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**** WARNING ** WARNING ** WARNING ** WARNING ****
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August 13, 2008

06-Ker-58-R138.9
06-463004
ACHSNHG-P058(105)E

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for Building Construction in KERN COUNTY NEAR BORON AT THE BORON SAFETY ROADSIDE REST AREA.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on August 27, 2008. The original bid opening date was previously postponed under Addendum No. 1 dated August 1, 2008.

This addendum is being issued to set a new bid opening date as shown herein and revise the Project Plans, Notice to Contractors and Special Provisions, the Proposal and Contract, and the Federal Minimum Wages with Modification Number 14 dated 8-08-08.

Project Plan Sheets 29 and 51 are revised. Half-sized copies of the revised sheet is attached for substitution for the like-numbered sheet.

In the Special Provisions, Section 5-1.175 "ENVIRONMENTALLY SENSITIVE AREA," is added as attached.

In the Special Provisions, Section 10-1.075 "TEMPORARY FENCE (TYPE ESA)," is added as attached.

In the Special Provisions, Section 10-4.02 "WATER SUPPLY SYSTEM," is added as attached.

In the Special Provisions, Section 10-4.03 "WATER WELL," is added as attached.

In the Special Provisions, Section 10-4.04 "MOBILIZATION, DEMOBILIZATION, AND FINAL CLEANUP," is added as attached.

In the Special Provisions, Section 10-4.05 "DRILL PILOT HOLE," is added as attached.

In the Special Provisions, Section 10-4.06 "COMPLETION OF WATER WELL," is added as attached.

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In the Special Provisions, Section 10-4.07 "WELL DEVELOPMENT," is added as attached.

In the Special Provisions, Section 10-4.08 "TESTING WELL," is added as attached.

In the Special Provisions, Section 10-4.09 "INCOMPLETION OF WELL," is added as attached.

In the Special Provisions, Section 10-4.10 "MEASUREMENT AND PAYMENT," is added as attached.

In the Special Provisions, Section 12-2.04 "WATER SUPPLY SYSTEM," is deleted.

In the Special Provisions, Section 12-2.05 "WATER WELL," is deleted.

In the Special Provisions, Section 12-2.06 "MOBILIZATION, DEMOBILIZATION, AND FINAL CLEANUP," is deleted.

In the Special Provisions, Section 12-2.07 "DRILL PILOT HOLE," is deleted.

In the Special Provisions, Section 12-2.08 "COMPLETION OF WATER WELL," is deleted.

In the Special Provisions, Section 12-2.09 "WELL DEVELOPMENT," is deleted.

In the Special Provisions, Section 12-2.10 "TESTING WELL," is deleted.

In the Special Provisions, Section 12-2.11 "INCOMPLETION OF WELL," is deleted.

In the Special Provisions, Section 12-2.13 "ASBESTOS ABATEMENT," is added as attached.

In the Special Provisions, Section 12-2.14 "LEAD RELATED CONSTRUCTION WORK," is added as attached.

In the Proposal and Contract, the Engineer's Estimate Items 30, 31, 32, 33, 34, 35, 36, 37, and 38 are added as attached.

To Proposal and Contract book holders:

Replace page 4 of the Engineer's Estimate in the Proposal with the attached revised page 4 of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Attached is a copy of the Material Information Asbestos and Deteriorated Lead-Containing Paint Survey.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

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This office is sending this addendum by GSO overnight mail to all book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

ROBERT E. TRAVIS, Chief
Office of Plans, Specifications & Estimates
Office Engineer

Attachments

5-1.175 ENVIRONMENTALLY SENSITIVE AREA

An environmentally sensitive area (ESA) shall consist of an area within and near the limits of construction where access is prohibited or limited for the preservation of archeological site or existing vegetation, or protection of biological habitat as shown on the plans. The Engineer will determine the exact location of the boundaries of the ESA. No work shall be conducted within the ESA.

Attention is directed to Section 7—1.01 "Laws to be Observed," and Section 7—1.04 "Permits and Licenses," of the Standard Specifications regarding State and Federal regulations, permits, or agreements which pertain to an ESA.

Prior to beginning work, the boundaries of the ESA shall be clearly delineated by the placement of temporary fence (Type ESA) in conformance with the provisions in "Temporary Fence (Type ESA)" of these special provisions.

Vehicle access, storage or transport of materials or equipment, or other project related activities are prohibited within the boundaries of the ESA.

The Contractor shall mitigate damage or impacts to the ESA caused by the Contractor's operations, at the Contractor's expense. If the Engineer determines mitigation work will be performed by others, or if mitigation fees are assessed the Department, deductions from moneys due or to become due the Contractor will be made for the mitigation costs.

10-1.075 TEMPORARY FENCE (TYPE ESA)

Temporary fence (Type ESA) shall be furnished, installed, maintained, and later removed in conformance with the details shown on the plans, as specified in these special provisions and as directed by the Engineer.

MATERIALS

Used materials may be installed provided the used materials conform to these special provisions.

High Visibility Fabric

High visibility fabric shall be machine produced, orange colored mesh manufactured from polypropylene or polyethylene. High visibility fabric may be made of recycled materials. Materials shall not contain biodegradable filler materials that can degrade the physical or chemical characteristics of the finished fabric. High visibility fabric shall be fully stabilized ultraviolet resistant, shall be a minimum of 4 feet in width with a maximum mesh opening of 2" x 2". High visibility fabric shall be furnished in one continuous width and shall not be spliced to conform to the specified width dimension.

Posts

Posts for temporary fence (Type ESA) shall be of one of the following:

- A. Wood posts shall be fir or pine, shall have a minimum cross section of 2" x 2", and a minimum length of 5.25 feet. The end of the post to be embedded in the soil shall be pointed. Wood posts shall not be treated with wood preservative.
- B. Steel posts shall have a "U," "T," "L," or other cross sectional shape that resists failure from lateral loads. Steel posts shall have a minimum weight of 0.75 pounds per linear foot and a minimum length of 5.25 feet. One end of the steel post shall be pointed and the other end shall have a high visibility colored top.

Fasteners

Fasteners for attaching high visibility fabric to the posts shall be as follows:

- A. The high visibility fabric shall be attached to wooden posts with commercial quality nails or staples, or as recommended by the manufacturer or supplier.
- B. Tie wire or locking plastic fasteners shall be used for attaching the high visibility fabric to steel posts. Maximum spacing of tie wire or fasteners shall be 24 inches along the length of the steel post.

INSTALLATION

Temporary fence (Type ESA) shall be installed as follows:

- A. All fence construction activities shall be conducted from outside the ESA as shown on the plans or as staked.
- B. Posts shall be embedded in the soil a minimum of 16 inches. Post spacing shall be 8 feet maximum from center to center and shall at all times support the fence in a vertical position.
- C. Temporary fence (Type ESA) shall be constructed prior to clearing and grubbing work, shall enclose the foliage canopy (drip line) of protected plants, and shall not encroach upon visible roots of the plants.
- D. Temporary fence (Type ESA) shall be located so that it is visible, as determined by the Engineer.

When Type ESA temporary fence is no longer required, as determined by the Engineer, the temporary fence shall be removed and disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications, except when reused as provided in this section.

Holes caused by the removal of temporary fence (Type ESA) shall be backfilled in conformance with the provisions in Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MAINTENANCE

Temporary fence (Type ESA) that is damaged during the progress of the work shall be repaired or replaced by the Contractor the same day the damage occurs.

