perimeter.
- B. Door top and bottom shall be a minimum of 16 gauge channels. Door top shall be flush and closed with no holes. The door bottoms shall have inverted channels for future adjustment. Door shall be fabricated with 6 gauge hinge reinforcement, 12 gauge closer reinforcement and 14 gauge lock reinforcement.
- C. Louvers shall be factory installed inverted baffles. Both louvers and frame shall be 18 gauge welded steel construction.
- D. The frame shall be fabricated from 14 gauge hot dipped galvanized steel conforming to ASTM A525 Class A 60. The frame shall be fabricated with integral stop and trim. Frame corners shall be mitered and continuously arc welded and ground smooth on frame faces. The frame shall have one welded anchor per rail and shall be shipped with steel lock in anchors on 24 inch centerlines. The frame shall be mortised reinforced drilled and tapped for specified mortise hardware. Hinge reinforcing plates shall be nominal 3/16" thick steel welded in place. Strike reinforcement shall be nominal 10 gauge steel. Reinforcement for specified surface applied hardware shall be nominal 14 gauge steel. Strike jambs shall be prepared for three rubber silencers. where necessary frames shall be custom fabricated to suit the wall thickness. Frames shall be supplied with temporary steel spreader to prevent distortion during shipment.
- E. Door frame shall be selected to suite wall.
- F. After fabrication doors and frames shall be cleaned in conformance to SSPC SP5. Spot touch-up all welded areas and all damaged galvanized surfaces.

8.32: SHOP PRIMING

Apply primed finish to all ferrous metal surfaces. Clean and bonderize surfaces for maximum paint adherence; follow with dip or spray coat of rust inhibitive metal oxide, zinc chromate or synthetic resin primer, baked or oven dried painting shall be done according to suppliers specifications and shall comply with City Standard Specifications Section 34-15.

8.33: FINISH HARDWARE MATERIALS

- A. Exit Device - Von Duprin Type 3347L
- B. Butt Hinges - full mortise (NRP on exterior) Stanley FBB199 US32D or equivalent Soss.
- C. Closers - LCN "cush-n-stop" 4115 H-CUSH, or equivalent Norton.
- D. Threshold - Reese T575A and 412 or equivalent Pemko.
- E. Weatherstrip - Reese DS79, or equivalent Pemko.

8.40: EXECUTION

INSTALLATION

- A. Frame
 - 1. Contractor shall locate opening and set metal frame square and plumb with due regard for existing wall thickness.
- B. Door
 - 1. Contractor shall hang door and install finished hardware.
- C. Template Hardware
 - 1. Hardware applied to metal shall be made to template. Unless otherwise requested, furnish templates to metal door and frame manufacturers for factory preparations for installation of hardware.

D. Fasteners and Anchors

1. Furnish finish hardware with necessary screws, bolts or other fastenings of suitable type and size to securely anchor hardware for long life under heavy use. Finish on exposed portions of fasteners and anchors shall match finish of items being fastened. Set bolts, toggle bolts, or other approved anchors shall be provided according to materials to which hardware is applied.
2. Exposed screw heads shall be "Phillips Head".
3. Use machine screws for hardware applied on metal.
4. Hardware fastened to concrete or masonry shall be installed with machine screws and "star" type double expansion shields.

F. Painting

Finish painting of door and frame is not included in contract.

END OF SECTION

DIVISION 10 - SPECIALTIES

SECTION 10074

HANGERS AND SUPPORTS

10.10 GENERAL

The work of this section consists of providing necessary materials and installation to properly support all pipe, fittings, appurtenances, electrical conduit, and miscellaneous hardware.

10.20 SUBMITTALS

In accordance with Section 01090 of these special provisions.

- A. Shop Drawings: Submit certified drawings showing all details of pipe, fittings, appurtenances, electrical conduit, and support devices. Shop drawings shall include all details of embedment into concrete, channel size, bar sizes, weld sizes, mounting dimensions and overall space requirements.
- B. Manufacturer's Literature: Submit manufacturer's literature for all hanger and support hardware and related materials used in support system.

10.30 MATERIALS

- A. Hangers and supports shall be factory fabricated units with published load limits and shall meet the requirements of the Manufacturer's Standardization Society of the Valve and Fittings Industry Standard Practice SP58.
- B. To the maximum extent possible and unless otherwise shown on the plans or approved by the ENGINEER, hangers and supports shall be provided by a framing support system as manufactured by Unistrut Corporation of Wayne, MI 48184; Caine-Strut Corporation of Wilmington, CA 90744; or Kin-Line, Inc. of Oakland, CA 94614. All components of the hanger and support system shall be of the same manufacturer.
- C. All framing members and fittings shall be hot-dipped galvanized steel. Bolts, nuts and screws shall be electro-galvanized.
- D. Continuous insert embedment channels shall be located as

HANGERS AND SUPPORTS

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shown on the Plans. Channels shall be 1-5/8-inch in width and shall be Unistrut 3000 series or equal.

- E. Where the use of the framing support system is not practical and an alternative system is approved by the ENGINEER, hangers and supports shall be B-Line systems, as manufactured by Grinnell Corp., or equal. All framing members and fittings shall be hot-dipped galvanized. Nuts bolts, and screws shall be electro-galvanized.

10.40 EXECUTION

- A. Supports shall be used to meet all criteria herein regardless of whether or not indicated on the Plans. No pipe shall be left unsupported whenever a change in direction of line of flow takes place. At least one support shall be provided between every two couplings. Supports shall be provided for all valves, meters or other piping system appurtenances.
- B. Securely fasten all piping to structure using approved hangers, supports, guides, anchors, and other miscellaneous hardware so as to maintain pipe alignment, prevent sagging, noise, and excessive strain, and to adequately resist movement under operating dynamic conditions.
- C. The maximum interval for support of 2-inch PVC piping shall be 5 feet. The maximum interval for support of 3-inch PVC piping shall be 6 feet. Due to the arrangement of piping, supports will often be required at more frequent intervals in order to meet other requirements herein.
- D. Piping shall be supported in a manner which allows for thermal expansion and contraction of the pipe without sagging or kinking.
- E. The completed piping installation shall be neat in appearance and shall be of adequate strength to resist all forces which can be reasonably anticipated to be encountered during operation and maintenance.
- F. Support miscellaneous hardware as required to form a solid, rigid strong installation satisfactory to the ENGINEER, whether or not such support is shown on the Plans.

END OF SECTION

HANGERS AND SUPPORTS

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DIVISION 10 - SPECIALTIES

**SECTION 10400
PLASTIC PIPE**

10.40: GENERAL

- A. **SCOPE:** This section specifies Polyvinylchloride, Ultraviolet Resistant Polyvinylchloride, and slotted polyvinylchloride pipe and fittings.
- B. **PIPE DESIGNATIONS:** The following plastic pipe designations are defined:

<u>DESIGNATION</u>	<u>DEFINITION</u>
PVC	Polyvinylchloride
PVC-UVR	Ultraviolet Resistant Polyvinylchloride

10.41: QUALITY ASSURANCE

- A. **REFERENCES:** This section contains references to some or all of the following documents, most recent edition. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

<u>Reference</u>	<u>Title</u>
ASTM D1784	Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
ASTM D1785	Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80 and 120
ASTM D2464	Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
ASTM D2466	Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40
ASTM D2467	Socket-Type Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
ASTM D2564	Solvent Cements for Poly (Vinyl Chloride)

(PVC) Plastic Pipe and Fittings

- ASTM F402 Practice for Safe Handling of Solvent Cements and Primers Used for Joining Thermoplastic Pipe and Fittings
- ASTM F477 Elastomeric Seals (Gaskets) for Joining Plastic Pipe

10.42: SUBMITTALS

In accordance with section 01090, submit materials list and catalog data sheets naming each product to be used by manufacturer and type number and containing sufficient information to check for compliance with these specifications.

10.43: MATERIALS

POLYVINYLCHLORIDE PIPE

- A. General: PVC materials for pipe and fittings shall conform to ASTM D1784, Class 12454 B.
- B. Schedule 40 and Schedule 80 PVC pipe shall conform to ASTM D 1785.
- C. Schedule 40 socket-type and threaded fittings shall conform to ASTM D2466.
- D. Schedule 80 Threaded fittings shall conform to ASTM D2464.
- E. Schedule 80 Socket-type fittings shall conform to ASTM D2467.
- F. PVC solvent weld cement for socket connections shall meet the requirements of ASTM D2564.

POLYVINYLCHLORIDE-ULTRAVIOLET RESISTANT PIPE

- A. PVC-UVR pipe and fittings shall meet the requirements for Schedule 40 PVC pipe and fittings as set fourth in 2.01, above. In addition, the material property values must continue to meet or exceed the minimum property values during an accelerated ultraviolet exposure test period of no less than 5000 hours in an ultraviolet test chamber in accordance with ASTM G-53. PVC-UVR pipe shall be as manufactured by Brownline, Inc., City of Industry, CA, or

an approved equal.

SLOTTED PVC PIPE (FILTERED WATER COLLECTION PIPING)

- A. Slotted PVC pipe shall be manufactured from 2-inch diameter Schedule 40 PVC pipe which meets the requirements set fourth in 2.01, above. Pipe shall have three rows of slots running in the longitudinal direction, with slots cut in the circumferential direction. The 3 rows shall be spaced equally around the circumference of the pipe. Each row shall have 22(+/-1) uniformly spaced slots per linear foot of pipe. The slots shall be 0.045-inch to 0.065-inch wide and of such length as to provide a minimum of 2.00 square inches of slot opening per linear foot of pipe. Other suitable configurations of slots which provides the functional equivalent may be used if approved in writing by the ENGINEER. Slotted pipe shall conform to the section 68-3.02 of the State Specifications, except that 90 degree C. pipe is not required. Pipe shall be as manufactured by Pipe Services Industries, Sacramento, CA, or shall be an approved equivalent.

10.44: EXECUTION

INSTALLATION OF PIPE AND FITTINGS

- A. Pipe and fittings shall be of the types and sizes indicated on the Plans, and all piping and appurtenances shall be installed in the positions and to accurate lines, elevations, and grades as shown on the Plans. Where possible, piping shall be sloped to permit complete drainage. Clean pipe interior of all foreign matter before installing.
- B. In erecting the pipe, a sufficient number of screwed unions or flanged joints shall be used to allow any sections or runs of pipe to be disconnected without taking down adjacent runs. Screwed unions shall be used on piping 2 1/2 inches in diameter and smaller. Flanged joints shall be used in piping 3 inches in diameter and larger.
- C. Expansion couplings shall be installed where shown on the Plans and at such other points as may be required for ease of installation or removal of the pipe, subject to

the approval of the ENGINEER.

- D. All fittings necessary for the satisfactory alignment and arrangement of piping and all necessary unions and cleanouts shall be furnished by the CONTRACTOR.
- E. All buried valves, expansion couplings, flange assemblies, flexible connections, flanged coupling adapters, tie rods and similar fittings and connections with threaded fasteners shall be coated with two coats of Coal Tar Solution, 15 mils dry film thickness, Tnemec Series 47-461 or Koppers Bitumastic 50 or approved equal. Then covered with 6 mil polyethylene sheeting extending 6 inches beyond the valve or fitting and taped in place. This requirement does not apply to mechanical joint fittings and connections, but does apply to valves with mechanical joints.
- F. Pipe shall be square cut with fine tooth saw or other cutter or knife designed for use with plastic pipe. Remove burrs by smoothing edges with a knife, file or sandpaper. Replace any section of pipe found to be defective or damaged with new, acceptable pipe. Handle pipe carefully to prevent gouging or scratching. Any length of pipe having a gouge, scratch or other permanent indentation more than 10 percent of the wall thickness in depth shall be rejected.
- G. Adequate support shall be provided for prevention of sags, kinks or any other deficiencies in appearance or strength. Supports shall be used to meet all criteria herein, regardless of whether or not indicated on the Plans. No pipe shall be left unsupported whenever a change of direction of line of flow takes place. At least one support shall be provided between every two couplings.

2-inch diameter PVC piping shall be supported at a 5-foot maximum intervals; and 3-inch diameter PVC piping shall be supported at maximum 6-foot intervals.

INSTALLATION OF SOLVENT WELD JOINT TYPE PIPE

Installation shall be in accordance with the recommendations of the pipe manufacturer and with the following requirements:

- A. Do not solvent weld joints if it is raining, if atmospheric temperature is below 40 degrees F or above 90 degrees F, if the pipe is exposed to direct sunlight.

- B. Test fit dry pipe and fittings before applying cement. Pipe should enter socket without forcing at least one-third, but not more than two-thirds the depth of the socket. Fittings which are looser or tighter shall not be used. Thoroughly clean and dry the pipe end and socket of fitting with methyl ethyl ketone, acetone, or similar cleaner. Apply cement evenly to outside surface and end of pipe, and inside surface of socket. Avoid excess application of cement but insure complete coverage of all bonding surfaces. Mark depth of socket on pipe to guide application of cement and to insure full insertion of pipe. Insert pipe in socket, twisting pipe approximately one-half turn as pipe is being seated in socket. Make sure pipe is fully seated providing a bond between end of pipe and shoulder of socket. Immediately wipe excess cement from pipe leaving no more than 1/8th-inch fillet at fitting end. Hold assembled joint in place for about 15 seconds and allow to set for 30 minutes before moving. Avoid rough handling for 48 hours. Longer periods may be required in cold or wet weather.

TESTING

- A. Notify ENGINEER at least 48 hours before testing. Provide test equipment including test pumps, gauges, instruments and other equipment required. Pressure gauges shall be graduated in increments not greater than 5 psi and shall have a range of approximately twice the test pressure. Use only gauges and instruments which have been recently calibrated.
- B. Test pipe before it is concealed in the Work. Before testing, remove all equipment from the system which might be damaged by test pressure. Replace removed equipment after testing is complete. System may be tested in sections as work progresses; however, any previously test portion shall become a part of any later test of composite system. Correct leaks by remaking joints with new material; makeshift remedies will not be permitted. Test time will be accrued only while full test pressure is on system.
- C. Ends of pipe systems open to the atmosphere shall be temporarily blind-flanged to allow effective testing of the pipe system.
- D. PVC pipe systems shall be tested at a pressure of 50 psi, using water as the test medium. No pressure drop, except that due to temperature change, shall occur in a

24 hour period, or, where applicable, no visible leakage shall occur.

- E. Check valve bonnets for tightness and external leakage. Test manual valves from closed to open and back to closed position while valve is under test pressure.
- F. Where tests show materials or workmanship to be deficient, replace or repair as necessary, and repeat the tests until the specified standard is achieved.

CLEANING AND FLUSHING

- A. All pipelines shall be cleaned of all soil, dirt, rocks and other debris and objectionable material.
- B. Pipelines 24 inch in diameter and smaller shall be cleaned first by pulling a tightly fitting cleaning ball or swab through the pipe.
- C. After initial cleaning, piping shall be flushed with clear water at a minimum velocity of 2 1/2 feet per second. Flushing shall continue until a minimum volume equivalent to 2 times the volume of the piping being flushed has passed through the pipe, and until drain water runs clear.

DISINFECTION

Disinfection of filtered water piping will be performed by CITY personnel, following acceptance of the CONTRACTOR's cleaning and flushing of the piping.

END OF SECTION

DIVISION 15 - MECHANICAL

SECTION 15100

VALVES AND APPURTENANCES

15.10 GENERAL:

The work of this section consists of providing valves used to throttle, isolate, and control flow in piping systems.

15.20 QUALITY ASSURANCE:

Reference, American Society for Testing and Materials (ASTM).

15.30 SUBMITTALS:

In accordance with Section 5-6 of the City Standard Specifications and with Section 01090.

Materials and catalog data sheets naming each product to be used identified by manufacturer and type number.

Operation and maintenance data as well as manufacturer's installation instructions.

15.40 MATERIALS:

A. All valve construction, materials, and pressure ratings shall be selected to suit the system in which installed. Pressure rating and manufacturer's name shall be cast on each valve body. Where possible, valves shall be of one manufacturer.

B. Valves shall be furnished full line sizes unless specifically called out to be of reduced size. Flanges for valves may be raised or plain face.

15.41 BALL VALVES:

A. Plastic ball valves shall be double union design, CPVC Class 23447-B ASTM F-439 teflon seats and viton or EPDM o-rings, full ports, 150 PSI at 73° F water, socket ends. Chemtrol true union, or equal.

15.42 FLOAT VALVES:

Valve shall be installed so that water level can be controlled at elevation 6642 ft. with a plus and minus 3" operating band.