MEASUREMENT AND PAYMENT

Temporary fence (Type ESA) shall be measured and paid for in the same manner specified for fence (Type BW or WM, wood or metal posts) as provided in Section 80, "Fences," of the Standard Specifications.

Full compensation for maintaining, removing, and disposing of temporary fence (Type ESA) shall be considered as included in the contract price paid per linear foot for temporary fence (Type ESA) and no additional compensation will be allowed therefor.

10-4.02 WATER SUPPLY SYSTEM

PART 1 - GENERAL

This work shall consist of furnishing and installing a complete water supply system in accordance with the details shown on the plans and these special provisions.

The water supply system shall include all equipment, accessories and appurtenances necessary for the complete installation and operation of said system.

Earthwork, foundations, supports, sheet metal, painting, mechanical, electrical, and all other work incidental to and necessary for the proper installation and operation of the water supply system shall conform to the requirements for similar work elsewhere in these special provisions.

SUBMITTALS

Working drawings, material lists, descriptive data, and other submittals specified herein shall be submitted for approval in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications and these special provisions.

Unless otherwise permitted in writing by the Engineer, all submittals required by these special provisions shall be submitted within 35 days after the Contractor has received notice that the contract has been approved.

Attention is directed to the provisions in Section 5-1.01, "Authority of Engineer," of the Standard Specifications. The Engineer may request submittals for materials or products where submittals have not been specified in these special provisions, or may request that additional information be included in specified submittals, as necessary to determine the quality or acceptability of such materials or products.

Attention is directed to Section 6-1.05, "Trade Names and Alternatives," of the Standard Specifications. The second indented paragraph of the first paragraph of said Section 6-1.05 is amended to read:

Whenever the specifications permit the substitution of a similar or equivalent material or article, no tests or action relating to the approval of such substitute material will be made until the request for substitution is made in writing by the Contractor accompanied by complete data as to the equality of the material or article proposed. Such request shall be made within a time period not to exceed 35 days after the date on which the contract has been approved, shall be made in ample time to permit approval without delaying the work, but need not be made in less than 35 days after award of the contract.

Work requiring the submittal of working drawings, material lists, descriptive data, or other submittals shall not begin prior to approval of said submittal by the Engineer. Fifteen working days shall be allowed for approval or return for correction of each submittal or resubmittal. Should the Engineer fail to complete his review within the time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in review, an extension of time commensurate with the delay in completion of the work thus caused will be granted as provided in Section 8-1.07, "Liquidated Damages," of the Standard Specifications.

Submittals shall be delivered to the locations indicated in these special provisions. If a specific location is not indicated, the submittal shall be delivered to the Division of Structure Design, Documents Unit, Fourth Floor, Mail Station 9-4/4I, 1801 30th Street, Sacramento, California 95816, telephone (916) 227-8252, or the submittals shall be mailed to the Division of Structure Design, Documents Unit, Mail Station 9, P. O. Box 942874, Sacramento, California 94274-0001.

Each submission of drawings, material lists and descriptive data shall consist of at least 5 copies. Two copies will be returned to the Contractor either approved for use or returned for correction and resubmittal.

Each separate item submitted shall bear a descriptive title, the name of the project, district, county, and contract number. Plans and detailed drawings shall not be larger than 22" x 36".

Working drawings shall show complete layout and details of the pump, equipment and materials to be installed.

The material list and descriptive data shall be complete as to name of manufacturer, catalog number, size, capacity, finish, all pertinent performance ratings, and identification symbols used on the plans and in the special provisions for each unit.

The material list and descriptive data submittals shall include, but not necessarily be limited to, the following:

- Well Pump
- Water Level Indicator System
- Screened Casing Vent
- Sanitary Well Seal
- Flexible Coupling
- Pressure Tank
- Air Volume Control System
- Sight Gage and Enclosure
- Pressure Gage
- Gage Cock
- Sampling Valve
- Safety Relief Valve
- Strainer
- Pressure Switch
- Float Switch

Parts lists and service instructions packaged with or accompanying the equipment installed in the work and the performance characteristic curve for the pump shall be delivered to the Engineer at the jobsite.

Before completion of the project, 3 bound identified copies of the operation and maintenance instructions and parts lists for equipment furnished shall be delivered to the Engineer at the jobsite. Manuals that are inadequate or incomplete will be returned and the Contractor shall resubmit adequate and complete manuals. Manuals shall be included for the following equipment:

- Well Pump
- Water Level Indicator System
- Air Volume Control System
- Pressure Switch
- Float Switch

Manufacturer's warranties and guarantees for equipment and materials installed in the work shall be delivered to the Engineer at the jobsite.

MAINTENANCE INSTRUCTIONS

Before completion of the project, one set of maintenance instructions for the pump including the pump curve, shall be encased between two heat fused laminated plastic sheets and shall be attached at a convenient location approved by the Engineer.

PART 2 - PRODUCTS

Well Pump:

The well pump shall be the submersible turbine deep well type. The pump column and discharge pipe shall be 6-inch diameter Schedule 40, galvanized steel pipe conforming to the requirements of ASTM Designation: A 53.

The pump bowls, suction bell and discharge case shall be thermoplastic hard, close-grained, cast iron. The pump diffusers shall be thermoplastic or bronze. The pump bowl assembly shall have an outside diameter not greater than 6 inches.

The pump screens shall be stainless steel or non-magnetic material and shall have a diameter no larger than the suction bell. All bolts, studs, and nuts used on the pump bowl assembly shall be nonmagnetic stainless steel.

The impellers shall be thermoplastic or bronze, enclosed type, and shall be dynamically balanced. The bowl bearings shall be bronze or combination bronze and rubber. The impeller shaft shall be stainless steel.

The pump shall be capable of pumping water, under test, at the flow rates and the total heads shown on the plans. The pump shall not load the motor beyond the nameplate rating multiplied by the service factor at any point on the pump curve.

The motor shall be a solid shaft, induction motor, and shall be designed for continuous duty underwater operation. Horsepower rating, voltage, phase, and RPM shall be as shown on the plans.

Submersible Cable:

The submersible cable shall consist of 3 No.8 AWG copper conductors. 10 single conductor cables or a single jacketed, copper-conductor cable assembly may be used. Each conductor shall be insulated with synthetic rubber or plastic suitable for continuous immersion in water. When single conductors are used, each conductor shall be jacketed. When a multiple conductor cable is used the cable shall be jacketed. The jacket material shall be oil and water resistant synthetic rubber or other suitable mechanically protective material.

The cable shall be supported from the column with nylon straps at 10-foot intervals. All cable fittings and terminals shall be watertight for the water pressure encountered.

The conductors shall be protected by a stainless steel guard where they pass the pump bowls.

Submersible cable splice kit: The splice at the pump motor leads shall be made with the motor manufacturer's recommended heat shrink splice kit. Electrical tape is not allowed.

Water Level Indicator System: A water level indicating system shall be installed as shown on the plans. The system shall consist of air line, hand air pump, altitude gage and all necessary fittings. The altitude gage shall be calibrated in meters of water and adjustable for various lengths of air line. The air line shall be 1/4-inch diameter, hard plastic tubing with a bend radius of approximately 3 inches and a pressure rating of at least 200 psi. The air line shall extend to the bottom of the bowl assembly and shall be secured to the discharge pipe with nylon straps at 10-foot intervals.

Sanitary Well Seal: The sanitary well seal shall be a standard commercially manufactured product that seals against the entrance of surface water when the cap screws are tightened to force a rubber packer against the well casing and the discharge pipe. The unit shall be factory painted cast iron with a two piece design for removal or installation without removing the well pump or column. The seal shall have tapped openings for conduit and vent connections. The sanitary well seal shall be installed in accordance with the manufacturer's recommendations.

Screened Casing Vent: Screened casing vent shall be ¾ inch with dual outlets facing downward, cast iron body and stainless steel or brass screen.

Piping: Pipe, joints and fittings shall be furnished and installed in accordance with the requirements specified in Section 20-2.15, "Pipe," of the Standard Specifications.

Flexible Coupling: Flexible couplings shall be gasketed short sleeve type couplings consisting of a mild steel middle ring with pipe stop, 2 rubber compound wedge-section ring gaskets, 2 mild steel follower rings and sufficient mild steel bolts to compress the gaskets. All ferrous metal parts of the coupling shall be hot-dip galvanized after fabrication.

Pressure Tank

Pressure tank shall be a horizontal, epoxy lined steel pressure vessel conforming to the ASME Code for unfired pressure vessels. The wall thickness of the tank shall be increased 1/16 inch above nominal design to account for corrosion. The tank shall have a working pressure of 125 psi and shall be stamped accordingly. The tank shall have an 11" x 15" oval manhole at one end, lifting lugs, support saddles, and extra-heavy half couplings welded to the tank. Openings in the tank shall accommodate the piping as shown on the plans. Capacity shall be as shown on the plans.

Epoxy lining of the tank shall conform to the requirements of latest edition of AWWA Standard D102, "Painting Steel Water-Storage Tanks," Section 3.2, "Inside Paint System No. 1". Paint systems containing coal tar, trichloroethylene or tetrachloroethylene (perchloroethylene) shall not be used.

The exterior surfaces of the tank shall be prepared and painted in accordance with the requirements specified for steel and other ferrous metals under "Painting" in Section 12-9 "Finishes," of these special provisions.

Air Volume Control System: The air volume control system for the pressure tank shall be a completely self-contained unit including an oilless piston type air compressor, encapsulated solid-state controls, safety valve, pressure switch, and adjustable electrode with a weatherproof cover. The unit shall be rated to operate at tank pressures up to 110 psi. The air compressor motor shall have thermal overload protection.

Sight Gage:

Sight gage shall be bronze, water-gage valve type, automatic, minimum 5/8-inch diameter glass tube sized for 36-inch centers, 200 psi rated, and with ½-inch pipe thread connection.

Sight gage enclosure shall be fabricated of 14-gage galvanized steel completely enclosing the sight gage and shall contain rigid polystyrene foam plastic insulation inside. The enclosure shall have a hinged cover and latch that maintain the door in the closed position when not in use.

Pressure Gage: Pressure gage shall be ANSI standard: B40.1, Grade A, 4 1/2-inch dial, liquid filled with cover, plain case, reset screw, and bottom inlet. Gage shall read from 0 psig to 120 psig. Each pressure gage shall be equipped with a gage cock.

Gage Cock: Gage cock shall be ¼ inch, brass or bronze, and rated for 150 psi .

Valves: Valves shall be in accordance with the requirements specified under "Pipe, Fittings and Valves" in Section 12-15, "Mechanical," of these special provisions.

Sample Valve: Sampling valve shall be 1/8 inch or ¼ inch brass or bronze, rated at 100 psi minimum, with lever handle and bib nose outlet without threads.

Safety Relief Valve: Safety valve shall be rated for a working pressure of 200 psi, set at 125 psi and equipped with a manual test lever. The size shall be as shown on the plans.

Strainer: Strainer shall be wye pattern, cast iron body with a Type 304 stainless steel or monel strainer screen. The strainer screen shall have an open area equal to at least 3 times the cross-sectional area of pipe in which used (based on NPS) and may be woven wire (20 mesh) or perforated type (0.45-inch maximum diameter perforations).

Pressure Switch: The pressure switch shall be a diaphragm activated, adjustable differential pressure switch with one normally open and one normally closed, 10-ampere, 120-volt AC, snap action contact in a NEMA Type 4 or 4X enclosure. The switch shall have an adjustable differential range of at least 20 psi and shall be factory set to de-energize the pump when the water pressure reaches 40 psi and energize the pump when water pressure drops below 60 psi.

Float Switch: Float switch shall be 120-volt, 10-ampere, AC, single-pole, double throw mercury switch in inert synthetic casing. Switch shall be leakproof, shockproof, and corrosion resistant. Cable shall be 3-conductor, No. 18 AWG with polyvinyl chloride (PVC) jacket. Switch shall be installed as shown on the plans. The difference between the switch activation elevation and deactivation elevation shall not be greater than 2 inches.

Miscellaneous Metals: Angle iron, steel supports and other miscellaneous metals required for the water supply system shall be in accordance with the requirements specified in Section 75, "Miscellaneous Metal," of the Standard Specifications.

PART 3 - EXECUTION

Pressure Tank: The sight gage for the pressure tank shall be installed with enclosure and shall be positioned as shown on the plans.

Testing:

After the installation work has been completed, the pumping installation shall be tested for conformance with the operating conditions specified herein. The materials and labor required for testing shall be provided by the Contractor at his expense.

Before starting or operating equipment or systems, said systems or equipment shall be flushed and cleaned as required and the equipment shall be lubricated and serviced.

The Engineer shall be notified at least 48 hours in advance of starting the testing.

The measurements of flow shall be by means of venturi meter, a weir, or other reliable means as approved by the Engineer. The water shall be discharged in such a manner that erosion is held to a minimum.

Valves shall be adjusted and the pump operated at no flow, full flow and the flow rates specified on the plans.

The following information shall be tabulated and submitted by the Contractor for each test:

1. Flow rate in gallons per minute.
2. Pumping water level in the well for the well pump or the suction pressure for the booster pump in feet of water.
3. Discharge pressure for the well pump or booster pump in psi. Discharge pressure for the well pump shall be measured at the well head.
4. Total dynamic head.
5. Current reading of the pump motor in amperes.
6. Motor voltage (loaded and unloaded).

At the completion of the installation of the water supply piping the lines shall be made tight and shall be tested under a hydrostatic pressure of 125 psi. The pressure shall be maintained without fluctuation for a period of one hour or longer if required by the Engineer.

The water supply system shall then be operated and checked by the Contractor for a period of at least 3 consecutive 8 hour-days to demonstrate the satisfactory overall operation of the water supply system as a completed unit. The test shall be conducted in the presence of the Engineer. During the test period, final adjustments shall be made to the equipment and components as required to place the system in satisfactory operating condition.

Any equipment, systems, or work found deficient during the test shall be replaced or repaired and retested. The Engineer shall be notified a least 72 hours in advance of starting the retest.

Measurement and Payment:

The measurement and payment clauses under Sections 75-1.06 and 75-1.07 in Section 75, "Miscellaneous Metal," of the Standard Specifications shall not apply.

10-4.03 WATER WELL

Scope: This work shall consist of drilling, reaming, completing, developing and testing a water well in accordance with the details shown on the plans and these special provisions.