- A. Modulating Float Valve: Modulating float valve shall be bronze body and trim in globe pattern, and with screwed end connections. Modulating float valve shall be "Keckley #7 float valve", catalog No. 83A as manufactured by O.C. Keckley Company, Skokie, Il., 60076; Model 64, Golden-Anderson Valve Division, Mars, PA., 16046 or approved equal.
- B. Non Modulating: Non-modulating float valves shall be globe valve body, bronze construction with threaded inlet and outlet ports. The piston shall be the differential design and bronze construction complete with replaceable rubber seat to provide drop tight closure. Non-modulating float valve shall be model 52A, manufactured by Golden-Anderson Valve Division, Mars, PA., 16046 or approved equal.

15.43 ROTAMETER:

Rotameter shall be constructed of shatter resistant, non-glass material five (5) inch easy-to-read direct reading scale in gallons per minute (GPM), PVC end fittings, EDR o-rings, and 316 stainless steel float.

Rotameter shall be Model FL-75 as manufactured by Omega Engineering, Inc., Stamford, Conn., 06907; or approved equal.

15.44 NEEDLE VALVES:

Shall be globe pattern, CPVC Model 5256, threaded end fittings as supplied by Ryan Herco Industrial Plastics, Oakland, CA., 94603, or approved equal.

15.45 PIPE TO WALL PENETRATION SEALS:

All pipe penetrations through concrete wall shall use a sleeve and linkseal as shown on plans and manufactured by thunderline Corporation, Belleville, Mich., 48111 or approved equal.

15.46 FLEXIBLE COUPLINGS:

A. <u>Application</u>	<u>Rockwell</u>	<u>Dresser</u>
Iron Pipe Size O.D. Pipe	411,521	38,90
Ductile Iron & Asbestos Cement Pipe	431,441	38,138,153,53
Transition	413,433	162
Reducing	415,435	62
Flanged Cplg. Adapter	912,913,914,916,127,128	

Rockwell Internation, 400 North Lexington, Pittsburg, Pennsylvania 15208.

Dresser Mfg., 41 Fisher Avenue, Bradford, Pennsylvania 16701.

- B. Materials; Cast couplings shall be used wherever possible. Steel Couplings with a minimum sleeve thickness of the connecting pipe wall or 1/4", whichever is greater, shall be used where cast couplings are not available.

Sleeve - Grey iron or steel.

Flanges - Malleable or ductile iron or high strength steel.

Bolts & Nuts - Low alloy, corrosion resistant high strength.

Finish or coupling - fusion epoxy coating.

Gaskets - Synthetic rubber (Rockwell grade 60, Dresser 42) asbestos gaskets for service above 212°F.

15.48 EXECUTION:

- A. All valves, seals, rotometers, and flex couplings shall be installed in the manner and location shown on the plans in strict accordance with manufacturer's recommendations.

DIVISION 15 - MECHANICAL

**SECTION 15600
VENTILATION EQUIPMENT**

15.60: GENERAL

The work of this section consists of furnishings and installing an exhaust fan in the control room as shown on plans.

15.70: SUBMITTALS

- A. In accordance with Section 01090 of these specifications.
- B. Submit complete dimensional data, operating and performance characteristics, mounting details, and all other information required to demonstrate compliance with the specifications.
- C. Operation and maintenance data.

15.80: PRODUCTS

- A. Heavy gauge, spun aluminum housing, corrosion free and all stainless steel fastenings.
- B. Motor shall have permanently lubricated ball bearing, mounted in compartment sealed from exhaust air stream, motor shall be 115 volt, single phase, one-twenty fifth horsepower, 1550 RPM.
- C. Exhauster shall be capable of delivering 200 CFM against a static pressure of 0".
- D. Exhauster shall be supplied by McMaster-Carr supply company, Los Angeles, CA. 90054-0960 or equal.

15.90: EXECUTION

Installation: Install as shown on plans and in accordance with manufacturer's recommendations.

END OF SECTION

VENTILATION EQUIPMENT
15600-1

DIVISION 16 - ELECTRICAL
SECTION 16000
INTERIOR AND EXTERIOR WIRING

16.10: GENERAL

The work of this section shall include the supply and installation of a operational electrical system as shown on the Plans and noted in these Special Provisions. All electrical work shall meet the requirements of the City Standard Specification Section 34.

16.20: SUBMITTALS

In accordance with Section 01090 of these Special Provisions, and with the applicable requirements of Section 5-6 in the City Standard Specifications.

Catalog cut sheets for all materials.

16.30: MATERIALS

16.31 MATERIAL AND EQUIPMENT

Materials and equipment shall conform to the respective specifications and standards and to the requirements herein.

16.32 RACEWAY

A. Steel Conduit:

1. Galvanized rigid steel conduit (GRC): Rigid steel conduit shall comply with ANSI C80.1 with smooth finished surfaces. Conduit shall be hot-dip galvanized. Unless otherwise specified, minimum size shall be 3/4 inch.
2. Metal conduit installed in contact with earth or fill material shall be wrapped with net four layers (two layers half-lapped) of Scotchrap No. 50, or approved equal.
3. FITTINGS: Locknuts shall be extra heavy electrogalvanized steel for sizes through 2 inches. Locknuts larger than 2 inches shall be electrogalvanized malleable iron. Bushings shall be electrogalvanized malleable iron with insulating

collar. Grounding bushings shall be locking type and shall be provided with a feed-through compression lug for securing the ground cables. Unions shall be electrogalvanized ferrous alloy type Appleton UNF or UNY, Crouse-Hinds UNF or UNY, or equal. Treadless fittings are not acceptable. Conduit bodies shall be ferrous alloy type with screw taps for fastening covers. Gaskets shall be made of neoprene.

B. Liquidtight Flexible Steel Conduit (FLEX):

Liquidtight flexible steel conduit shall be formed from spirally wound galvanized steel strip with successive convolutions securely interlocked with a copper bonding conductor between the spiral segments and jacketed with liquidtight plastic cover. Minimum size shall be 1/2-inch. Fittings for liquidtight conduit shall have cadmium-plated malleable iron body and gland nut with cast-in lug, brass grounding ferrule threaded to engage conduit spiral and O-ring seals around the conduit and box connection and insulated throat. Forty-five and 90-degree fittings shall be used where applicable.

C. WIREWAY:

Wireways and auxiliary gutters shall be JIC EMP-1 sectional flanged oiltight type with hinged covers and shall be 8-inch by 8-inch in cross section unless otherwise specified. Unless otherwise indicated, wireways shall be furnished without knockouts and shall be drilled and punched in the field as required.

16.33 BOXES AND FITTINGS

A. GENERAL:

Junction boxes, device boxes, fixture support boxes and conduit fittings shall be cast ferrous alloy unless otherwise specified. Exposed boxes and boxes located in indoor wet areas, containing more than 24 cubic inches, shall be cast ferrous alloy or NEMA 4 sheet steel.

B. CAST FERROUS ALLOY BOXES:

Boxes shall be hot-dip galvanized cast ferrous alloy unless otherwise specified. Integrally cast threaded hubs or bosses shall be provided for conduit entrances and shall provide for full 5-threaded contact on tightening. Drilling and threading shall be done before galvanizing. Cover plates shall be of similar hot-dip

galvanized cast ferrous alloy material. A full body neoprene gasket shall be provided with the cover. Type 304 stainless steel screws shall be provided for covers. Device boxes shall be FD boxes as manufactured by Crouse-Hinds, Appleton, or equal.

C. GANG BOXES:

Outlet and device boxes shall be gang type where two or more devices are located together. Device covers shall be suitable for gang boxes with neoprene gaskets to fit the devices and boxes used. Covers shall be hot-dip galvanized cast ferrous alloy unless the particular device requires a cover that is not manufactured in this material.

16.34 RECEPTACLES AND PLUGS

A. GENERAL:

Receptacles shall be grounding type.

B. 120V RECEPTACLES:

1. DUPLEX RECEPTACLES: Receptacles shall be duplex 20 amp NEMA 5-200R and shall accept NEMA 5-15P or 5-200P plug caps. Receptacles shall be Hubbell 5362, General Electric Co. GE4108-2, or equal.
2. 120V GFCI RECEPTACLES: Receptacles capable of detecting and interrupting ground fault currents 5 ma or above shall be provided in all areas below grade or outdoors, in restrooms and laboratories, in areas subject to hosedown and as shown. These receptacles shall be UL listed and shall have provisions for trip indication, testing and resetting. They shall be manufactured by 3M, Square D, or equal.

16.35 SWITCHES

A. GENERAL PURPOSE:

General purpose switches shall be quiet AC type, specification grade, and shall be installed in accordance with rated capacities as required. Switches shall match receptacles in color. Switches shall be manufactured by Arrow Hart, Hubbell, or equal, as follows:

	15A, 120-277V		20A, 120-277V	
	<u>A-H Inc.</u>	<u>Hubbell</u>	<u>A-H Inc.</u>	<u>Hubbell</u>
Single:	1891	1201-I	1991	1221-I
Three-way:	1893	1203-I	1993	1223-I
Four-way:	1894	1204-I	1994	1224-I
SPST Momentary:	1895	1556-I		

Device plates shall be provided with switches and receptacles. Device plates located in areas with suspended ceilings and stud walls and on sheet metal boxes shall be made from type 302 stainless steel satin finish. Zinc-plated steel device plates shall be used in all other indoor areas.

Receptacles located outdoors shall be provided with weatherproof lift covers.

16.40 EXECUTION:

CONDUIT

A. GENERAL:

1. CONDUIT INSTALLATION: The conduit system shall be installed as shown on the Plans. Unless shown otherwise, all conduit to be embedded in concrete shall be rigid galvanized steel. Conduit, conduit fittings, and conduit boxes to be embedded in concrete shall be held securely in position while concrete is being placed. All concrete shall be cleaned from the inside of conduit boxes after the forms are removed and the threads for attaching devices and covers shall be cleaned. The ends of conduit shall be protected to prevent the entrance of concrete, sand, or other foreign material. Ends of embedded conduit not terminating at boxes shall be terminated with couplings and pipe plugs, or insulating bushings and caps, O-Z type B, or equal.

After the removal of concrete forms, all conduit runs shall be swabbed with clean dry rags to show that they are thoroughly cleaned and dried. The plugs shall then have their threads greased and shall be replaced and left in place until the wire is installed to prevent the entrance of water or foreign material. Conduit boxes shall be sealed with a rubber gasketed blank cover.

All conduit bends shall be gradual and smooth to permit the pulling of insulated electrical wires and cables without undue stress or damage to the insulated electrical wires and cable sheath, or to the conduit. All conduit runs and bends shall be entirely free from kinks, indentations, or flattened surfaces. Metal conduit bends made in the field shall have not less than the minimum radii as required in the NEC, and shall be bent cold to prevent damage to the protective coating. Burrs and sharp corners at the ends of each piece of metal conduit shall be removed.

Conduit threads shall be tightened securely to assure electrical continuity such that the metal conduit run performs as a secondary equipment grounding conductor and to prevent the entrance of moisture or any other foreign material.

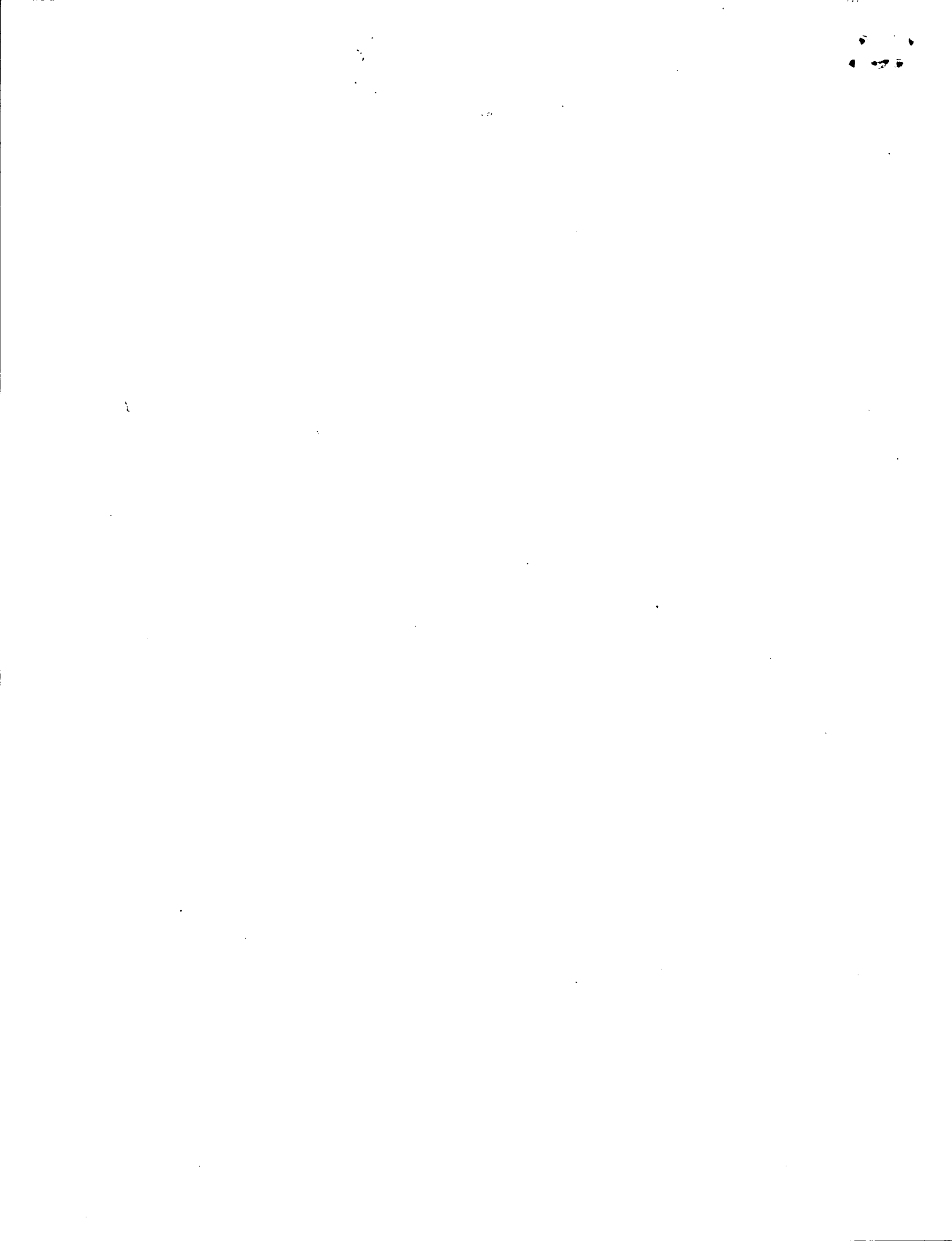
For steel conduit, the completed joints, termination, wrench marks, and all other places where the zinc covering is damaged shall be covered entirely with a zinc rich paint to provide protection from corrosion.

2. CONDUIT RUNS BETWEEN BOXES: The CONTRACTOR shall limit the number of directional changes of the conduit to total not more than 270 degrees in any run between pull boxes. Conduit runs shall be limited to 400 feet, less 100 feet for every 90 degrees of change in direction. Bends and offsets shall be avoided where possible but, where necessary, boxes shall be independently supported by galvanized brackets, expansion bolts, toggle bolts, or machine or wood screws as appropriate. Wooden plugs inserted in masonry or concrete shall not be used as a base to secure boxes, nor shall welding or brazin for attachment.

Unless otherwise noted, receptacles and switches installed in sheet steel boxes shall be flush mounted. Flush mounted receptacles shall be located as noted on plans.

Switch boxes shall be mounted 48 inches above the floor, unless otherwise shown. Receptacles installed in cast device boxes shall be located 48 inches above the floor.

END OF SECTION



07-03-90

3.3



CITY OF SACRAMENTO

DEPARTMENT OF PUBLIC WORKS

ENGINEERING DIVISION

CONTRACT SPECIFICATIONS FOR CAMP SACRAMENTO SLOW SAND FILTER

PN:KB11

Non-Refundable Fee
\$15.00

APPROVED
BY THE CITY COUNCIL

JUL 3 1990

OFFICE OF THE
CITY CLERK

Separate Plans

For Pre-Bid Information Call:
Gary Gosse
(916) 449-1290

Bids to be received before
10:30 a.m., Tuesday,
July 24, 1990, at
Room 304, City Hall,
915 I Street,
Sacramento, CA 95814



DEPARTMENT OF
PUBLIC WORKS

ENGINEERING DIVISION

THOMAS M. FINLEY
ENGINEERING DIVISION MANAGER

CITY OF SACRAMENTO
CALIFORNIA

927 TENTH STREET
ROOM 200
SACRAMENTO, CA
95814-2705

916-449-8220

CONSTRUCTION SECTION
640 BERCUIT DRIVE
SUITE B
SACRAMENTO, CA
95814-0131

916-449-5282

PN:KB11

July 2, 1990

To Whom It May Concern

Enclosed herewith is Addendum No 1 to the Plans and Specifications for Camp Sacramento Slow Sand Filter.