Regulations: Attention is directed to the provisions of water well construction and sealing as set forth in the current issue of the Department of Water Resources Bulletin No.74, "Water Well Standards: State of California".

Equipment and Personnel: All necessary materials, equipment, labor, transportation, machinery, tools, fuel, water, power, light, sanitary facilities, and all other items incidental to the completion of the work shall be provided by the Contractor. All drilling and reaming shall be accomplished by the mudless reverse rotary method.

Order of Work:

The order of work shall proceed with accepted water well drilling practices, and in general consists of the following sequence of operations:

1. Drill and sample pilot hole.
2. Run geophysical logs.
3. Ream well to final diameter.
4. Caliper log reamed hole.
5. Set casing and complete well.
6. Develop and test well.
7. Steady-discharge pump test.
8. Disinfect well and perform television survey.

Once work has started on the pilot hole, the work shall be continued without delay to the completion of development, testing and disinfection unless otherwise permitted by the Engineer.

Submittals:

Material lists, descriptive data, samples and other submittals specified in these special provisions shall be submitted for approval.

Submittals shall include, but not be limited to, the following:

1. One copy of the mechanical analysis results from the drill cutting samples.
2. One copy of the log of the pilot hole after completion of drilling of the pilot hole.
3. One copy of the "Water Well Driller's Report" with an attachment of one copy of the geophysical log.
4. One field copy of the completed geophysical log upon completion of logging.
5. Manufacturer's information for the blank well casing and well screen.
6. One copy of the filter material gradation analysis.
7. One copy of the results of the water level measurements taken during each of the steady-discharge pump tests.
8. One copy of the television survey recorded on a standard DVD.

Submittals shall be delivered to the locations indicated in these special provisions. If a specific location is not indicated, the submittal shall be delivered to the Office of Structures Design, Documents Unit, Second Floor, 1801 30th Street, Sacramento, California 95816, or mailed to the Office of Structures Design, Documents Unit, P.O. Box 942874, Sacramento, California 94274-0001.

Each separate item submitted shall bear a descriptive title, the name of the project, district, county, and contract number. Plans and detailed drawings shall be not larger than 24" x 36".

Temporary Shutdown: Whenever the well site is left unattended for any reason, the bore hole shall be maintained full of drilling fluid as required to maintain bore hole integrity and shall be covered in a manner satisfactory to the Engineer.

Water Supply: An adequate supply of water for drilling and for developing and testing the well shall be provided in such a manner that a shortage of water will not be a cause for delay in the work.

10-4.04 MOBILIZATION, DEMOBILIZATION, AND FINAL CLEANUP

The Contractor shall move onto and set up all equipment and machinery at the designated well site. Upon completion of the work, all tools, equipment, machinery, and excess materials shall be removed from the premises. All cuttings, drilling fluid, and rubbish resulting from the work shall be disposed of in a manner approved by the Engineer. All sumps and excavations shall be filled and all ground surfaces disturbed by the well drilling and construction operations shall be restored to as near their original condition as possible, including the repair or replacement, at the Contractor's expense, of any damaged facility.

10-4.05 DRILL PILOT HOLE

Pilot Hole: A pilot hole, of 4-inch minimum diameter shall be drilled to a depth of 320 feet.

Drilling Fluid: Drilling fluid shall be water except as otherwise provided herein. The fluid level in the pilot hole shall be kept at the ground surface at all times. Should lost circulation or other drilling problems require the addition of small amounts of bentonite, organic-base material, or other material, such material may be added with the approval of the Engineer. Prior to the addition of such material, the Contractor shall submit complete information sheets describing the composition of the materials to be added, including but not limited to Material Safety and Data Sheets (MSDS). The Contractor shall also submit to the Engineer for approval a procedure that will insure the removal of these additives during well development. Toxic or dangerous substances shall not be added to the drilling fluid.

Drill Cutting Samples: One pint of drill cutting samples shall be collected at least once every 5 feet from a depth of approximately 100 feet to the bottom of the pilot hole, or as directed by the Engineer. Samples shall be placed in one pint, clean, water-tight rigid containers, securely closed and sealed to avoid spillage and contamination, and clearly marked with the depth interval represented by the sample. Samples shall be made available for inspection by the Engineer at all times. The Contractor shall select samples, subject to the review of the Engineer, and shall have them analyzed by a State certified soils laboratory. The results of the mechanical analyses, which shall include a gradation curve for each sample analyzed, shall be used by the Contractor to determine the size of the screen openings and the gradation of the filter material. Screen opening selection and filter material gradation shall be reviewed by the Engineer. Such review shall not relieve the Contractor of his responsibility for successful completion of the work. One copy of the mechanical analysis results shall be delivered to the Engineer.

Well Log:

During the drilling of the pilot hole, the Contractor shall prepare and shall keep a complete log of the hole, setting forth the following:

1. The reference point of all measurements.
2. The depth at which each change in stratigraphy occurs.
3. The identification of the material of each stratigraphic level (clay, sand, gravel, etc.) and its physical condition (caving, running, squeezing, etc.)
4. The depth of any substantial loss of drilling fluid to the formation and the remedial measures taken.

The log of the pilot hole shall be made available for inspection by the Engineer at all times. One copy of the log of the pilot hole shall be delivered to the Engineer immediately after completion of drilling of the pilot hole.

Within 30 days after completion of the water well, the Contractor shall submit a complete and accurate "Water Well Driller's Report" to the Department of Water Resources in accordance with the provisions of Section 13750 through 13755 of the California Water Code. A final copy of the geophysical log shall be attached to the "Water Well Driller's Report". A copy of the "Water Well Driller's Report" with one final copy of the geophysical log shall be submitted to the Engineer at the time of filing with the Department of Water Resources.

Geophysical Logging:

After the pilot hole has reached its final depth, a geophysical log shall be made of the entire hole. The pilot hole shall be clear of obstructions prior to running the log. Logging shall commence at the bottom of the pilot hole and shall end approximately at the ground surface. The pilot hole shall be kept full of drilling fluid during logging. After the pilot hole has been reamed it shall be caliper logged.

The geophysical log shall consist of the following:

1. Spontaneous potential curve
2. Point resistivity curve
3. 6-foot lateral resistivity curve
4. Caliper log

The logging scale shall be subject to approval by the Engineer. The completed geophysical log shall show the mud resistivity (showing temperature) and the mud filtrate resistivity (showing temperature) of the drilling fluid. One field copy of the completed geophysical log shall be delivered to the Engineer immediately on completion of logging.

10-4.06 COMPLETION OF WATER WELL

Reaming Water Well:

After geophysical logging has been completed, except for caliper logging, the upper portion of the pilot hole shall be reamed to the diameter and depth of the well seal as shown on the plans. After the conductor casing has been placed and sealed, the remainder of the pilot hole shall be reamed to the bore diameter shown on the plans. Following the reaming of the pilot hole, the hole shall be caliper logged.

After reaming and caliper logging has been completed, the well shall be cased and developed.

Conductor Casing:

The water well shall be equipped with a conductor casing. The casing shall have an outside diameter as shown on the plans and a wall thickness of 0.25 inch. It is estimated that the conductor casing setting will be at a depth of 50 feet; however, the Engineer may order the setting to a greater depth depending on subsurface conditions. The conductor casing shall extend above the ground surface a sufficient distance so that no surface water can drain into the well. An 4-inch Schedule 40 filter feed pipe shall be welded to the top of the conductor casing in such a manner that filter material can be added to the well at any time in the future. The filter feed pipe shall be inclined as shown on the plans and shall be equipped with a screw cap.

The conductor casing material shall be new and shall conform to the requirements of ASTM Designation: A 139, Grade B, and the following:

1. Requirements for hydrostatic testing shall be waived.
2. The steel from which the casing is manufactured shall contain not less than 0.20 percent copper by ladle analysis.
3. The casing shall contain not more than one continuous spiral seam.

The conductor casing shall be equipped with welding collars. All field joints shall be welded and shall be watertight. All welds shall be made using welding rod appropriate for the type of metal to be welded.

Welding collars shall be of the same thickness and shall have the same chemical and physical properties as the corresponding casing section, shall be a minimum of 5 inches in width, shall be rolled to fit the diameter, and shall be welded to the casing section. The inside edge of the collars shall be ground or sufficiently scarfed to remove sharp edges or burrs. Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inch at any point from a true plane at right angles to the casing. Three round alignment holes shall be provided in each collar to insure proper matching of the sections.

Well Seal: After the conductor casing has been landed, a well seal shall be placed between the wall of the reamed bore and the conductor casing. The seal shall be composed of a slurry of neat cement and water. The neat cement mixture shall be composed of one bag (94 pounds) of portland cement to not more than 6 gallons of clean water. Bentonite may be used up to total of 3 percent of the volume of cement. The sealing material shall be placed in one continuous pour by use of a pressure grout pump from the bottom of the interval to be sealed to the ground surface. Upon completion of the placement of the sealing material, the slurry shall be visible above the ground surface at all points around the circumference of the conductor casing. After cementing operations are complete, the seal shall be left undisturbed for a period of not less than 48 hours.

Blank Well Casing:

Blank well casing material shall conform to the requirements of ASTM Designation: A 139, Grade B. The blank well casing shall be manufactured in the same manner as the conductor casing and shall be equipped with welding collars in the same manner as the conductor casing. All field joints shall be welded and shall be watertight. All welds shall be made using welding rod appropriate for the type of metal to be welded. Blank well casing shall have an outside diameter as shown on the plans and a wall thickness of 0.25 inch. The blank well casing shall extend from the ground surface to the top of the well screen and from the well screen to the bottom of the well. The bottom end of the blank casing shall be capped or plugged in a manner approved by the Engineer. One 2-inch diameter Schedule 40 sounding pipe shall be welded to the blank casing and inclined as shown on the plans. The sounding pipe shall be equipped with a screw cap.

Centralizers shall be placed 5 feet above and 5 feet below any section of well screen and at any other location which the Contractor determines is necessary to assure plumbness and alignment of the blank casing and well screen. Wherever possible, centralizers shall be placed in clay formation.

Well Screen: The well screen shall be a total of 40 feet in length and shall be manufactured of Type 304 stainless steel wire spirally wrapped on Type 304 stainless steel rods providing a continuous-slot opening. The wire shall be of a general keystone shape, oriented to retard plugging and attached to the outside surface of the rods by welding. The well screen shall have the same outside diameter as the blank well casing and a wall thickness of 1.25 inch. Appropriate collars or welding rings shall be provided for the connections between the blank well casing sections and the stainless steel well screen. The well screen shall be welded to the blank casing sections using an appropriate type of welding rod for the two types of metal to be welded.

Setting Well Screen: The final determination of the depth settings and lengths of well screen to be installed shall be made by the Contractor subject to the review and approval of the Engineer after examination of the geophysical logs, except that any length of well screen totaling in excess of the length specified under "Well Screen" in these special provisions shall be approved by the Engineer. The size of the screen openings to be used on the screen shall be selected by the Contractor, subject to the review and approval of the Engineer based on the character and sieve analysis of the aquifer samples, the type of grading of gravel selected for the filter material and allowing for maximum entrance velocity of 0.10 foot per second at a design pumping rate of 60 gallons per minute.

Filter Material: Filter material shall be composed of thoroughly washed, sound, durable, well-rounded particles, containing no silt, clay, organic matter, or deleterious materials. The gradation of the filter material shall be determined by the Contractor subject to the review of the Engineer based on the mechanical analyses of the drill cuttings samples. The size of the filter material shall be matched to the grain size of the water-bearing stratum. The gradation of the filter material, as determined by a State certified testing laboratory, shall be submitted to the Engineer prior to delivery of the filter material to the well site. Filter material may be delivered in bags, and stacked at the well site or it may be delivered in bulk. If delivered in bulk, it shall be placed on a protective sheet.

Installation of Blank Casing and Well Screen: Sections of blank casing and well screen, herein called the casing string, complete with appropriate centralizers and closed bottom, shall be lowered into the well. In no instance shall it be driven, forced, or allowed to rest on the bottom of the hole. It shall remain suspended from the surface until the filter material has been added to the well.

Installation of Filter Envelope:

After the centralized casing string has been suspended in the hole, the placement of the filter material shall proceed without delay. The filter shall be placed by a tremie pipe lowered to the bottom of the annular space between the outside of the casing and the wall of the hole. As filter material is poured into the tremie pipe, water shall also be introduced to help carry the filter material. The tremie pipe shall be slowly raised as the filter material fills the annular space. After the pouring of the filter material has commenced, a solution of polyphosphate shall be added to the circulation water. The total amount of polyphosphate added shall be in the amount of 5 pounds per 100 gallons of circulation water. Polyphosphates used shall be one of the following: tetra sodium polyphosphate, sodium tripolyphosphate, sodium hexameta phosphate or sodium septaphosphate. The annular space shall be filled from the bottom of the hole back to the ground surface. A watertight cover shall be installed between the conductor casing and the well casing.

The volume of filter material introduced into the well shall be not less than the computed volume of the annular space between the outside of the casing string and the wall of the hole. If the amount of filter material introduced is less than the computed amount, it is an indication of bridging and the Contractor shall perform appropriate corrective measures at no additional cost to the State. The Contractor shall provide a means for the accurate measurement of the volume of filter material added to the well. The surface level of the filter envelope shall be maintained at all times by adding filter material as needed.

Plumbness and Alignment:

After the casing is installed, alignment and plumbness shall be tested by the Contractor, in the presence of the Engineer, by lowering a minimum 40-foot long section of pipe, or a dummy of the same length, into the well for the full depth of the casing. The difference between the inside diameter of the casing and the outside diameter of the dummy or pipe shall not exceed one inch.

If a dummy is used, it shall consist of a rigid spindle with rings. Each ring shall be at least 12 inches wide. The rings shall be truly cylindrical and shall be spaced one at each end of the dummy and one ring in the center. The central member of the dummy shall be rigid, so that it will maintain the alignment of the axis of the rings.

Should the section of pipe or dummy fail to move freely throughout the length of casing in the well to the full depth, or should the well vary from the vertical in excess of two-thirds the inside diameter of the casing per 100 feet in the total depth of the well, the plumbness and alignment of the well shall be corrected by the Contractor at his expense.

10-4.07 WELL DEVELOPMENT

Within 48 hours after the filter pack operation is completed and the casing tested and accepted for alignment and plumbness, the well shall be thoroughly developed by mechanical and chemical methods including surging, backwashing, and pumping with the test pump equipment, to remove any mud cake from the wall of the reamed bore, remove any mud that may have penetrated the water-bearing formation and to stabilize the water-bearing materials and filter material. The methods and procedures used for development shall be at the option of the Contractor.