Please attach this addendum to your bid and acknowledge acceptance by so noting on the Sealed Proposal form.

Sincerely,

THOMAS M FINLEY
Engineering Division Manager

ADDENDUM NO 1

July 2, 1990

CONTRACT SPECIFICATIONS FOR
CAMP SACRAMENTO SLOW SAND FILTER

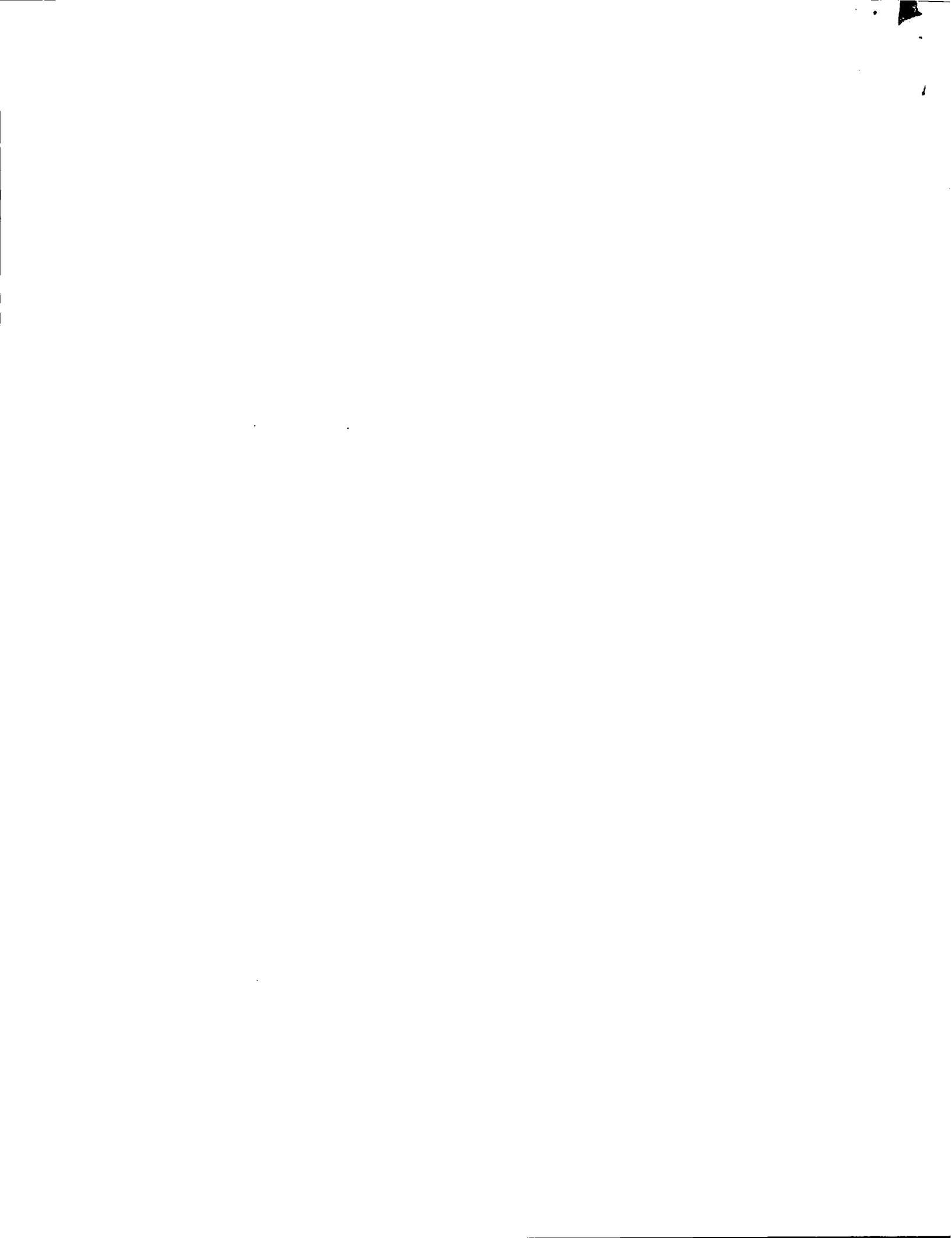
PN:KB11

Bids to be received July 24, 1990

This addendum is applicable to the work designated herein and shall be a part of and be included in the Contract. The CONTRACTOR shall acknowledge acceptance of this addendum by writing the number designation of the addendum on the Sealed Proposal form and initialing the proposal form.

NOTE:

Delete Section 10074 entitled HANGERS AND SUPPORTS of Division 10 - SPECIALTIES in its entirety and substitute the attached revised Section 10074 entitled HANGERS AND SUPPORTS.



DIVISION 10 - SPECIALTIES

SECTION 10074

HANGERS AND SUPPORTS

10.10 GENERAL

The work of this section consists of providing necessary materials and installation to properly support all pipe, fittings, appurtenances, electrical conduit, and miscellaneous hardware.

10.20 SUBMITTALS

In accordance with Section 01090 of these special provisions.

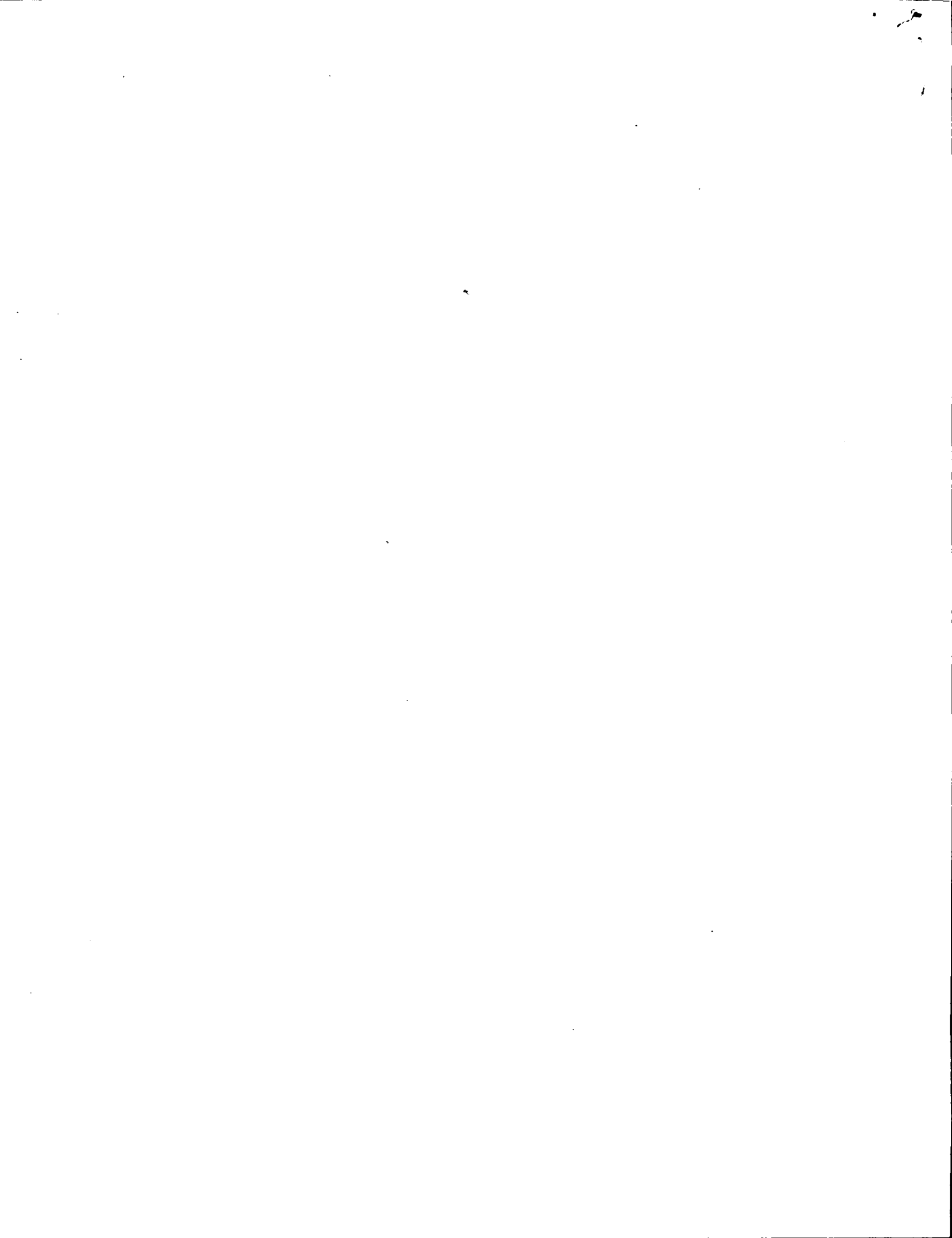
- A. Shop Drawings: Submit certified drawings showing all details of pipe, fittings, appurtenances, electrical conduit, and support devices. Shop drawings shall include all details of embedment into concrete, channel size, bar sizes, weld sizes, mounting dimensions and overall space requirements.
- B. Manufacturer's Literature: Submit manufacturer's literature for all hanger and support hardware and related materials used in support system.

10.30 MATERIALS

- A. Hangers and supports shall be factory fabricated units with published load limits and shall meet the requirements of the Manufacturer's Standardization Society of the Valve and Fittings Industry Standard Practice SP58.
- B. To the maximum extent possible and unless otherwise shown on the plans or approved by the ENGINEER, hangers and supports shall be provided by a framing support system as manufactured by Unistrut Corporation of Wayne, MI 48184; Caine-Strut Corporation of Wilmington, CA 90744; or Kin-Line, Inc. of Oakland, CA 94614. All components of the hanger and support system shall be of the same manufacturer.
- C. All framing members and fittings shall be hot-dipped galvanized steel. Bolts, nuts and screws shall be electro-galvanized.
- D. Continuous insert embedment channels shall be located as

HANGERS AND SUPPORTS

10074-1



shown on the Plans. Channels shall be 1-5/8-inch in width and shall be Unistrut 3000 series or equal.

- E. Where the use of the framing support system is not practical and an alternative system is approved by the ENGINEER, hangers and supports shall be B-Line systems, as manufactured by Grinnell Corp., or equal. All framing members and fittings shall be hot-dipped galvanized. Nuts bolts, and screws shall be electro-galvanized.

10.40 EXECUTION

- A. Supports shall be used to meet all criteria herein regardless of whether or not indicated on the Plans. No pipe shall be left unsupported whenever an change in direction of line of flow takes place. At least one support shall be provided between every two couplings. Supports shall be provided for all valves, meters or other piping system appurtenances.
- B. Securely fasten all piping to structure using approved hangers, supports, guides, anchors, and other miscellaneous hardware so as to maintain pipe alignment, prevent sagging, noise, and excessive strain, and to adequately resist movement under operating dynamic conditions.
- C. The maximum interval for support of 2-inch PVC piping shall be 5 feet. The maximum interval for support of 3-inch PVC piping shall be 6 feet. Due to the arrangement of piping, supports will often be required at more frequent intervals in order to meet other requirements herein.
- D. Piping shall be supported in a manner which allows for thermal expansion and contraction of the pipe without sagging or kinking.
- E. The completed piping installation shall be neat in appearance and shall be of adequate strength to resist all forces which can be reasonably anticipated to be encountered during operation and maintenance.
- F. Support miscellaneous hardware as required to form a solid, rigid strong installation satisfactory to the ENGINEER, whether or not such support is shown on the Plans.

END OF SECTION

HANGERS AND SUPPORTS

10074-2



NOTICE TO CONTRACTORS

CITY OF SACRAMENTO

Sealed Proposals will be received by the City Clerk of the City of Sacramento at the Office of the City Clerk, Room 304, City Hall, located on I Street between 9th and 10th Streets, up to the hour of 10:30 a.m. on July 24, 1990, and opened at 10:30 a.m., or as soon thereafter as business allows, in the Council Chamber, City Hall, for construction of:

Camp Sacramento Slow Sand Filter (PN:KB11)

as set forth in the Construction Documents adopted July 3, 1990, by the City of Sacramento.

All such proposals received and any work performed thereunder must comply with the requirements of Chapter 58 of the Sacramento City Code (Ordinance No. 3129, Fourth Series).

Bids must be submitted on printed forms supplied by the City Clerk to prospective bidders for a non-refundable fee of \$15.00. Bids must be enclosed in an envelope marked:

Sealed Proposal for Camp Sacramento Slow Sand Filter (PN:KB11)

Copies of the Sealed Proposal Forms and accompanying documents are available at the Office of the City Clerk, City Hall, Room 304, 915 I Street, Sacramento, CA 95814.

Contractors bidding on this project must possess a Class A License.

All contractors, subcontractors and all concerned must comply with the rates of wages established by the Director of Industrial Relations under provisions of Sections 1770 and 1773 of the Labor Code of the State of California, a copy of which is on file in the Office of the City Clerk; or such other rate of wages as may hereafter be established by the Director of the Department of Industrial Relations in compliance with Section 1770 of the Labor Code of the State of California.

Pursuant to Government Code Section 4590, any contract awarded pursuant to this invitation for bid shall contain a provision permitting the substitution of securities for any moneys withheld to ensure performance under the contract. The terms of such provisions shall be according to the requirements of Government Code Section 4590.

The right to reject any and all bids or to waive any informality in any bid received is reserved by the City Council.

VALERIE A. BURROWES
CITY CLERK

EA6-32.A
06.2190

CITY OF SACRAMENTO

SEALED PROPOSAL
(MUST BE SIGNED BY BIDDER)

Sealed Proposals will be received not later than 10:30 A.M. on July 24, 1990, at the Office of the City Clerk, Room 304, City Hall, Sacramento, California and opened at 10:30 A.M., or as soon thereafter as business allows, on July 24, 1990, in the Council Chamber, City Hall, Sacramento, California.

TO THE HONORABLE CITY COUNCIL:

The undersigned hereby proposes and agrees to furnish any and all required labor, material, transportation and services for:

Camp Sacramento Slow Sand Filter
(PN:KB11)

in the City and County of Sacramento, California.

The work is to be done in strict conformity with the Plans, City of Sacramento Standard Specifications (Resolution No. 89-216) and Special Provisions all as on file in the Office of the City Clerk, at the following Unit Prices.

Item No.	Item	Estimated Quantity	Unit	Unit Price	Total
1.	Slow Sand Filter to Construct	1	Job	\$ _____	\$ _____
				TOTAL	\$ _____

If awarded the contract, the undersigned shall execute said contract and furnish the necessary bonds within ten (10) days after the notice of award of said contract and begin work within fifteen (15) days after the signing of the contract by the Contractor and the City or Notice to Proceed, whichever is applicable.

In determining the amount bid by each bidder, City shall disregard mathematical errors in addition, subtraction, multiplication and division that appear obvious on the face of the Proposal. When such a mathematical error appears on the face of the Proposal, the City shall have the right to correct such error and to compute the total amount bid by said bidder on the basis of the corrected figure or figures.

When an item price is required to be set forth in the Proposal, and the total for the item set forth separately does not agree with a figure which is derived by multiplying the item price times the Engineer's estimate of the quantity of work to be performed for said item, the item price shall prevail over the sum set forth as the total for the item unless, in the sole discretion of the City, such a procedure would be

inconsistent with the policy of the bidding procedure. The total paid for each such item of work shall be based upon the item price and not the total price. Should the Proposal contain only a total price for the item and the item price is omitted, the City shall determine the item price by dividing the total price for the item by Engineer's estimate of the estimated quantities of work to be performed as items of work.

If the Proposal contains neither the item price nor the total price for the item, then it shall be deemed incomplete and the Proposal shall be disregarded.

It is understood that this bid is based upon completion of the work by July 31, 1991 commencing on the date specified in the Notice To Proceed.

The amount of the liquidated damages to be paid by Contractor to City for failure to complete the entire work by the Completion Date (as extended, if applicable) will be One hundred dollars (\$100.00) for each calendar day, continuing to the time at which the work is completed. Such amount is the actual cash value agreed upon as the loss to City resulting from Contractor's default.

The undersigned represents and warrants that the undersigned has examined the location of the proposed work and is familiar with the local conditions at the place where the work is to be done, and the undersigned has reviewed and understands the plans, specifications and other contract documents, and the undersigned is satisfied with all conditions for performance of the work.