Development Tests:

All necessary measuring instruments and pumping equipment needed to conduct the testing shall be furnished and installed and then removed upon completion of testing. Measuring instruments shall be capable of indicating the depth of water within 10 seconds of the required time of measurement and shall be accurate to within 0.10 foot. The test pumping equipment shall be capable of discharging not less than 70 gallons per minute at the pumping water level encountered in the well. The pumping unit shall be complete with an ample power source, controls, and appurtenances and shall be capable of being operated without interruption for a period of at least 36 hours. The prime mover shall be equipped with a throttling device so that the discharge can be reduced to 26 gallons per minute. The Contractor shall furnish, install, and remove a discharge pipe of sufficient size and length to conduct water from the pumping unit to a point designated by the Engineer.

Development of the well shall be continued until, in the Contractor's opinion, the well is fully developed. The Contractor shall notify the Engineer when the well is developed and ready for testing. Three steady-discharge pump tests shall be performed on the well by the Contractor in the presence of the Engineer. The tests shall be of 3 hours duration each at the flow rates of 70, 60 and 50 gallons per minute, respectively, during which time water level readings will be taken as specified under "Testing Well" in these special provisions. Each test shall start with the water elevation in the well at the static water level.

Sand production shall be less than 5 parts per million within 15 minutes after commencement of pumping at a rate of 70 gallons per minute. Sand production shall be measured by a centrifugal sand separator similar to that described in the Journal of the American Waterworks Association, Vol.46, No.2, February, 1954.

From the steady discharge pump tests of the well, the Engineer will determine the 3 hour specific capacity of the well in gallons per minute per foot of drawdown and the transmissivity of the water-bearing materials in gallons per day per foot. The specific capacity will be determined for a pumping rate of 70 gallons per minute or a drawdown which is approximately 10 feet above the top of the uppermost well screen after 3 hours of pumping, whichever is achieved first. If the sand production exceeds 5 parts per million or if the Engineer determines that the three hour specific capacity of the well at the selected pumping rate is not equal to or greater than 0.0004 times the transmissivity in gallons per day per foot, the Contractor shall resume development operations at his own expense, to reduce the sand production or to improve the well's specific capacity as required. If the Contractor is unable to construct and develop the well as specified herein to meet these requirements consistently, the well shall be abandoned as provided for under "Incompletion of Well" in these special provisions.

These tests during the development shall not be counted as part of the pumping tests specified under "Testing Well" in these special provisions.

Cleaning of Bottom of Well: After developing and before the development tests described above are made of the well, the well shall be sounded, and if any material is found inside the well within 5 feet of the bottom of the lowest screen, it shall be cleaned out of the well.

Water Sampling:

After completion of all well testing, the Contractor shall obtain 4 one-half-gallon or larger samples of water from the well in chemically clean bottles (obtainable from a State certified laboratory). Water samples shall be submitted to a State certified water testing laboratory for analysis within eight hours of sampling. Where necessary and as specified by the laboratory, 2 of the samples shall be chemically stabilized or kept under proper refrigeration to prevent precipitation or other alteration of the mineral constituents prior to analysis. Sample bottles shall be clearly marked with the method and degree of stabilization, if any. Sampling methods and sample preservation procedures shall be subject to approval of the Engineer. The results of the water analyses shall be furnished to the Engineer without delay. The samples shall be analyzed for Department of Public Health, drinking water standards for:

- a. Bacteriological Quality
- b. Secondary Standard Chemicals (General Physical, General Mineral)
- c. Inorganic Chemicals
- d. Volatile Organic Chemicals
- e. Synthetic Organic Chemicals
- f. Unregulated Chemicals
- g. Radioactivity

Disinfection: After all work on the water well has been completed, the well shall be thoroughly disinfected while the test pump is in place, in the following manner and in accordance with the provisions set forth for the disinfection of water wells in the current issue of the Department of Water Resources Bulletin No.74:

1. The proper amount of chlorine solution shall be added to the well such that the concentration of chlorine in the well water shall be at least 50 parts per million available chlorine.
2. The pump shall be surged as necessary so as to thoroughly mix the chlorine solution with the water in the well. Water shall then be pumped to waste until the discharged water has a noticeable odor of chlorine.
3. The well shall then be allowed to stand undisturbed for at least 24 hours.
4. The water shall then be pumped to waste until there is no noticeable taste or odor of chlorine.
5. The Contractor shall sample the water pumped from the well. The sample shall be placed in a sterile container, available from laboratories, and sent to a State certified laboratory for bacterial analysis. If the laboratory analysis shows that the water pumped from the well is not free from all harmful bacteria, the disinfection procedure shall be repeated until a subsequent analysis shows the water safe for human consumption.
6. A copy of the analysis shall be delivered to the Engineer.

Television Survey: After the well has been disinfected a television survey shall be made of the inside of the well from the ground surface to the bottom of the well and from the bottom of the well to the ground surface. The survey shall clearly show the interior of the blank casing and well screen through the means of a downward-looking camera having adequate illumination; the depth, in feet, of the camera shall be indicated at all times on the survey. The survey shall be recorded on a standard DVD, which shall be delivered to the Engineer on completion of the survey.

10-4.08 TESTING WELL.

Within 48 hours after well development, the Contractor shall perform a steady-discharge pump test on the well.

The pumping tests shall be made for a period of 6 hours at a pumping rate of 70 gallons per minute followed immediately by a 2 hour recovery test.

During the pumping test, the discharge of the pump shall be measured with an accurate totalizing meter, a circular orifice meter, or a venturi meter approved by the Engineer. The pump discharge shall be maintained at all times during test within plus or minus 5 percent of the pumping rate by means of a valve. Prior to the start of the test, the pump shall be turned off and the static, or non-pumping level shall be determined. The static water level shall be considered to be attained when 3 successive water level measurements, spaced 20 minutes apart, show no appreciable rise in water level in the well.

The tests shall be made according to the following schedule:

1. Turn pump on to approved test pumping rate at time (t)=0.
2. The Contractor shall measure and record depth to water as follows:
 - a. Each minute, from t=1 to t=12
 - b. Each 2 minutes, from t=14 to t=20
 - c. Each 5 minutes from t=25 to t=50
 - d. Each 10 minutes from t=60 to t=100
 - e. At t=130, t=160, t=200, t=250, t=300 (5 hours)
 - f. At t=360 (6 Hours)
3. Turn pump off at t= 360(6 hours).
4. The Contractor shall measure depth to water and record as follows:
 - a. Each minute, from t= 360 to t= 370
 - b. Each 2 minutes, from t= 372 to t= 380
 - c. Each 5 minutes, from t= 385 to t= 400
 - d. Each 10 minutes, from t= 410 to t= 480

In the case of failure of the pump operation for a period greater than one percent of the elapsed pumping time from t=0, the test shall be suspended until the static water level has been attained. Should the test be aborted as a result of a deficiency on the part of the Contractor's equipment or personnel, all time consumed in waiting for complete water level recovery and in resuming the pump test to the point where it was aborted or suspended shall be at no cost to the State.

After the pump test has been completed, the record of water level measurements shall be delivered to the Engineer. All sand, silt, and materials from inside the casing shall be removed and the annular space between the casing and the wall of the hole shall be refilled with filter material to replenish any settlement which may have occurred during development and testing operations.

10-4.09 INCOMPLETION OF WELL

In the event that the pilot hole or well cannot be completed as specified due to the Contractor's operations, the Contractor, at no expense to the State, shall abandon the pilot hole or water well in the following manner and in accordance with the provisions set forth for the destruction of water wells in the current issue of the Department of Water Resources Bulletin No.74:

1. The pilot hole or well shall be filled with native or other approved materials from the bottom of the well to a depth of 20 feet below ground surface.
2. If there is any casing remaining in the hole at the time of abandonment, an excavation shall be made around it to a depth of 5 feet below ground surface.
3. Any casing remaining in the hole shall be cut off at a depth of 5 feet and the upper portion thereof removed and disposed of.
4. The pilot hole or water well shall be filled with neat cement, cement grout, or concrete from a depth of 20 feet to a depth of 5 feet. If there is any casing remaining in the hole, the sealing material shall be allowed to spill over into the surrounding excavation to form a cap at least one foot thick.
5. After the upper sealing material has set, the remaining portion of the pilot hole or excavation shall be filled and graded with native materials.

After abandonment of the pilot hole or water well, the Contractor shall, at no expense to the State, move the drilling equipment a short distance and drill a new pilot hole or water well.

10-4.10 MEASUREMENT AND PAYMENT

No adjustment of compensation will be made for any increase, decrease, or elimination in the quantity of the items of work involved in drill pilot hole, reaming water well, conductor casing, blank well casing, well screen, and testing well regardless of the reason for such increase, decrease, or elimination. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to the items of work involved in drill pilot hole, reaming water well, conductor casing, blank well casing, well screen, and testing well.

Mobilization, demobilization and final cleanup; and well development shall be measured and paid for at lump sum contract price.

The contract lump sum price paid for mobilization, demobilization and final cleanup shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in mobilization, demobilization and final cleanup, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract lump sum price paid for well development shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in well development, complete in place, including development tests, cleaning bottom of well, water sampling, disinfection, and television survey, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The length of drill pilot hole and reaming water well shall be the measured length from original ground surface to the bottom of the pilot hole or reamed well.

The contract price paid per linear foot for drill pilot hole shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in drill pilot hole, complete in place, including drilling fluid, drill cutting samples, well log and geophysical logging, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per linear foot for reaming water well shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in reaming water well, complete in place, including filter material and installation of filter material, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The length of conductor casing, blank well casing and well screen shall be the total measured length in-place in the completed work.

The contract price paid per linear foot for conductor casing shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in conductor casing, complete in place, including well seal, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per linear foot for blank well casing shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in blank well casing, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per linear foot for well screen shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in well screen, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Testing well shall be measured and paid for by the hour. Testing well shall be the actual time required for the steady-discharge pump test and the 6-hour recovery test.

The contract price paid per hour for testing well shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in testing well, complete in place, as specified in these special provisions, and as directed by the Engineer.

12-2.13 ASBESTOS ABATEMENT

GENERAL

This work includes removal, clean up and disposal of the below listed asbestos containing material (ACM) and asbestos containing construction material (ACCM) to the extent necessary for the building and structure demolition work of this project. The Contractor shall review all demolition plans, survey reports and field verify location and extent of materials containing asbestos related work.

REFERENCES

Codes, regulations and references applicable to asbestos abatement work include but are not limited to the following:

1. American National Standards Institute (ANSI) publications;

Z9.2-79 Fundamentals Governing the Design and Operation of Local Exhaust Systems.

A10.6-2006 Safety Requirements For Demolition Operations

2. American Society for Testing and Materials (ASTM) publications;

D1331-89 (Re-approved 2001) Surface and Interfacial Tensions of Solutions of Surface Active Agents.

E1494-92 (Re-approved 2002) Specifications for Encapsulants for Friable Asbestos-Containing Building Materials.

E1368.90 Standard Practices For Visual Inspection of Asbestos Abatement Projects.

3. Code of Federal Regulations (CFR);

29 CFR 1926.1101 "Asbestos."

40 CFR 61 Subpart A and Subpart M, USEPA, "National Emission Standards for Hazardous Air Pollutants (NESHAPS)."

4. National Fire Protection Association (NFPA):

No. 70.2005 National Electrical Code.

5. California Code of Regulations (CCR):

Title 8, Division 1, Chapter 3.2, Subchapter 2, "Regulations of the Division of Occupational Safety and Health;" Article 2.5, Section 341.6 to 341.14; "Registration-Asbestos-Related Work."

Title 8, Division 1, Chapter 4, Subchapter 7, "General Industry Safety Orders," Group 16, Article 110, Section 5203; "Carcinogen Report of Use Requirements."

Title 8, Division 1, Chapter 4, Subchapter 4, "Construction Safety Orders," Article 4, Section 1529: "Asbestos"

Title 22, Division 4.5, Chapter 10, "Hazardous Waste Management System: General."

6. Local Air Pollution Control District Regulations

EXISTING SITE CONDITIONS

A hazardous material survey report by Geocon Project No. E8415-06-45 dated August 2008 is included as an information handout. Location of asbestos containing materials and presumed asbestos containing materials from survey reports where work is preformed include:

ASBESTOS CONTAINING MATERIALS				
Location	Description	Asbestos Concentration	Approximate Amount	Category
EB Main Building	Roofing mastic	10%	2 sqft	nonfriable
WB Main Building	Roofing mastic	10%	2 sqft	nonfriable

TSI-Thermal System Insulation

PACM-Presumed Asbestos Containing Material

This work includes all plans, permits and the removal, transportation, storage, and disposal of all material containing asbestos as specified or shown on the plans.

Furniture and portable equipment will be removed from the area of work by the Department before any work begins.

PRECONSTRUCTION MEETING

At least 7 days before asbestos removal work commences, a preconstruction meeting shall be held at a location designated by the Engineer. Attendees shall include the Engineer, Department's Observation Service, Contractor's Competent Person; the Contractor's Project Superintendent, and others as necessary. The agenda shall include a review of project safety requirements, the Contractor's written asbestos compliance work plan, emergency contacts and notification plan, containment and work area design, facility requirements, submittals, and any other issues pertinent to the safe execution of the asbestos abatement work.

Work shall not commence until the Engineer has approved submittals and plans for asbestos abatement work.

EQUIPMENT AND MEDICAL SURVEILLANCE

Personnel protective equipment, training, and medical surveillance required by the Contractor's Health and Safety Plan shall be provided to State personnel by the Contractor. The number of State personnel will be 4. The Contractor shall comply with all Federal State and local requirements for safety which shall include providing employees with coveralls (preferably disposable plastic coated), rubber gloves (to be discarded after use), rubber boots (to be washed thoroughly after use) and appropriate respirators (to cover nose and mouth). The Contractor shall be responsible for verifying that all employees, who are involved in asbestos removal operations, wear the protective devices enumerated herein during removal operations.

SUBMITTALS

Product data: A list of manufacturer's product data, specifications, samples and application instructions and other pertinent information as necessary shall be submitted for approval.