The undersigned has checked carefully all of the above figures and understands that the City of Sacramento will not be responsible for any errors or omissions on the part of the undersigned in making up this bid.

This proposal will not be withdrawn for the periods specified in Section 3-2 of the City of Sacramento Standard Specifications for award of contract to respective low bidders. This proposal is submitted according to Sections 1, 2, and 3 of the City of Sacramento Standard Specifications.

BID DEPOSIT ENCLOSED IN THE FOLLOWING FORM:

\$ _____ not less than ten percent (10%) of amount bid.

- _____ CERTIFIED CHECK
- _____ MONEY ORDER
- _____ CASHIER'S CHECK
- _____ BID BOND

CONTRACTOR

Addendum No. 1 _____

Addendum No. 2 _____

Addendum No. 3 _____

Addendum No. 4 _____

By: _____
(Signature)

Title: _____

Address: _____

Telephone No: _____

Contractor's License:

Valid Contractor's License No: _____, Classification: _____,
Expiration date: _____, is held by the bidder.

Representations made herein are true and correct under penalty of perjury.

Signature

GC:cb
SPEC1-04.A
06.2890

DESIGNATION OF SUBCONTRACTORS
(including suppliers and truckers)

NAME AND LICENSE NUMBER OF SUBCONTRACTOR	LOCATION OF PLACE OF BUSINESS	DESCRIPTION OF WORK TO BE PERFORMED BY SUBCONTRACTOR	TOTAL DOLLAR AMOUNT OF CONTRACT	ENTER DB OR WBE STATUS AND CERTIFICATION NUMBER	SUBCONTRACTOR FEDERAL TAX I.D. #
--	-------------------------------------	--	---------------------------------------	--	--

BIDDER

BY _____

TITLE _____

PHONE _____

DATE _____

BIDDER'S FEDERAL TAX I.D. #:

BIDDER'S CONTRACTOR LICENSE #:

FOLLOWING FORMS TO BE FILLED OUT AND SIGNED

ONLY

IF AWARDED CONTRACT

WORKMEN'S COMPENSATION INSURANCE CERTIFICATION

TO THE CITY OF SACRAMENTO:

The undersigned does hereby certify that he is aware of the provisions of Section 3700 et seq. of the Labor Code which require every employer to be insured against liability for workmen's compensation claims or to undertake self-insurance in accordance with the provisions of said Code, and that he will comply with such provisions before commencing the performance of the work on this contract.

_____ Bidder

By _____

Title _____

Address _____

Date _____

PLEASE READ CAREFULLY BEFORE SIGNING

To be signed by authorized corporate officer or partner or individual submitting the bid. If bidder is: (example)

1. An individual using a firm name, sign: "John Doe, and individual doing business as Blank Company."
2. An individual doing business under his own name, sign: your name only.
3. A co-partnership, sign: "John Doe and Richard Doe, co-partners doing business as Blank Company, by, John Doe, Co-Partner."
4. A corporation, sign: "Blank Company, by John Doe, Secretary." (or other title)

GUARANTEE

We hereby guarantee the

.....Camp Sacramento Slow Sand Filter (PN:KB11).....

which we propose to install in the City of Sacramento for one (1) year in accordance with the guarantee required in the specifications. We agree to repair or replace any or all such work, together with all or any other work which may be displaced in so doing, that may be proven defective in workmanship or material within the period from the date of acceptance without expense whatsoever to the City, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with the above mentioned conditions within five (5) days time after being notified in writing, we collectively or separately, do hereby authorize the City to proceed to have the defects repaired and made good at our expense and will pay the costs and damages therefor immediately upon demand.

Signed:

.....
.....
.....

Dated:

.....

AGREEMENT

THIS AGREEMENT, dated for identification as of _____, 19__, between
the CITY OF SACRAMENTO, a municipal corporation, (hereinafter called "City"), and _____

(hereinafter called the "Contractor").

The parties hereto mutually agree to the terms and conditions set forth herein.

1. CONTRACT DOCUMENTS

Each of the items hereinafter referred to is incorporated herein by reference as if set forth in full in this contract.

Work called for in any one Contract Document and not mentioned in another is to be performed and executed as if mentioned in all Contract Documents. The table of contents, titles and headings contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect or limit the interpretations of the provisions to which they refer.

The Contract Documents, sometimes also referred to as "the Contract" consist of the Notice to Contractors, the completed proposal Form submitted by Contractor to whom the Contract is awarded, the Instructions to Bidders insofar as they relate to events which will occur or actions to be taken after the submission of the Proposal, this Agreement, the Standard Specifications, the Special Provisions, Plans and Technical Specifications, the drawings and other data and all developments thereof prepared by City pursuant to the Contract, and any modifications of any of the foregoing in the form of Addenda or otherwise effected in accordance with the terms of the Contract.

The Standard Specifications shall mean and refer to the current Standard Specifications of the City of Sacramento which are incorporated herein by this reference as if set forth in full at this place.

2. DEFINITIONS

Unless otherwise specifically provided herein, all words and phrases defined in the Standard Specifications shall have the same meaning and intent in this Agreement.

3. AGREEMENT CONTROLS

In the event of a conflict between the terms and conditions as set forth in this Agreement and the terms and conditions set forth in other Contract Documents, the terms and Conditions set forth in this Agreement shall prevail.

4. SCOPE OF CONTRACT

Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor and material and transportation necessary to perform and complete in a good and workmanlike manner to the satisfaction of City, all the work called for, and in the manner designated in, and in strict conformity with the Contract Documents entitled:

Camp Sacramento Slow Sand Filter (PN:KB11)

including the following alternative bid items described in the Proposal Form:

5. CONTRACT AMOUNT AND PAYMENTS

City agrees to pay and Contractor agrees to accept, in full payment for the above work, the sum computed in accordance with the actual amount of each item of work performed or material furnished and incorporated in the work, at the unit price which Contractor bid for each such item in his Proposal Form, said unit price to be determined as provided in the Standard Specifications or these Special Provisions.

6. PROGRESS AND FINAL PAYMENTS

Subject to the terms and conditions of the Contract, City shall cause payments to be made upon demand of Contractor as follows:

- (A) On the first of the month, the Engineer shall present to the Contractor a statement showing the amount of labor and materials incorporated in the work through the twentieth (20) calendar day of the preceding month; the Contractor and Engineer shall inspect the statement and, if both approve the statement, the City shall issue a certificate for ninety percent (90%) of the amount it shall find to be due.
- (B) No inaccuracy or error in said monthly estimates shall operate to release Contractor or Surety from damages arising from such work or from enforcement of each and every provision of the Contract Documents, and City shall have the right subsequently to correct any error made in any estimate for payment.
- (C) Contractor shall not be paid for any defective or improper work.
- (D) City shall pay the remaining ten percent (10%) of the value of the work done under this contract, if unencumbered, thirty-five (35) days after final completion and acceptance of work by City. Acceptance by Contractor of said final payment shall constitute a waiver of all claims against the City arising under the Contract Document.
- (E) Progress payment due the Contractor shall be made within thirty (30) days following receipt of statement jointly approved by the Contractor and the Engineer.

7. RETENTION OF SUMS CHARGED AGAINST CONTRACTOR

When, under the provisions of this contract, City shall charge any sum of money against Contractor, City shall deduct and retain the amount of such charge from the amount of the next succeeding progress estimate, or from any other moneys due or that may become due Contractor from City. If, on completion termination of the Contract, sums due Contractor are insufficient to pay City's charges against him, City shall have the right to recover the balance from Contractor or his sureties.

8. COMMENCEMENT AND PROSECUTION OF WORK

Contractor shall commence the work on or before fifteen (15) working days from and after receipt of written Notice to Proceed from City to Contractor and will diligently prosecute the work to final completion. The phrase "commence the work" means to engage in a continuous program on-site including, but not limited to, site clearance, grading, dredging, land filling and the fabrication, erection, or installation of the work. Said Notice to Proceed shall be issued within fifteen (15) calendar days following execution of the Agreement by the City and the filing by Contractor of the required Bonds and proof of insurance. The continuous prosecution of work by Contractor shall be subject only to Excusable Delays as defined in this Agreement.

9. TIME OF COMPLETION

The entire work shall be brought to completion in the manner provided for in the Contract Documents on or before July 31, 1991
(hereinafter called the "Completion Date")
unless extensions of time are granted in accordance with the Contract Documents.

Failure to complete the work by the Completion Date and in the manner provided for by the Contract Documents shall subject Contractor to liquidated damages as hereinafter provided in this Agreement. Time is and shall be of the essence in these Contract Documents.

10. PAYMENTS DO NOT IMPLY ACCEPTANCE OF WORK

The payment of any progress payment, or the acceptance thereof by Contractor, shall not constitute acceptance of the work or any portion thereof and shall in no way reduce the liability of Contractor to replace unsatisfactory work or material, though the unsatisfactory character of such work or material may not have been apparent or detected at the time such payment was made.

11. ACCEPTANCE NOT RELEASE

Contractor shall correct immediately any defective or imperfect work which may be discovered before final acceptance of the entire work. Any unsatisfactory materials shall be rejected, notwithstanding that they may have been overlooked by the inspector. The inspection of the work, or any part thereof, shall not relieve Contractor of any of his obligations to perform satisfactory work as herein prescribed.

Failure or neglect on the part of City or any of its authorized agents to condemn or reject bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials if such becomes evident at any time prior to final acceptance of the entire work or all materials, nor shall such failure be construed as barring City at any subsequent time from recovering damages or of such a sum of money as may be required to build anew all portions of the work in which fraud was practiced or improper materials used whenever City may discover the same.

12. RELEASE

If requested to do so by City, at the time of final payment, as a condition precedent to final payment, Contractor and each assignee under any assignment in effect at the time of final payment shall execute and deliver a release in form and substance satisfactory to and containing such exemptions as may be found appropriate by City which shall discharge City, its officers, agents and employees of and from all liability, obligations and claims arising under this contract.

13. CITY'S RIGHT TO TAKE POSSESSION OF THE WORK
IN WHOLE OR IN PART

The City of Sacramento shall have the right at any time to enter upon the work and perform work not covered by this Contract, or to occupy and use a portion of the work, prior to the date of the final acceptance of the work as a whole, without in any way relieving Contractor of any obligations under this Contract.

14. NO WAIVER OF REMEDIES

Neither the inspection by City or its agents, nor any order or certificate for the payment of money, nor any payment for, nor acceptance of the whole or any part of the work by City, nor any extensions of time, nor any position taken by City or its agents shall operate as a waiver of any provision of this Agreement, or of any power herein reserved to City or any right to damages herein provided, nor shall any waiver of any breach of this Agreement be held to be a waiver of any other or subsequent breach. All remedies provided in this Agreement shall be taken and construed as cumulative; that is, in addition to each and every other remedy herein provided, and City shall have any and all equitable and legal remedies which it would in any case have.

15. GUARANTEE

Except as otherwise expressly provided in the Specifications, and excepting only items of routine maintenance, ordinary wear and tear and unusual abuse or neglect, Contractor guarantees all work executed by him and all supplies, materials and devices of whatsoever nature incorporated in, or attached to the work, or otherwise delivered to City as a part of the work pursuant to the Contract, to be absolutely free of all defects of workmanship and materials for a period of one year after final acceptance of the entire work by the City of Sacramento. Contractor shall repair or replace any or all such work or material, together with all or any other work or material which may be displaced or damaged in so doing, that may prove defective in workmanship or material within said one year guarantee period without expense or charge of any nature whatsoever to City. Contractor shall provide City with a Maintenance Bond or Letter of Credit in the amount of five (5%) of the Contract covering the warranty period. Said security shall be filed with the City prior to Contract acceptance by the City Council.

In the event that Contractor shall fail to comply with the conditions of the foregoing guarantee within ten (10) days time, after being notified of the defect in writing, City shall have the right, but shall not be obligated to repair, or obtain the repair of, the defect and Contractor shall pay to City on demand all costs and expense of such repair. Notwithstanding anything herein to the contrary, in the event that any defect in workmanship or material covered by the foregoing guarantee results in a condition which constitutes an immediate hazard to the health or safety, or any property interest, or any person, City shall have the right to immediately repair, or cause to be repaired, such defect, and Contractor shall pay to City on demand all costs and expense of such repair. The foregoing statement relating to hazards to health, safety or property shall be deemed to include either temporary or permanent repairs which may be required as determined in the sole discretion and judgment of City.

16. DETERMINATION OF DAMAGES

The actual fact of the occurrence of damages and the actual amount of the damages which City would suffer if the work were not completed within the specified times set forth are dependent upon many circumstances and conditions which could prevail in various combinations, and, from the nature of the case, it is impracticable and extremely difficult to fix the actual damages. Damages which City would suffer in the event of delay include loss of the use of the project, and, in addition, expenses of prolonged employment of an architectural and engineering staff; costs of administration inspection, and supervision; and the loss suffered by the public within the City of Sacramento by reasons of the delay in the completion of the project to serve the public at the earliest possible time. Accordingly, the parties hereto agree, and by execution of this Agreement Contractor acknowledges that he understands, has ascertained and agrees, that the amounts set forth herein as liquidated damages shall be presumed to be the amount of damages sustained by the failure of Contractor to complete the entire work within the times specified.

17. LIQUIDATED DAMAGES

The amount of the liquidated damages to be paid by Contractor to City for failure to complete the entire work by the Completion Date (as extended, if applicable) will be One Hundred and No/100 Dollars (\$ 100.00) for each calendar day, continuing to the time at which the work is completed. Such amount is the actual cash value agreed upon as the loss to City resulting from Contractor's default.

18. PAYMENT OF DAMAGES

In the event Contractor shall become liable for liquidated damages, City, in addition to all other remedies provided by law, shall have the right to withhold any and all payments which would otherwise be or become due Contractor until the liability of Contractor under this section is finally determined. City shall have the right to use and apply such payments, in whole or in part, to reimburse City for all liquidated damages due or to become due to City. Any remaining balance of such payments shall be paid to Contractor only after discharge in full of all liability incurred by Contractor under this section or otherwise. If the sum so retained by City is not sufficient to discharge all such liabilities of Contractor, Contractor and his sureties shall continue to remain liable to City until all such liabilities are satisfied in full. No failure by City to withhold any payment as hereinbefore specified shall in any manner be construed to constitute a waiver of any right to liquidated damages or any right to any such sum.

19. INDEMNITY AND HOLD HARMLESS

Contractor shall assume the defense of, and indemnify and save harmless, the City, its officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses or expenses of every type and description to which they may be subjected or put, by reason of, or resulting from, the performance of the work, provided that such action, damage, claim, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to, or destruction of property, whether upon or off the work, including the loss of use thereof, and is caused in whole or in part by any negligent act or omission of the Contractor, and subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, whether or not it is caused in part by a party indemnified hereunder.

20. CONTRACTOR SHALL ASSUME RISKS

Until the completion and final acceptance by City of all work under this Contract, the work shall be under Contractor's responsible care and charge. Contractor shall rebuild, repair, restore and make good all injuries, damages, reerections, and repairs occasioned or rendered necessary by accidental causes of any nature, to all or any portions of the work, except as otherwise stipulated.

21. GENERAL LIABILITY OF CONTRACTOR

Except as otherwise herein expressly stipulated, Contractor shall perform all the work and furnish all the labor, materials, tools, power and light, and appliances, necessary or proper for performing and completing the work herein required in the manner within the time herein specified. The mention of any specific duty or liability of Contractor shall not be construed as limitation or restriction of any general liability or duty of Contractor and, any reference to any specific duty or liability shall be construed to be for the purpose of explanation.

22. INSURANCE

During the term of this Agreement and until final completion and acceptance of the work required by the Contract Documents, Contractor shall maintain in full force and effect at his own cost and expense the following insurance coverage:

(A) Worker's Compensation

Full Worker's Compensation Insurance and Employer's Liability policy or provide evidence of ability to undertake self-insurance. Limits of coverage shall be at least \$1,000,000 for any one person. In the event Contractor is self-insured, he shall furnish a Certificate of Permission to Self-Insure by the Department of Industrial Relations Administration of Self-Insurance, Sacramento.

(B) Comprehensive Auto and General Liability Insurance

Contractor must provide sufficient broad coverage to include:

Comprehensive Auto and General Liability Insurance
Products and Completed Operation Liability
Broad Form Property Damage Liability
Contractual Liability
Personal Injury Liability

The amount of the policy shall be no less than \$1,000,000 Single Limit per occurrence, issued by an admitted insurer or insurers as defined by the California Insurance Code, providing that the City of Sacramento, its officers, employees and agents are to be Named Inured under the policy, and the policy shall stipulate that this insurance will operate as Primary insurance and that no other insurance effected by City or other Named Insured will be called on to contribute to a loss covered thereunder.

(C) Certificate of Insurance

Contractor shall have City's standard Certificate of Insurance completed and filed with the Division of Risk Management within fifteen (15) days of the execution of this Agreement. Said policies shall provide that no cancelation, major change in coverage, or expiration may be effected by the insurance company or the insured during the term of this Agreement, without first giving to City thirty (30) calendar days written notice prior to the effective date of such cancellation or change in coverage.

(D) Worker's Compensation Certificate

Contractor shall sign and file with the Division of Risk Management of the City of Sacramento the following certification prior to commencing performance of the work of the Contract:

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

23. FAILURE TO MAINTAIN INSURANCE

If, at any time during the performance of this Contract, Contractor fails to maintain any item of the required insurance in full force and effect, Contractor shall immediately discontinue all work under the Contract and City will withhold all Contract payments due or that become due until notice is received by City that such insurance has been restored in full force and effect and that the premiums therefor have been paid for a period satisfactory to the Division of Risk Management.

Any failure to maintain any item of the required insurance will be sufficient cause for termination of the Contract.

24. EXTENSIONS OF TIME

In the event City deems it necessary, in its sole discretion, to extend the time of completion of the work to be done under this Contract beyond the required Completion Date herein specified, such extensions shall in no way release any guarantee given by Contractor pursuant to the provisions of the Contract Documents, nor shall such extension of time relieve or release the sureties on the Bonds executed pursuant to said provisions. By executing such Bonds, the sureties shall be deemed to have expressly agreed to any extension of time shall be limited to the period of excusable delay as defined herein giving rise to the same as determined by City Council of City.

25. EXCUSABLE DELAYS

For the purpose of these Contract Documents, the term "Excusable Delays" shall mean, and is limited to, delays caused directly by acts of God; acts of the public enemy; fires; inclement weather as determined by the Engineer; riots; insurrections; epidemics; quarantine restrictions; strikes; lockouts; sitdowns; acts of governmental agency; priorities or privileges established for the manufacture, assembly, or allotment of materials necessary in the work by order, decree or otherwise of the United States or by any department, bureau, commission, committee, agent, or administrator of any legally constituted public authority; changes in the work ordered by City insofar as they necessarily require additional time in which to complete the work; the prevention of City of Contractor from commencing or prosecuting the work because of the acts of others, excepting Contractor's subcontractors; or the prevention of Contractor from commencing or prosecuting the work because of a City-wide failure of public utility service.

The term "Excusable Delay" shall specifically not include: (i) any delay which could have been avoided by the exercise of care, prudence, foresight and diligence on the part of Contractor; (ii) any delay in the prosecution of parts of the work, which may in itself be unavoidable but which does not necessarily prevent or delay the prosecution of other parts of the work, nor the completion of the whole work within the time specified; (iii) any reasonable delay resulting from time required by City for review of Plans and submittals required of Contractor and for the making of surveys, measurements and inspections; (iv) any delay arising from an interruption in the prosecution of the work on account of the reasonable interference from other Contractors employed by City which does not necessarily prevent the completion of the work within the time specified. Excusable Delays, if any, shall operate only to extend the Completion Date (not in excess of the period of such delay as determined by City) but shall not under any circumstances increase the sum City is to pay Contractor as provided in these Contract Documents.

26. CONTRACTOR TO SERVE NOTICE OF DELAYS

Whenever Contractor foresees any delay in the prosecution of the work, and in any event upon the occurrence of any delay which Contractor regards as an Excusable Delay, he shall notify the Engineer in writing immediately within ten (10) calendar days of the probability of such delay and its cause, in order that the Engineer may take immediate steps to prevent if possible the occurrence or continuance of the delay or if this cannot be done, may determine whether the delay is to be considered excusable, how long it continues, and to what extent the prosecution and completion of the work are delayed thereby. Said notice shall constitute an application for an extension of time only if the notice requests such an extension and sets for the Contractor's estimate of the additional time required together with a full description of the cause of the delay relied upon.

After the completion of any part of whole of the work, the Engineer, in estimating the amount due Contractor, will assume that any and all delays which may have occurred in its prosecution and completion have been avoidable delays, except such delays as shall have been called to the attention of the Engineer at the time of their occurrence and found by him to have been excusable. Contractor shall make no claim that any delay not called to the attention of the Engineer at the time of its occurrence has been an Excusable Delay.

27. EXTENSION OF TIME

Should any delays occur which the Engineer may consider excusable, as herein defined, Contractor shall, pursuant to his application, be allowed an extension of time beyond the time herein set forth proportional to said delay or delays in which to complete this Contract; and, during an extension which may have been granted because of an excusable delay or delays, City shall not charge liquidated damages against Contractor for such delay. Only the Engineer may grant an extension of time on the Contract.

28. EXTENSION OF TIME DOES NOT WAIVE CITY'S RIGHTS

The granting of any extension of time on account of delays which in the judgment of the Engineer are excusable delays shall in no way operate as a waiver on the part of City of its rights under this Contract excepting only the extension of the Completion Date.

29. NO PAYMENT FOR DELAYS

No damages or compensation of any kind shall be paid to Contractor or any subcontractor because of delays in the progress of the work whether such delays qualify for extension of time under this Agreement or not, providing the elements precluding recovery of damages by Contractor in Section 7102 of the Public Contracts Code are met.

30. CHANGES IN THE WORK

Changes in the work made pursuant to changes issued in accordance with the Standard Specifications and extensions of time of completion made necessary by reason thereof (beyond the Completion Date) shall not in any way release any guarantee given by Contractor pursuant to the provisions of the Contract Documents, or the Contract let hereunder, nor shall such changes in the work relieve or release the sureties on Bonds executed pursuant to the said provisions. By executing such Bonds, the sureties shall be deemed to have expressly agreed to any such change in the work and to any extension of time made by reason thereof.

31. TERMINATION AFTER COMPLETION DATE

In addition to any other rights it may have, City may terminate this Contract at any time after the Completion Date as adjusted by any extensions of time for excusable delays that may have been granted. Upon such termination, Contractor shall not be entitled to received any compensation for services rendered by him before or after such termination, and he shall be liable to City for liquidated damages for all periods of time beyond such termination date until the work is completed.

32. CONTRACTOR BANKRUPT

If Contractor should commence any proceeding under the Bankruptcy Act, or if Contractor be adjudged a bankrupt, or if Contractor should make any assignment for the benefit of creditors, or if a receiver should be appointed on account of Contractor's insolvency, then the City Council may, without prejudice to any other right or remedy, terminate the Contract and complete the work by giving notice to Contractor and his surety according to the provisions of Section 33. Contractor's Surety shall have the right to complete the work by commencing within thirty (30) calendar days as specified in Section 33; and, in the event Contractor's Surety fails to commence work within thirty (30) calendar days as specified in Section 33, City shall have the right to complete, or cause completion of the work, all as specified in Section 33.

33. TERMINATION FOR BREACH OF CONTRACT

If Contractor should abandon the work under this Contract, or if the Contract or any portion of the Contract should be sublet or assigned without the consent of the City Council, or if the Engineer should be of the opinion that the conditions of the Contract in respect to the rate of progress of the work are not being fulfilled or any part thereof is unnecessarily delayed, or if Contractor should willfully violate or breach, or fail to execute in good faith, any of the terms or conditions of the Contract, or if Contractor should persistently refuse or fail to supply enough properly skilled labor or materials, or fail to make prompt payment to subcontractors for material or labor or persistently disregard laws, ordinances or proper instruction or orders of the Engineer, then, notwithstanding any provision to the contrary herein, the City Council may give Contractor and his Surety written notification to immediately correct the situation or the Contract shall be terminated.

In the event that such notice is given, and, in the event such situation is not corrected, or satisfactory arrangement for correction is not made, within ten (10) calendar days from the date of such notice, the Contract shall upon the

expiration of said ten (10) calendar days cease and terminate. In the event of any such termination, City shall immediately serve notice thereof upon the Surety and Contractor; and the Surety shall have the right to take over and perform the Contract, provided, however, that if the Surety does not commence performance thereof within thirty (30) calendar days from the date of the mailing to such Surety of notice of termination, City may take over the work and prosecute the same to completion by Contract, or otherwise, for the account and at the expense of Contractor, and his Surety shall be liable to City for any excess cost occasioned City thereby, as hereinafter set forth.

In the event City completes the work, or causes the work to be completed, as aforesaid, no payment of any sum shall be made to Contractor until the work is complete. The cost of completing the work, including but not limited to, extra contract costs, the costs of City forces, extra costs of administration and management incurred by City, either direct or indirect, shall be deducted from any sum then due, or which becomes due, to Contractor from City. If no sum sufficient to pay the difference between sums due to Contractor from City and the cost of completing the work, Contractor and the Surety shall pay City a sum equal to said difference on demand. In the event City completes the work, and there is a sum remaining due to Contractor after City deducts the aforementioned costs of completing the work, then City shall thereupon pay such sum to contractor and his Surety.

No act by City before the work is finally accepted, including, but not limited to, exercise of other rights under the Contract, actions at law or in equity, extensions of time, payments, claims of liquidated damages, occupation or acceptance of any part of the work, waiver of any prior breach of the Contract or failure to take action pursuant to this section upon the happening of any prior default or breach by Contractor shall be construed to be a waiver by, or to estop, City from acting pursuant to this paragraph upon any subsequent event, occurrence of failure by Contractor to fulfill the terms and conditions of the Contract. The rights of City pursuant to this paragraph are cumulative and in addition to all other rights of City pursuant to this Agreement and at law or in equity.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement on the date set forth opposite their names.

DATE _____

CONTRACTOR

By _____

Title

CITY OF SACRAMENTO
a municipal corporation

DATE: _____

By _____

City Manager

ATTEST:

City Clerk
ORIGINAL APPROVED AS TO FORM

FUNDING AVAILABLE: 413-500-KB11-4820

City Attorney

Accounting Officer

SUBSTITUTION OF SECURITIES FOR MONEY WITHHELD

At any time prior to final payment, Contractor may request substitution of securities for any money withheld by the City to ensure performance of the contract. At the expense of Contractor, securities equivalent to the money withheld may be deposited with the City or with Wells Fargo Bank as escrow agent according to a separate Security Agreement. Securities eligible for substitution shall include those listed in Section 16430 of the Government Code or bank or savings and loan certificates of deposit. A fee set by the City Council shall be charged for such substitution.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, the City of Sacramento, State of California, has awarded to

hereinafter designated as the "Principal", a contract for

Camp Sacramento Slow Sand Filter (PN:KB11)

; and

WHEREAS, said Principal is required under the terms of said contract to furnish a bond for the faithful performance of said contract.

NOW, THEREFORE, we the Principal, and

as Surety, are held and firmly bound unto the City of Sacramento in the penal sum of

DOLLARS

(\$ _____), lawful money of the United States for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said contract and any alteration thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified and in all respects according to their true intent and meaning; and shall indemnify and save harmless the City of Sacramento, its officers and agents as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and virtue.

And the surety, for value received hereby stipulates and agrees that, in accordance with the Standard Specifications or Special Provisions, no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or additions to the terms of the contract or to the work or to the specifications.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this _____ day of _____ the name and corporate seals of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Principal _____

By _____

Title _____

Surety _____

Address _____

City _____ State _____ Zip _____

By _____

Address _____

City _____ State _____ Zip _____

ORIGINAL
APPROVED AS TO FORM:

City Attorney

JURAT HERE, PLEASE

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the City of Sacramento, a municipal corporation, has awarded to

hereinafter designated as the "Principal", a contract for

Camp Sacramento Slow Sand Filter (PN:KB11)

; and

WHEREAS, said Principal is required to furnish a bond in connection with said contract, to secure payment of claims of laborers, mechanics, or materialmen employed on work under said contract, as provided by law;

NOW, THEREFORE, we the undersigned Principal and Surety are held and firmly bound unto the City of Sacramento in the sum of _____

DOLLARS (\$ _____),
said sum being equal to the estimated amount payable by the said City of Sacramento under the terms of the contract, for which payment well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that if said Principal, his or its heirs, executors, administrators, successors, or assigns, or subcontractors shall fail to pay for any material, provisions, provender or other supplies or teams, implements or machinery used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, as required by the provisions of Chapter 7, Title XV, Part 4, Division 3, of the Civil Code, and provided that the claimant shall have complied with the provisions of said code; or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the contractor and his subcontractors pursuant to Section 18806 of the Revenue and Taxation Code, with respect to such work and labor, the Surety or Sureties hereon will pay for the same and in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall be void. In case suit is brought upon this bond, said Surety will pay a reasonable attorney's fee to be fixed by the Court.

This bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Section 3181 of the Civil Code of the State of California so as to give a right of action to them or their assigns in any suit brought upon this bond.

Said Surety, for value received, hereby stipulates and agrees that, in accordance with the Standard Specifications or Special Provisions, no change, extension of time, alteration or addition to the terms of the contract, or to the work to be performed thereunder, or to the specifications accompanying the same, shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this _____ day of _____, the name and corporate seal of each corporate body being affixed thereto, and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Principal _____

By _____

Title _____

Surety _____

Address _____

City _____ State _____ Zip _____

By _____

Address _____

City _____ State _____ Zip _____

ORIGINAL
APPROVED AS TO FORM:

City Attorney

JURAT HERE, PLEASE

EXCERPTS FROM THE CALIFORNIA LABOR CODE RELATING TO
APPRENTICES ON PUBLIC WORKSChapter 1 of Division 2
APPRENTICES ON PUBLIC WORKS*(Note: Boldface type denotes key points.)*

1773.3. An awarding agency whose public works contract falls within the jurisdiction of Section 1777.5 shall, within five days of the award, send a copy of the award to the Division of Apprenticeship Standards. When specifically requested by a local joint apprenticeship committee, the division shall notify the local joint apprenticeship committee regarding all such awards applicable to the joint apprenticeship committee making the request. Within five days of a finding of any discrepancy regarding the ratio of apprentices to journeymen, pursuant to the certificated fixed number of apprentices to journeymen, the awarding agency shall notify the Division of Apprenticeship Standards.

(Added by Stats. 1978, Ch. 1249)

1776. (a) Each contractor and subcontractor shall keep an accurate payroll record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work.

(b) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:

(1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement and the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the contractor.

(c) Each contractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within 10 days after receipt of a written request.

(d) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address and social security number. The name and address of the contractor awarded the contract or performing the contract shall not be marked or obliterated.

(e) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.

(f) In the event of noncompliance with the requirements of this section, the contractor shall have 10 days in which to comply subsequent to receipt of written notice specifying in what respects the con-

tractor must comply with this section. Should noncompliance still be evident after the 10-day period, the contractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars (\$25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

(g) The body awarding the contract shall cause to be inserted in the contract stipulations to effectuate this section. These stipulations shall fix the responsibility for compliance with this section on the prime contractor.

(h) The director shall adopt rules consistent with the California Public Records Act (Ch. 3.5 (commencing with Sec. 6250), of Div. 7, Title 1, Gov. C.) and the Information Practices Act of 1977, (Title 1.8 (commencing with Sec. 1798) Pt. 4, Div. 3, Civ. C.) governing the release of these records, including the establishment of reasonable fees to be charged for reproducing copies of records required by this section.

(Amended 1983 ch. 681)

1777.5. Nothing in this chapter shall prevent the employment of properly registered apprentices upon public works.

Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he or she is employed, and shall be employed only at the work of the craft or trade to which he or she is registered.

Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards and written apprentice agreements under Chapter 4 (commencing with Section 3070) of Division 3, are eligible to be employed on public works. The employment and training for each apprentice shall be in accordance with the apprenticeship standards and apprentice agreements under which he or she is training.

When the contractor to whom the contract is awarded by the state or any political subdivision, or any subcontractor under him or her, in performing any of the work under the contract or subcontract, employs workers in any apprenticeable craft or trade, the contractor and subcontractor shall apply to the joint apprenticeship committee administering the apprenticeship standards of the craft or trade in the area of the site of the public work for a certificate approving the contractor or subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, approval as established by the joint apprenticeship committee or committees shall be subject to the approval of the Administrator of Apprenticeship. The joint apprenticeship committee or committees, subsequent to approving the subject contractor or subcontractor, shall arrange for the dispatch of apprentices to the contractor or subcontractor in order to comply with this section. Every contractor and subcontractor shall submit contract award information to the applicable joint apprenticeship committee which shall include an estimate of journeyman hours to be performed under the contract, the number of apprentices to be employed, and the approximate dates the apprentices will be employed. There shall be an affirmative duty upon the joint apprenticeship committee or committees administering the apprenticeship standards of the craft or trade in the area of the site of the public work to ensure equal employment and affirmative action in apprenticeship for women and minorities. Contractors or subcontractors shall not be required to submit individual ap-

plications for approval to local joint apprenticeship committees provided they are already covered by the local apprenticeship standards. The ratio of work performed by apprentices to journeymen who shall be employed in the craft or trade on the public work may be the ratio stipulated in the apprenticeship standards under which the joint apprenticeship committee operates, but, except as otherwise provided in this section, in no case shall the ratio be less than one hour of apprentices work for every five hours of labor performed by a journeyman. However, the minimum ratio for the land surveyor classification shall not be less than one apprentice for each five journeymen.

Any ratio shall apply during any day or portion of a day when any journeyman, or the higher standard stipulated by the joint apprenticeship committee, is employed at the job site and shall be computed on the basis of the hours worked during the day by journeymen so employed, except for the land surveyor classification. The contractor shall employ apprentices for the number of hours computed as above before the end of the contract. However, the contractor shall endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are employed at the job site. Where an hourly apprenticeship ratio is not feasible for a particular craft or trade, the Division of Apprenticeship Standards, upon application of a joint apprenticeship committee, may order a minimum ratio of not less than one apprentice for each five journeymen in a craft or trade classification.

The contractor or subcontractor, if he or she is covered by this section, upon the issuance of the approval certificate, or if he or she has been previously approved in the craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the apprenticeship standards. Upon proper showing by the contractor that he or she employs apprentices in the craft or trade in the state on all of his or her contracts on an annual average of not less than one hour of apprentice work for every five hours of labor performed by a journeyman, or in the land surveyor classification, one apprentice for each five journeymen, the Division of Apprenticeship Standards may grant a certificate exempting the contractor from the 1-to-5 hourly ratio as set forth in this section. This section shall not apply to contracts of general contractors or to contracts of specialty contractors not bidding for work through a general or prime contractor, when the contracts of general contractors or those specialty contractors involve less than thirty thousand dollars (\$30,000) or 20 working days. Any work performed by a journeyman in excess of eight hours per day or 40 hours per week, shall not be used to calculate the hourly ratio required by this section.

"Apprenticeable craft or trade" as used in this section, means a craft or trade determined as an apprenticeable occupation in accordance with rules and regulations prescribed by the Apprenticeship Council. The joint apprenticeship committee shall have the discretion to grant a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting a contractor from the 1-to-5 ratio set forth in this section when it finds that any one of the following conditions is met:

(a) Unemployment for the previous three-month period in the area exceeds an average of 15 percent.

(b) The number of apprentices in training in such area exceeds a ratio of 1 to 5.

(c) There is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either on a statewide basis, or on a local basis.

(d) Assignment of an apprentice to any work performed under a public works contract would create a condition which would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyman.

When exemptions are granted to an organization which represents contractors in a specific trade from the 1-to-5 ratio on a local or

statewide basis the member contractors will not be required to submit individual applications for approval to local joint apprenticeship committees, if they are already approved by the local apprenticeship standards.

A contractor to whom the contract is awarded, or any subcontractor under him or her, who, in performing any of the work under the contract, employs journeymen or apprentices in any apprenticeable craft or trade and who is not contributing to a fund or funds to administer and conduct the apprenticeship program in any craft or trade in the area of the site of the public work, to which fund or funds other contractors in the area of the site of the public work are contributing, shall contribute to the fund or funds in each craft or trade in which he or she employs journeymen or apprentices on the public work in the same amount or upon the same basis and in the same manner as the other contractors do, but where the trust fund administrators are unable to accept the funds, contractors not signatory to the trust agreement shall pay a like amount to the California Apprenticeship Council. The contractor or subcontractor may add the amount of the contributions in computing his or her bid for the contract. The Division of Labor Standards Enforcement is authorized to enforce the payment of the contributions to the fund or funds as set forth in Section 227.

The body awarding the contract shall cause to be inserted in the contract stipulations to effectuate this section. The stipulations shall fix the responsibility of compliance with this section for all apprenticeable occupations with the prime contractor.

All decisions of the joint apprenticeship committee under this section are subject to Section 3081.

(Amended by Stats. 1989, Ch. 1224)

1777.6. It shall be unlawful for an employer or a labor union to refuse to accept otherwise qualified employees as registered apprentices on any public works, on the ground of the race, religious creed, color, national origin, ancestry, sex, or age, excepted as provided in Section 3077, of such employee.

(Amended by Stats. 1976, Ch. 1179)

1777.7. (a) In the event a contractor or subcontractor willfully fails to comply with Section 1777.5, the Director of Industrial Relations shall deny to the contractor or subcontractor, both individually and in the name of the business entity under which the contractor or subcontractor is doing business, the right to bid on, or to receive, any public works contract for a period of up to one year for the first violation and for a period of up to three years for the second and subsequent violations. Each period of debarment shall run from the date the determination of noncompliance by the Administrator of Apprenticeship becomes and order of the California Apprenticeship Council.

(b) A contractor or subcontractor who violates Section 1777.5 shall forfeit as a civil penalty the sum of fifty dollars (\$50) for each calendar day of noncompliance. Notwithstanding Section 1727, upon receipt of a determination that a civil penalty has been imposed, the awarding body shall withhold the amount of the civil penalty from contract progress payments then due or to become due.

(c) In lieu of the penalty provided for in subdivision (a) or (b), the director may for a first time violation and with the concurrence of the joint apprenticeship committee, order the contractor or subcontractor to provide apprentice employment equivalent to the work hours that would have been provided for apprentices during the period of non-compliance.

(d) Any funds withheld by the awarding body pursuant to this section shall be deposited in the General Fund if the awarding body is a state entity, or in the equivalent fund of an awarding body if the awarding body is an entity other than the state.

(e) The interpretation and enforcement of Section 1777.5 and this section shall be in accordance with the rules and procedures of the California Apprenticeship Council.

(Amended by Stats. 1989, Ch. 1224)

GREATER SACRAMENTO AREA PLAN (GSAP) EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS
(Executive Order 11246)

The City of Sacramento is signatory to the "Greater Sacramento Area Plan" (hereinafter referred to as the "Plan") a joint industry-labor-minority representative agreement established for the purpose of increasing the employment of minorities in all phases and at all levels of skill in the building and construction industry within the greater Sacramento area. The City has adopted the "Plan" as its affirmative action program for City construction contracts and requires a contractor and his subcontractors be signatory to the Plan in order to be eligible for an award of a City contract. Additional information regarding the Plan is available at its headquarters office located at 2220 Watt Avenue, Suite B-5, Sacramento, 95825, Telephone No. (916) 489-3685.

1. As used in these specifications:
 - a. "Covered area" means the geographical area within the following counties: Amador, El Dorado, Nevada, Placer, Sacramento, Sierra, and Yolo.
 - b. "Director" means Director, of GSAP, or any person to whom the Director delegates authority;
 - c. "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race;
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is signatory under Part I of the GSAP a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of the GSAP. Each Contractor or Subcontractor participating in the GSAP is individually required to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

- b. Establish and maintain a current list of minority and female recruitment sources, provided written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions, including specific review of these items with onsite supervisory personnel such as Superintendents, General foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and where reasonable, provide after school summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR, Part 60.3.
- l. Conduct at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.
11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended and its implementing regulations, by the Office of Federal Contract Compliance Program. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

GSAP REPORTING REQUIREMENTS

- (1) All contract and subcontracts (over \$10,000) are subject to the reporting requirements.
- (2) Contractors must submit a CC 257 (Monthly Employee Utilization Report) to the GSAP at 2220 Watt Avenue, Suite B-5, Sacramento, California 95825.
- (3) If the Contractor is already required to submit CC 257 there is no need to submit an additional form.
- (4) This report must arrive at the GSAP no later than the 5th working day of each month.
- (5) Failure to report is automatic cause to find the Contractor in noncompliance.
- (6) Each report is monitored by GSAP and measured against the specified goals for minorities and women.

This report is required by Executive Order 11246, Sec. 203. Failure to report can result in contracts being cancelled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts of federally assisted construction contracts.

NAME AND LOCATION OF CONTRACTOR

FEDERAL
 FUNDING
 AGENCY

5. CONSTRUCTION TRADE	Classifications	6. WORK HOURS OF EMPLOYMENT (Federal & Non-Federal)										9. TOTAL NUMBER OF EMPLOYEES		10. TOTAL NUMBER OF MINORITY EMPLOYEES			
		6a. TOTAL ALL EMPLOYEES BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE		7. MINORITY PERCENTAGE	8. FEMALE PERCENTAGE	M	F	M	F
		M	F	M	F	M	F	M	F	M	F						
	Journey worker																
	APPRENTICE																
	TRAINEE																
	SUB-TOTAL																
	Journey worker																
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	APPRENTICE																
	TRAINEE																
	SUB-TOTAL																
TOTAL JOURNEY WORKERS																	
TOTAL APPRENTICES																	
TOTAL TRAINEES																	
GRAND TOTAL																	

11. COMPANY OFFICIAL'S SIGNATURE AND TITLE

12. TELEPHONE NUMBER (Include area code)

13. DATE SIGNED

PAGE

OF

INSTRUCTIONS FOR FILING MONTHLY EMPLOYMENT UTILIZATION REPORT (CC-257)

The Monthly Utilization Report is to be completed by each subject contractor (both prime and sub) and signed by a responsible official of the company. The reports are to be filed by the 5th day of each month during the term of the contract, and they shall include the total work-hours for each employee classification in each trade in the covered area for the monthly reporting period. The prime contractor shall submit a report for its aggregate work force and collect and submit reports for each subcontractor's aggregate work force to the Federal compliance agency that has Executive Order 11246 responsibility. (Additional copies of this form may be obtained from the U.S. Department of Labor, Employment Standards Administration, OFCCP's regional office for your area.)

- Compliance Agency U.S. Government agency assigned responsibility for equal employment opportunity. (Secure this information from the contracting officer.)
- Federal Funding Agency U.S. Government agency funding project (in whole or in part). If more than one agency, list all.
- Contractor Any contractor who has a construction contract with the U.S. Government or a contract funded in whole or in part with Federal funds.
- Minority Includes Blacks, Hispanics, American Indians, Alaskan Natives, and Asian and Pacific Islanders—both men and women.
1. Covered Area Geographic area identified in Notice required under 41 CFR 60-4.2.
2. Employer's Identification Number Federal Social Security Number used on Employer's Quarterly Federal Tax Return (U.S. Treasury Department Form 941).
3. Current Goals (Minority & Female) See contract Notification.
4. Reporting Period Monthly, or as directed by the compliance agency, beginning with the effective date of the contract.
5. Construction Trade Only those construction crafts which contractor employs in the covered area.
6. Work-Hours of Employment (a-e) a. The total number of male hours and the total number of female hours worked by employees in each classification.
- b-e. The total number of male hours and the total number of female hours worked by each specified group of minority employees in each classification.
- Classification The level of accomplishment or status of the worker in the trade (Journey Worker, Apprentice, Trainee)
7. Minority Percentage The percentage of total minority work-hours of all work-hours (the sum of columns 6b, 6c, 6d, and 6e divided by column 6a; just one figure for each construction trade).
8. Female Percentage For each trade the number reported in 6a. F divided by the sum of the numbers reported in 6a. M and F.
9. Total Number of Employees Total number of male and total number of female employees working in each classification of each trade in the contractor's aggregate work force during reporting period.
10. Total Number of Minority Employees Total number of male minority employees and total number of female minority employees working in each classification in each trade in the contractor's aggregate work force during reporting period.

GOALS AND TIMETABLES
SACRAMENTO, CALIFORNIA

APPENDIX A

The following goals and timetables for female utilization shall be included in all construction contracts and subcontracts in excess of \$10,000. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a covered construction contract or subcontract.

AREA COVERED

Goals for Women apply Nationwide

GOALS AND TIMETABLES

Timetable	Goals (percent)
Until further notice	6.9

APPENDIX B

Until further notice the following goals and timetables for minority utilization shall be included in all construction contracts and subcontracts in excess of \$10,000 to be performed in the respective covered areas. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a covered construction contract or subcontract.

SACRAMENTO, CALIFORNIA

Area covered - Sacramento, Yolo, and Placer Counties, California.

GOALS AND TIMETABLES

Timetable	Trade	Goal (percent)
Until further notice	All	17.5 to 20.0

SPECIAL PROVISIONS

CITY OF SACRAMENTO
CITY OF SACRAMENTO SLOW SAND FILTER

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SPECIAL PROVISIONS

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SUPPLEMENTARY GENERAL CONDITIONS

GENERAL

These Supplementary General Conditions make additions, deletions, or revisions to the General Conditions of this Contract, as indicated herein. Where not specifically indicated, sections of these Supplementary General Conditions shall be assumed to be additions to the General Conditions. All provisions which are not so added, deleted or revised remain in full force and effect. Terms used in these Supplementary General Conditions have the meanings assigned to them in the General Conditions.

SGC.01 WORK TO BE DONE

The WORK to be performed under this Contract shall consist of furnishing all plant, tools, equipment, materials, supplies and manufactured articles and for furnishing all transportation and services, including fuel, power, water, and essential communications, and for the performance of all labor, work and other operations, all as required for the construction of The Camp Sacramento Slow Sand Filter as indicated on the Plans and as Specified. All work incidental to completing the WORK required by the Contract Documents shall be performed whether or not such work is expressly shown or called for in these Contract Documents.

SGC.02 GOVERNING SPECIFICATIONS

All work performed under this Contract shall be in accordance with the Standard Specifications of the City of Sacramento, Dated June, 1989 (hereinafter called "City Standard Specifications"), and with these Special Provisions. Sections 1 through 8 of the City Standard Specifications shall be the General Conditions of this Contract. The Special Provisions consist of the Supplementary General Conditions and the Technical Specifications. In the event that a conflict exists between the City Standard Specifications, these Special Provisions and the Plans, the Special Provisions shall govern over both the City Standard Specifications and the Plans, and the Plans shall govern over the City Standard Specifications.

SGC.03 DEFINITIONS

In addition to the Definitions given in the City Standard Specifications, where used in the Contract Documents, the following definitions shall apply:

OWNER - the municipal corporation known as the City of Sacramento, State of California.

CAMP MANAGER - The employee of the CITY entitled "Camp Sacramento Supervisor" who is responsible for the day-to-day operations of Camp Sacramento, or in his absence, his designee.

SGC.04 TIME OF COMPLETION

All work under this Contract shall be completed by July 31, 1991.

SGC.05 SITE VISITS

Arrangements for inspecting the site can be made by contacting Mr. Gil Dovalina (Camp Sacramento Manager) at 916-659-7202. Visitors to the site must first check in with the Camp Sacramento Office. Inspection of the work site and access conditions is strongly encouraged.

SGC.06 WORK ON CAMP SACRAMENTO SITE

The CONTRACTOR is advised that the location of the WORK is adjacent to, and access to the work site is through an operating recreational camp known as Camp Sacramento. This facility is owned and operated by the City of Sacramento. Appropriate precautions shall be used to insure that the safety of Camp Sacramento guests, City employees, vehicles and other persons or equipment is not endangered by the CONTRACTOR's activities. When travelling within the Camp Sacramento boundary, or between Camp Sacramento and the work site, a speed of 5 MPH or less shall be maintained by all vehicles operated by the CONTRACTOR, his subcontractors or suppliers.

CONTRACTOR shall not, under any circumstances, interrupt the operation of the existing water supply and treatment system until he has coordinated such interruption with the Camp Manager and the ENGINEER, and has obtained such authorization in writing from the ENGINEER.

SGC.07 PROTECTION OF EXISTING IMPROVEMENTS

Existing facilities, utilities and property shall be protected from damage resulting from the CONTRACTOR's operations. All improvements not shown on the Plans to be removed under this Contract, shall be protected from damage by the CONTRACTOR

throughout the construction period. Existing roadways and other surfaces shall be protected from overloading and from damage by vehicles with tracks or lugs.

Any damage resulting from the CONTRACTOR's operations shall be repaired by the CONTRACTOR to the condition which existed prior to the damage, and to the satisfaction of the ENGINEER, at no additional cost to the CITY.

The ENGINEER may deduct from payments otherwise due the CONTRACTOR, the estimated cost of repairing any damage created by the CONTRACTOR's operation, until such time that repairs are made by the CONTRACTOR to the ENGINEER's satisfaction. The deduction may be withheld from the Progress and/or Final payment if the CONTRACTOR fails to repair, or adequately repair, any damage.

Where construction is to be performed in the vicinity of existing trees and shrubbery not designated on the plans to be removed, the trees and shrubbery shall be protected from injury or damage resulting from the CONTRACTOR's operations.

Trees branches which must be removed will be cut off at the boles. Scars resulting from the trimming or removal of branches shall be treated with a heavy coat of an approved tree seal. All trees, branches and other vegetation removed during the progress of the work shall be disposed of by the CONTRACTOR at his expense in a manner satisfactory to the ENGINEER. The area adjacent to and surrounding the site of the slow sand filter project shall be left in a neat and finished appearance.

SGC.08 QUESTIONS PRIOR TO BID OPENING

All questions concerning the Contract Documents should be directed to Gary E. Gosse (916) 449-1290 at the City of Sacramento, Department of Public Works, Water Division.

SGC.09 CONTRACTOR'S PLANT AND EQUIPMENT

- A. Security: The Contractor shall at all times be responsible for the security of his plant and equipment. The CITY will not take any responsibility for missing or damaged equipment, tools or personal belongings.
- B. Office: The CONTRACTOR is not required to maintain an office on the site of the work.
- C. Parking Facilities: Parking areas at the project location for the automobiles used by the Contractor's construction employees and his own vehicles shall be as designated by the ENGINEER.

CONTRACTOR'S UTILITIES

- A. Power: The CONTRACTOR shall provide and make arrangements for electric service for all purposes of power and lighting as required for the construction work, and shall maintain such service until the completion of the Contract. The CONTRACTOR may use portable electric generating equipment as an alternative to utility-provided power.
- B. Non-potable Water: A low-pressure source of non-potable water will be made available to the CONTRACTOR for appropriate construction uses. This will be a low pressure source (approximately 5 psi at the existing grade at the slow sand filter location) and is not suitable for human consumption. The source will be a point of connection to the existing raw water line just upstream of the treated water storage tank, at the point and in the manner indicated on the Plans for the permanent raw water connection to slow sand filter. The CONTRACTOR shall coordinate the making of this connection with the Camp Manager and with the ENGINEER, and shall do so only after obtaining written authorization from the ENGINEER.

The CONTRACTOR is advised that the raw water source to which the CITY is allowing him to connect is the water supply for Camp Sacramento (prior to treatment) and therefore, the CONTRACTOR shall use extreme care to prevent back-flow of contaminants into the supply during his operations. No direct connection shall be made by the CONTRACTOR between any source of contamination and the raw water supply; that is, an air gap shall be maintained at all times. Should the CONTRACTOR fail to comply with this requirement, he will be ordered to disconnect from the water supply and shall provide his own source of non-potable water at no additional cost to the CITY, for the remainder of the Contract.

- C. Potable Water: The CONTRACTOR shall provide his own source of potable water for human consumption and any other purposes which require a high-quality water supply.
- D. Sanitary Facilities: The CONTRACTOR shall make arrangements for adequate toilet facilities at or near the site of the work. CITY facilities are not available.
- E. Temporary Heating: The CONTRACTOR shall provide temporary heating, covering and enclosures as necessary to protect all work and material against damage by dampness and cold and to facilitate completion of the WORK. The CONTRACTOR shall supply all fuel, equipment and materials required for temporary heating.

SGC.10 DELIVERY OF EQUIPMENT, MATERIALS AND SUPPLIES

The CITY will not accept deliveries of equipment, materials or supplies for the CONTRACTOR.

SGC.11 FILTERED WATER TIE-IN TO EXISTING WATER SUPPLY SYSTEM

Disinfection of "filtered water" piping and connection of the filtered water pipeline to the existing water supply will be performed by CITY forces. This work will only be done by the CITY after the installation of all piping and appurtenances has been completed by the CONTRACTOR and approved by the ENGINEER, and cleaning and flushing of all piping and appurtenances has been completed by the CONTRACTOR and approved by the ENGINEER.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01090 SUBMITTALS

1.10: GENERAL

1.11 SUBMITTAL PROCEDURE

- A. At least 30 days prior to his need for approval, CONTRACTOR shall forward to ENGINEER all submittals required by the individual sections of the specifications. Unless a different number is called for in the individual sections, submit six copies of each shop drawing, three copies of all operation and maintenance instructions, and one specimen of each sample requested, all of which will be retained by ENGINEER. CONTRACTOR shall submit, in addition, whatever copies he wants returned to him. The ENGINEER may require that the CONTRACTOR submit a legible reproducible print for the ENGINEER'S use in lieu of multiple prints of a single drawing.
- B. Identify all submittals by submittal number on Letter of Transmittal. Specification number shall be identified on the Letter of Transmittal.
- C. Submittals that are related to or affect each other shall be forwarded simultaneously as a package to facilitate coordinated review. Uncoordinated submittals will be rejected. Do not combine unrelated materials in the same submittal.
- D. ENGINEER reserves the right to require submittals in addition to those called for in individual sections at no additional expense to the CITY.
- E. CONTRACTOR shall submit all available manufacturer's installation instructions for all materials and equipment provided. Submittals without these instructions will be rejected.
- F. Unless otherwise approved by the ENGINEER no work shall be started until all required submittals in the individual special provision sections are submitted and approved for the work in question.

1.12 SHOP DRAWINGS:

- A. The term "shop drawings" includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules,

performance and test data, and similar materials furnished by CONTRACTOR to explain in detail specific portions of the work required by the Contract.

- B. CONTRACTOR shall coordinate all such drawings, and review them for legibility, accuracy, completeness, and compliance with contract requirements, and shall indicate his approval thereon as evidence of such coordination and review. Shop drawings submitted to ENGINEER without evidence of CONTRACTOR's approval will be returned for resubmission.
- C. Approval by ENGINEER shall not relieve CONTRACTOR from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with requirements of this Contract, except with respect to variations described and approved in accordance with Paragraph D below.
- D. If shop drawings show variations from contract requirements, CONTRACTOR shall describe such variations in writing, separate from the drawings, at time of submission. All such variation must be approved by ENGINEER.

1.13 ENGINEER'S APPROVAL:

- A. ENGINEER will indicate his approval or disapproval of each submittal, and his reasons for disapproval.
 - 1. If no corrections are required, the copies will be returned marked "NO EXCEPTIONS TAKEN" and work may begin immediately on incorporating the material and equipment covered by the submittal into the project.
 - 2. If limited corrections are required, the copies will be returned marked "MAKE CORRECTIONS NOTED." Work may begin immediately on incorporating the material and equipment covered by the corrected submittal into the project.
 - 3. If insufficient or incorrect data has been submitted, the copies will be returned marked "REVISE & RESUBMIT." No work incorporating the material and equipment covered by this submittal into the project may begin until the submittal has been revised, resubmitted, and returned marked either "NO EXCEPTIONS TAKEN" OR "MAKE CORRECTIONS NOTED."
 - 4. If the submittal is unacceptable, the copies will be returned marked "REJECTED - SEE REMARKS." No work incorporating the material and equipment covered by this submittal into the project may begin until a new

submittal has been made and returned marked either "NO EXCEPTIONS TAKEN" OR "MAKE CORRECTIONS NOTED."

- B. The CONTRACTOR shall not change any drawing after it has been marked NO EXCEPTIONS TAKEN or MAKE CORRECTIONS NOTED, or change any approved equipment or material without written permission of the ENGINEER.
- C. If more than three submittals for a single item are required because of incorrect or insufficient data, or the submittal is unacceptable, or because the CONTRACTOR wishes to change previously approved material, then all costs incurred by the City for the Additional review shall be deducted from monies due the CONTRACTOR.

1.14 OPERATION AND MAINTENANCE INSTRUCTIONS:

- A. The CONTRACTOR shall deliver the ENGINEER three sets of acceptable manufacturer's operating and maintenance instructions covering each item of mechanical, electrical, and instrumentation equipment or equipment assembly provided under this Contract.

The operating and maintenance instruction shall include, as a minimum, the following data for each item of mechanical, electrical and instrumentation equipment:

1. An itemized list of all data provided.
2. Name and location of the manufacturer, the manufacturer's local representative, the nearest supplier and spare parts warehouse.
3. Accepted submittal information applicable to operation and maintenance.
4. Recommended installation, adjustment, start-up, calibration and troubleshooting procedures.
5. Recommended lubrication and an estimate of yearly quantity needed.
6. Recommended step-by-step procedures for all modes of operation.
7. Complete internal and connection wiring diagrams.
8. Complete printed circuit board schematic and assembly drawings.

SUBMITTALS

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9. Recommended preventive maintenance procedures and schedule.
 10. Complete parts lists, be generic title and identification number, with exploded views of each assembly.
 11. Recommended spare parts.
 12. Disassembly, overhaul and reassembly instructions.
- B. Following the acceptable installation and operation of an item, the items' instructions and procedures shall be modified and supplemented by the CONTRACTOR to reflect all field changes or information requiring field data.
- C. Before final acceptance of the project, the CONTRACTOR shall bind all three sets in appropriated labeling, expanding post-type binders. Each completed binder shall contain only that material which can be held with the posts in the non-expanded position. A complete table of contents listing all items and their location in the set shall be included in each binder. For ready reference, the CONTRACTOR shall compile a complete list of manufacturer's local representatives for each item provided.

1.15 CERTIFICATES:

For those items called for in individual sections, furnish certificates from manufacturers, suppliers, or others certifying that materials or equipment being furnished under the Contract comply with the requirements of these specifications.

1.16 SAMPLES:

Samples shall be of sufficient size to clearly illustrate functional characteristics and full range of color, texture, and pattern.

1.17 PROGRESS SCHEDULE:

The CONTRACTOR shall submit to the ENGINEER, within twenty (20) days after date of the Notice to Proceed, a progress schedule giving the dates when each part of the work will be started and completed. The schedule shall conform to the calendar days set forth in the Agreement for completion of the work, and shall be subject to modification by the ENGINEER. The ENGINEER shall be advised in advance by the CONTRACTOR

when construction work is scheduled and the days when no construction work will take place. If the CONTRACTOR fails to notify the ENGINEER in advance of the day or days when no construction work will be done, the CONTRACTOR will be charged the cost of inspection for that day or days and such charges may be deducted from any payment due the CONTRACTOR.

The CONTRACTORS attention is directed at Section 7-4 of the City Standard Specifications in preparation of progress schedule. Progress schedule shall be CMP (Critical Path Method) or approved equal.

When, in the judgment of the ENGINEER, it is necessary to accelerate any part of the work ahead of schedule, the CONTRACTOR shall, when directed, concentrate his efforts on such part of the work.

1.20: MATERIALS - Not used.

1.30: EXECUTION - Not used.

END OF SECTION

SUBMITTALS
01090-5

DIVISION 2 - SITEWORK

SECTION 02110 EARTHWORK

2.10: GENERAL

The work in this section shall include performing all clearing, grubbing, removal of trees, excavation, backfill, and construction of embankment required for the construction of the slow sand filter. Included in this section is the removal and disposal of excess or unsuitable material as well as the removal and disposal of any large rocks and boulders encountered during excavation.

All excavation and embankment construction shall meet the requirements of Section 14 in the City's Standard Specifications. Excavation and backfill of pipe trenches shall meet the applicable requirements of Section 27 except as modified by these Special Provisions.

2.20: MATERIAL

- A. Earth materials used for backfill and embankment shall be free from detrimental quantities of organic material, concrete, and other unsuitable materials. The backfill and embankment material shall also be free of rocks or hard lumps larger than 3 inches in size.
- B. Crushed rock shall meet the requirements of Section 10-12 of the City Standard Specifications.
- C. Cobbles used for the cobblestone spillway shall be 3 to 6 inches in size and may be either rounded or angular in shape.

2.30: EXECUTION

The CONTRACTOR shall perform all required excavation, backfill, grading, and embankment construction as required to completely grade the site to the lines and grades shown on the Plans. The CONTRACTOR shall realign and regrade a portion of the access road at the site as indicated on the Plans.

- A. Clearing, Grubbing, and Tree Removal: Prior to beginning of excavation or embankment construction, the CONTRACTOR shall clear all roots, rocks, debris, vegetation, and

other objectionable matter from within the area of the slow sand filter as well as from the area within the earth embankment.

All trees designated on the plans to be removed shall be cut down to the level of the existing ground and disposed of away from the site. Stumps of trees located within the area of embankment shall be removed and disposed of away from the site.

All cleared material shall become the property of the CONTRACTOR and shall be disposed of at a location off the site in a manner satisfactory to the ENGINEER at the CONTRACTOR's expense.

- B. Excavation: The CONTRACTOR shall remove all materials of whatever nature encountered, including soil, rocks, tree stumps, etc., and all other obstructions of any nature that will interfere with the completion of the work.

All excavated material, with the exception of large rocks and boulders, that is not used for embankment construction, trench backfill, or is otherwise unsuitable for any purpose shall become the property of the CONTRACTOR and shall be disposed of at a location away from the site.

The CONTRACTOR shall excavate all existing earth and rock material and portions of rock to a depth of at least 12 inches below the underside of the base slab for the proposed structure.

In excavating trenches for placement of underground piping, the CONTRACTOR shall excavate and remove all earth material, rocks, and portions of rock to a depth of at least 6 inches below the planned depth of the pipes.

- C. Removal of Rock: The CONTRACTOR is advised of the presence of large rocks and boulders of varying sizes throughout the project site. All such large rocks or boulders encountered during excavation shall be removed and disposed of away from the project site in an area designated by the ENGINEER. The number and size of large rocks that may need to be removed and disposed of is unknown.

- D. Backfill of Structure: Twelve inches of crushed rock shall be placed in the excavated area beneath the base slab of the structure. The crushed rock shall meet the requirements for coarse (1/2" x No. 4) crushed screenings as set forth in Section 10-12 of the City Standard Specifications.

Crushed rock used as base material shall be placed and compacted according to the applicable requirements of Section 17 of the City Standard Specifications.

The CONTRACTOR shall exercise caution when placing backfill around the perimeter of the structure in order to prevent cracking of the walls. Backfill material shall not be placed against newly constructed walls until test cylinders of the concrete within the walls indicate an ultimate compressive strength of 3000 pounds per square inch has been attained.

No rocks or hard lumps of earth material over 3 inches in size shall be placed within one foot of the walls of the filter basin.

- E. Backfill of Pipe Trenches: Bedding material placed beneath the underground piping as well as initial backfill material placed to a depth of 6 inches over the top of the pipes may consist of job excavated material free of rocks or lumps greater than 3 inches in size, tree roots, and other objectionable substances. Crushed rock meeting the requirements for coarse (1/2" x No. 4) crushed screenings may also be used for bedding and initial backfill.

Trench backfill shall be made with job excavated earth material free of rocks or hard lumps greater than 3 inches in size, tree roots, organic matter, and other objectionable material.

Placement and compaction of bedding, initial backfill, and trench backfill shall meet the applicable requirements of Section 27 of the City Standard Specifications except as modified by these Special Provisions.

- F. Earth Embankment: The construction of earth embankment shall meet the applicable requirements of Section 14 of the City Standard Specifications and these Special Provisions and shall be placed and compacted to the lines, grades, and elevations indicated on the Plans and as directed by the ENGINEER.
- G. Cobblestone Spillway: Cobbles shall be placed at the location indicated on the Plans to the lines, grades, and details given. The cobbles shall be placed to provide slope protection at the outlet end of the various drain pipes from the slow sand filter.

Rocks obtained at the project site that fall within the size limits of 3 inches to 6 inches may be used for the cobblestone spillway.

END OF SECTION

EARTHWORK
02110-4

DIVISION 3 - CONCRETE

SECTION 03100 CONCRETE

3.10: GENERAL

The work in this section shall include furnishing, placing, and finishing Portland cement concrete and Portland cement grout. This section shall also include furnishing, constructing, and erecting all required forms as well as furnishing and placing reinforcing steel, water stops, and embedded items.

3.20: SUBMITTALS

Submittals shall be in accordance with Section 01090 of these Special Provisions and with the applicable requirements of Section 5-6 of the City Standard Specifications.

- A. Concrete: As specified in Section 10-5 of the CITY Standard Specifications the Contractor shall submit to the ENGINEER for approval the mix design for the concrete proposed to be used. The concrete mix design submittal shall include the gradation of the coarse and fine aggregate.

Certificates of compliance confirming the constituents of the concrete mix meets the requirements of these Special Provisions shall also be submitted to the ENGINEER for approval.

- B. Reinforcing Steel Shop Drawings: Before starting concrete work, submit drawings complying with requirements of ACI 318, detailed in accordance with ACI SP66, and adapted to the proposed placement schedule, showing size, dimension, bending, placing and construction joint details. Submit drawing showing locations of all construction joints. Drawing shall be on a minimum 18-inch by 24-inch drafting paper. Submit type, size, and location of all slab and bar supports. Shop fabrication shall not begin until corrected drawings bearing the ENGINEER's review stamp are returned in accordance with Section 01090. Reproduced copies of plans are not acceptable shop drawings.
- C. Formwork Shop Drawings: Before starting concrete work, submit drawings of all exterior wall formwork showing form plywood pattern, formwork, ties, vertical limits of

concrete placements, horizontal lifts, and construction joints.

- D. Shoring: If shoring is required, the CONTRACTOR shall submit detail drawings and structural calculations showing the sizes of all members, connection details, lateral bracing, and anchorage of the proposed shoring system.

All structural calculations used in the design of the shoring systems shall be prepared and signed by a civil or structural ENGINEER registered in the State of California.

- E. Mill Certificates: Submit certificates copies of mill test reports for each lot or heat of all reinforcing steel.
- F. Repair Procedures: Concrete repair procedures shall be submitted with the concrete mix designed to minimize potential delays in the construction process.
- G. Materials: Submit catalog cut sheets, manufacturer's installation procedures for waterstops and waterproofing.

3.30: MATERIALS

- A. Concrete: All constituent materials for Portland cement concrete shall meet the applicable requirements of Section 10 of the City Standard Specifications.

All concrete shall contain seven sacks of Portland cement per cubic yard and shall develop a minimum ultimate 28 day compressive strength of 4000 pounds per square inch.

- B. Reinforcing Steel: All reinforcing steel shall be Grade 60 and shall meet the applicable requirements of Section 10-25 of the City Standard Specifications.

- C. Grout:

1. Drypack Grout: Portland cement grout shall be used as drypack grout. If proportioned by volume, shall consist of one part cement, one and one-half to two parts sand, and sufficient water to make a stiff but workable mix. A water reducing agent may be used in formulating the grout mix at the option of the CONTRACTOR.

2. **Epoxy Grout:** Epoxy grout shall be used for repairing cracks by pressure grouting, and repairing structural concrete. Epoxy grout shall be Adhesive Engineering Concrete 1380, Sika Corporation Sikastix 350, or equal.
- D. **Waterstops:** Waterstops shall be the ribbed center bulb type, 4 inches in width by 3/16 inch nominal thickness. Waterstops shall meet the requirements of Section 51-1.14 of the State Specifications as indicated in Section 20-11 of the City Standard Specifications.
- E. **Waterproofing Coating:** Waterproofing coating shall be a smooth white thixotropic liquid and shall be EPA approved. Acceptable products are American Chemical Corporation, AQUATA POXY Paint, or equal.

3.40: EXECUTION

- A. **Formwork:** All forms for the concrete structure of the slow sand filter shall meet the applicable requirements of Section 20 of the City Standard Specifications.

Forms shall remain in place and not removed until test cylinders taken of the concrete within the forms indicate an ultimate compressive strength of 3000 pounds per square inch has been attained.

Forms shall be cleaned of all dirt, mortar, and other foreign matter before being used. Where the bottom of the forms are inaccessible from within, panels to permit the removal of extraneous material from inside the forms prior to the placing of concrete shall be provided.

All exposed horizontal and vertical edges, both interior and exterior, shall be chamfered in the manner specified in Section 20 of the CITY Standard Specifications.

- B. **Waterstops and Embedded Items:** All waterstops pipe sleeves, pipe support inserts, anchor bolts, and other embedded items shall be securely and accurately positioned at the locations indicated on the Plans or as directed by the ENGINEER. The voids in sleeves, inserts, and anchor slots shall be temporarily filled with readily removable material to prevent the entry of concrete.
- C. **Reinforcing Steel:** Placement of reinforcing steel shall meet the applicable requirements of Section 21 of the City Standard Specifications.

- D. Concrete: Placement of concrete shall meet the requirements of Section 20 of the City Standard Specifications and these Special Provisions.

All surfaces on which concrete is to be placed shall be thoroughly moistened with water immediately prior to placing concrete.

The concrete in each integral part of the structure shall be placed continuously. Work shall not commence on any integral part unless sufficiently inspected and approved material for the concrete is on hand and sufficient forces and equipment are available to complete the part without interruption in the placement of the concrete.

For the base slab, the concrete shall be placed in a continuous or monolithic operation to the full thickness of the slab. Each batch of concrete shall be deposited against previously placed concrete and not away from it. Concrete shall not be placed in separate piles and then worked together.

Concrete placed in walls shall be deposited continuously in horizontal layers of 2 feet maximum depth so as to maintain a horizontal plastic surface until completion of the wall unit. No new concrete shall be deposited on already placed concrete which has hardened sufficiently to cause the formation of cold joints or planes of weakness within the wall section.

Concrete for horizontal members or deck slabs shall not be placed until the concrete in the supporting vertical members has been in place for at least 2 hours and is no longer plastic.

Tolerances or deviations from established lines, grades, dimensions, and elevations are as follows:

1. Variations in the thickness of the base slab, and deck slab shall be plus 1/2 inch or minus 1/4 inch.
2. Variations from slopes specified for floors and horizontal lines shall be plus or minus 1/8 inch (floor length of 10 feet or less) and plus or minus 1/4 inch (floor length up to 20 feet).
3. Variations in the size and location of openings in the base slab, embedded sleeves, and wall openings shall be plus or minus 1/4 inch.
4. Variations from plumb of vertical lines and walls

10 feet or less in height shall be plus or minus 1/8 inch.

5. Variations of horizontal or vertical dimensions from any specified position on the Plans shall be 1/4 inch.
6. Variation from planned dimensions in a flight of stairs shall be plus or minus 1/8 inch for each rise and plus or minus 1/4 inch for each tread.

Construction joints shall be provided only at the locations indicated on the Plans.

- E. Grout: Portland cement grout shall be mixed and placed at the locations indicated on the Plans. Grout shall be used for built-up surfaces, setting of miscellaneous metal items, and for minor repairs.

Surfaces to receive grout shall be roughened by wire brushing, cleaned, and primed in accordance with the grout manufacturer's instructions.

3.41: CONCRETE FINISHING

Curing and protecting concrete and grout shall meet the applicable requirements of Section 20 of the CITY Standard Specifications.

3.42: FINISHES FOR FORMED SURFACES

- A. Surfaces to be waterproofed shall be finished in accordance with the requirements and recommendations of waterproofing manufacturer's.
- B. Exposed and foundation surfaces shall have form finish except that all fins and defects shall be removed as directed by the ENGINEER, and in accordance with Section 20-15 of the City Standard Specifications.

3.43: FLOOR SLAB FINISHING

The surface of the floor slabs within the several compartments or sections of the slow sand filter structure shall be a wood float finish. The stairway and top landing shall be broom finished.

3.44: WATERPROOFING

Waterproofing shall be applied as shown on the Plans and in accordance with the manufacturer's recommended application procedures.

3.45: TESTING

- A. Three compression test specimens shall be taken for every 20 cubic yards of concrete placed or for each major placement during the day. The ENGINEER has the option to direct the required test specimens to be taken as he deems necessary to insure the concrete meets the specification.
- B. Specimens shall be taken, cured, and tested for compressive strength in accordance with ASTM C31, ASTM C39, and ASTM C172, respectively.
- C. Standard age of compressive test shall be 28 days: however, 7 day tests may be used provided that the relation between the 7 day and 28 day strengths of the concrete is established by test for the materials and proportions used.
- D. Test reports shall be sent to the ENGINEER with copies to the CONTRACTOR.
- E. Initial costs for testing will be paid by the City of Sacramento and any required retesting due to noncompliance will be paid by the CONTRACTOR.

3.46: TESTING FOR WATER TIGHTNESS

The filter basins and presedimentation tanks shall be separately hydrostatically tested for water tightness. The hydrostatic tests shall be performed prior to application of any waterproof coating. Testing of presedimentation tanks shall occur first and shall be de-watered prior to testing of filter basins.

Testing for water tightness shall consist of filling the individual tanks one at a time with clean water to a level one inch below the top of each tank. The 4 inch openings between the presedimentation tanks and filter basins shall be plugged water tight prior to filling with water, and all valves leading from the basins shall be closed. The tanks adjacent to the tank being tested shall be empty and dry. The water level in the tank

being tested shall be allowed to stabilize for a period of 12 hours. The water level shall then be measured at three separate time intervals during a 24 hour period with a minimum of 6 hours between time intervals.

Maximum allowable leakage during the 24 hour period shall not exceed one-half of one percent of the contents of the tank.

All visible leaks from any tank shall be corrected. Procedures for repairing any tanks failing the test for water tightness shall be submitted to the ENGINEER for approval prior to beginning any repair method. Waterproofing shall be applied after all leakage testing and repairs. Retesting will be required at the ENGINEERS discretion at no additional cost to the CITY.

END OF SECTION

CONCRETE
03100-7

DIVISION 5 - METALS

SECTION 05500 METAL FABRICATIONS

5.10: GENERAL

The work of this section shall include providing structural steel and other miscellaneous metals as shown on the Plans, and as specified in these Special Provisions.

Included in this section is the fabrication and installation of the stainless steel ladder, galvanized steel angles (on which the wood deck planks bear), anchor bolts, and any other miscellaneous metal fabrications indicated on the Plans.

The CONTRACTOR shall furnish all labor, materials, tools and equipment to fabricate and install all structural steel and miscellaneous steel shapes, steel ladders, base plates, anchor bolts, nuts, various bolts and threaded fasteners as indicated on the plans and as specified herein.

5.20: SUBMITTALS

- A. Shop drawings, product data, and other descriptive information shall be submitted in accordance with the requirements of Section 01090 of these Specifications.

The CONTRACTOR shall submit shop drawings prior to fabrication of steel items and such fabrication shall not begin until the ENGINEER has reviewed and approved the submittals.

- B. Data to be Submitted:

1. Materials list of items proposed to be provided under this section.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Shop drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this section with the work of other sections in these Special Provisions.

4. Manufacturer's recommended installation procedures which, when approved by the ENGINEER, shall become the basis for accepting or rejecting actual installation procedures used in the work.

5.30: MATERIALS

- A. All structural steel shapes, plates, and their products shall conform to ASTM Designation A36, and shall be galvanized after fabrication.
- B. All metal items submerged in water shall be of stainless steel, and all expansion anchors submerged or otherwise shall be stainless steel. All stainless steel shall be type 316.
- C. Unless noted otherwise, stainless steel metalwork shall be AISI Type 304 Chromium Nickel Steel.
- D. Welding rods and electrodes used in the submerged ARC welding process shall conform to AWS 517. Electrodes for welding stainless steel shall conform to AWS E308-16.

5.31: HANDLING, SHIPPING AND STORING STEEL WORK

- A. Material shall be fabricated, shipped, handled, and stored in a manner which will prevent distortion or other damage.
- B. Material shall be stored in a clean dry location out of contact with the earth.
- C. Any damaged material shall be repaired by a favorably reviewed method by and at the expense of the CONTRACTOR prior to installation.

5.32: GALVANIZING

- A. All structural steel shapes, angles, anchor bolts, miscellaneous metal and threaded fasteners shall be hot dipped galvanized after fabrication, unless noted otherwise.
- B. Stainless steel items shall not be galvanized.
- C. Steel to be galvanized shall be thoroughly cleaned of rust and scale and galvanized in accordance with ASTM A123, "Specification for Zinc (Hot Galvanized) Coatings

on Products Fabricated from Rolled, Pressed and Forged Steel Shapes, and Strips."

- D. Bolts, anchors, nuts, and similar threaded fasteners, after being properly cleaned, shall be galvanized in accordance with ASTM A153, "Specification for Zinc Coating (Hot Dipped) for Iron and Steel Hardware".

5.40: EXECUTION

- A. Workmanship shall be in accordance with standard commercial practice. Fabrication and assembly shall be done mostly in the shop. CONTRACTOR shall coordinate all work with favorably reviewed certified shop drawings to provide any openings needed in the structure and all attachments to the structure.
- B. Equipment used in the erection of steel work shall be suitable for the work and in first class working order. Erection of structural steel shall be conducted in a safe manner in compliance with applicable safety codes.
- C. Where parts cannot be assembled or fitted properly as a result of fabrication errors or of deformation, the materials shall be considered damaged and the CONTRACTOR shall submit his method of correction for favorable review by the ENGINEER. Corrections or repairs shall not be made without approval of the ENGINEER.
- D. The damaged material shall be removed from the job and replaced at the CONTRACTOR's expense if, in the opinion of the ENGINEER, correction or repair would adversely affect the materials, structurally or aesthetically.
- E. The CONTRACTOR shall furnish and/or set equipment anchor bolts at locations shown on the Plans and shall coordinate such installation with the equipment manufacturer's favorably reviewed certified shop drawings.

5.41: WELDING

- A. All welding shall be by the shielded arc method and shall be performed in accordance with the specifications of the American Welding Society "Structural Welding Code". Welders shall be certified in accordance with AWS Procedures, Specifications for Standard Qualification Procedure".

5.42: EXPANSION ANCHORS

- A. Expansion anchors shall be used for connections to concrete or masonry as shown on the Plans. Unless noted otherwise, minimum length of expansion anchors shall be three (3) inches. Expansion anchors shall be a preassembled unit designed to expand over the entire length of the anchor.
- B. Expansion anchors shall be type 316 stainless steel, such as Trubolt Wedge as manufactured by ITW Ramset/Red Head or equal.
- C. Expansion anchors shall be installed in strict accordance with the manufacturer's recommendation. Spalled concrete or masonry, loose anchors, or anchors set deep or shallow shall be considered improper installation and shall be repaired as directed by the ENGINEER. Expansion anchors shall not be placed until a minimum of ten (10) days after placing of concrete.

END OF SECTION

DIVISION 5 - METALS

SECTION 05521 HAND RAILING

5.50: GENERAL

The work of this section shall include providing means to furnish and install aluminum handrails as shown on the Plans.

5.60: QUALITY ASSURANCE

- A. Handrailing shall conform to the requirements of the Uniform Buildings Code.
- B. All handrails shall be fabricated by one manufacturer, including hardware, accessories, mounting, and installation components.

5.70: SUBMITTALS

- A. In accordance with Section 01090 of these special provisions.
- B. Shop Drawings: Prior to fabrication of the aluminum handrailing, drawings and manufacturer's data shall be submitted to the engineer for approval of the ENGINEER. The drawings shall clearly show all materials, finishes, connecting and joining methods, dimensions, installation details, and relationship to adjoining work by others. No fabrication work shall be started until shop drawings have been approved. Any errors in dimensions shown will be the responsibility of the CONTRACTOR.
- C. Manufacturer's Data: Submit six copies of manufacturer's installation instruction and recommendations with shop drawings.

5.71: PRODUCT HANDLING

- A. All necessary precautions shall be taken to protect all handrails, and components from damage or discoloration. Pack and ship in individual plastic film to protect the anodized finish.
- B. Store handrails above ground on platforms or other supports to prevent damage.

5.80: MATERIALS

ALUMINUM PIPE HANDRAILING

- A. Aluminum Railings: Shall be Reynolds Metals Co. "Reynorail II", Eastman, GA. 31023, Crane Vendor Corp., So. El Monte, CA. 91733, or equal.
- B. Hand Rails: Shall be 1-1/2" diameter, Schedule 40 (1.89 in O.D. x 1.61 in. I.D.), 6063-T6 aluminum pipe alloy. All other aluminum parts shall be fabricated from 6063 or 6061 extruded aluminum. All fittings, except cast bases, shall be a one-piece extrusion machined to final shape. Blind rivets and self-tapping screws shall be as furnished by manufacturer. Fasteners shall be 305 stainless steel.
- C. Wall Support Bracket: Support brackets shall be mounted as indicated on plans. Brackets shall be secured to concrete with 3/8 inch type 316 stainless steel expansion anchor bolt with break-away stainless steel nut. Expansion anchor bolts shall be trubolt wedge as manufactured by ITW Ramset/Red Head, Wood Dale, IL; or equal.
- D. Finishes: All aluminum pipe, brackets, and other fittings shall receive an 0.7 mil Aluminum Association standard clear Architectural Class I satin anodized finish AA-M12-C22-A41.

5.90: EXECUTION

WORKMANSHIP

All fabrication shall be done to the dimensions shown or approved. All items shall be free from any defects which mar appearance or impair strength.

FABRICATION

- A. All fabrication in this section shall be done by persons skilled in the required trade. Fastenings and connections shall impart no stresses or distortion on any members, and allowance for expansion and contraction shall be made where necessary.
- B. Assembly of components shall be performed in strict accordance with manufacturers' recommendations for assembly.

HANDRAILING

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