Abatement Procedure Plan:

The Contractor shall submit the following detailed plan of the work procedures for abatement of asbestos materials:

1. Federal, State and Local agencies that require notification.
2. Personal monitoring procedures.
3. Phasing of abatement work indicating daily roster of workers for each phase.
4. Security system warning signs locations.
5. Detailed plans for decontamination facilities, toilets, and systems providing intraroom and Work Area to outside communication showing connections to existing building.
6. Standard procedures for protecting workers, visitors, and employees and protection of spaces outside Work Area from contamination.
7. Engineering systems exposure control indicating number, location, and capacity of supply and exhaust systems, the expected direction of flow, and the range of expected differential pressure in each area.
8. Safety precautions such as lockout, tagout, fall protection, and confined space entry procedures and equipment and work procedures to be used in the encapsulation, removal and demolition of materials containing asbestos.

The plan shall be prepared, signed and stamped by a certified asbestos consultant.

Waste Transportation: Submit the method of transport of hazardous waste including name, address, EPA I.D. number and telephone number of transporter.

Hazardous Waste Site: Submit for approval the name, class, address, EPA I.D. number and telephone number of hazardous waste site(s) to be utilized for disposal.

Waste Manifest: For Waste Manifest purposes the Generator is the facility of the subject work. Obtain necessary information for this purpose from the Engineer. Give a copy of the Waste Manifest to the State's Observation Service for each shipment of material containing asbestos. The Contractor shall submit a non hazardous waste manifest or waste shipment record (WSR) for disposal of material containing asbestos that is not classified as a hazardous waste.

Qualifications:

The following documents shall be submitted:

Registration: Submit copy of the registration for Asbestos-Related work from the Division of Occupational Safety and Health in accordance with Title 8, Article 2.5 of the California Code of Regulations.

Medical Examination: Submit proof that personnel who will be entering regulated asbestos areas have had medical examinations, and furnish the results of said exam to the Engineer and signed by the medical examiner.

Submit an employee roster to the Engineer for each Work Shift and confirm in writing within 24 hours of commencement of shift.

Land Disposal Restrictions:

Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR, Division 4.5, Chapter 45, to the Engineer and signed by the generator.

For HEPA-filtration systems exhausting externally within 50 feet of the building's air intake or entry, submit the results of on-site DOP or Portacount testing of required efficiency.

NOTIFICATIONS, COMMUNICATIONS AND POSTINGS

The Contractor shall notify the Engineer 15 working days prior to the start of any abatement work.

Prior to performing operations involving the removal of material containing asbestos, the Contractor shall provide written notification to all Federal, State and local agencies that regulate the handling and disposal of material containing asbestos.

The Division of Occupational Safety and Health (CAL OSHA) shall be notified 24 hours prior to performing removal operations of materials containing asbestos.

Notification shall be in accordance with the NESHAP, 40 CFR, Part 61, Subpart M and Section 341.9 of Title 8 of California Code of Regulations.

In addition to detailed requirements of this Specification, comply with laws, ordinances, rules, and regulations of federal, state, regional, and local authorities regarding handling, storing, transporting, and disposing of material containing asbestos. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where requirements of this Specification and reference documents vary, the most stringent requirement shall apply.

FIELD AIR SAMPLING

Personnel monitoring and other monitoring which is required by law or considered necessary by the Contractor for worker protection shall be the responsibility of the Contractor and performed by the Contractor's Competent Person. The Contractor shall disclose any interest in the firm or laboratory performing the Field Air Sampling or analysis.

MATERIAL

Not used.

CONSTRUCTION

PROJECT PROCEDURES

General:

Asbestos abatement work shall not commence until:

Arrangements have been made for disposal of material containing asbestos at an acceptable site.

Arrangements have been made for containing and disposal of waste water containing asbestos resulting from wet stripping.

Tools, equipment and material waste receptacles are on hand.

Arrangements have been made for building security.

Preparatory steps have been taken and applicable notices posted and permits obtained.

Work area requirements:

All asbestos abatement shall be performed in regulated areas with access limited to the asbestos removal contractor's employees, regulating officials and Engineer until cleared.

DISPOSAL

Containers to be loaded for transportation from the holding area shall be removed by workers who have entered from unregulated areas, dressed in clean overalls. Workers shall not enter from the holding area into the wash room or the work area.

The sealed asbestos containers shall be delivered to the Contractor's pre-designated approved Hazardous Waste Site for burial; in accordance with Title 22, CCR, EPA guidelines and 40 CFR 61.156 and local Air Pollution Control District Regulations.

Notify the Engineer 48 hours in advance of the time when materials containing asbestos are to be removed from the site.

The Contractor shall be responsible for safe handling and transportation of hazardous waste generated by this Contract to the designated Hazardous Waste Site.

The Contractor shall hold the State harmless for claims, damages, losses, and expenses against the State, including attorney's fees arising out of or resulting from asbestos spills on the site or spills enroute to the disposal site.

AIR MONITORING.—

PERIMETER AREA AIR MONITORING.—

Throughout the abatement process perimeter area air monitoring may be conducted by the State's Observation Service to ensure work is done in conformance with fiber concentration limits of these Specifications.

If perimeter area air monitoring outside the work area is in excess of 0.01 fibers/cc the Contractor shall make modifications in work procedures to assure compliance with minimum standards. Unsatisfactory results are fiber counts in excess of 0.01 fibers/cc by Phase Contract Microscopy (PCM) NIOSH 7400 method measured outside the work area as Perimeter Area Air Monitoring.

The State's Observation Service will report perimeter area air monitoring results collected outside the work area to the Engineer on the following day prior to start of work.

The Contractor shall submit the laboratory analysis report and chain of custody (COC) to the State's Observation Service of the Contractor's personal monitoring results within 48 hours following completion of that work shift. Personal air monitoring results shall not exceed the maximum use level (MUL) of the respiratory protection factor (PF) in use for asbestos.

12.2.14 LEAD RELATED CONSTRUCTION WORK.—

GENERAL

SUMMARY

The work shall consist of removal and disposal of lead related construction materials which are designated on the plans or specified in these special provisions to be removed and disposed of.

The Contractor shall take special precautions for that part of the work which involves the demolition and handling of materials which may contain lead, either during demolition or construction.

SITE CONDITIONS

The building areas to be removed are known to contain lead containing materials. A hazardous material survey report by Geocon Project No. E8415-06-45 dated August 2008, is included as an Information Handout. The following items tested positive for Lead Based Paint material:

Lead based paint		
Location	Description	Total Lead (mg/kg)
EB Main Building	Brown paint on wood trim	310
EB picnic canopies	White paint	61
WB Main Building	Brown paint on wood trim	320
WB picnic canopies	White paint	76

Where existing lead based materials are to be removed during demolition, construction or alterations, such material may need to be treated as hazardous waste, and shall be removed, hauled and disposed of in accordance with all applicable Federal, State and local laws and ordinances.

SUBMITTALS

The Contractor shall submit to the Engineer a lead compliance plan. No work shall be done on any portion of the work which contains or may contain lead based materials until the Engineer has reviewed and accepted the submittals. The Contractor shall allow 15 days for the review of the submittals.

These plans shall be submitted as specified in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications.

Lead Compliance Plan:

The Contractor shall prepare a project specific lead compliance plan to prevent or minimize worker exposure to lead.

The lead compliance plan shall contain the elements listed in Title 8, California Code of Regulations, Section 1532.1(e)(2)(B). The lead compliance plan shall be prepared, signed and stamped by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

QUALITY ASSURANCE

Codes which govern removal and disposal of materials containing lead include, but are not limited to the following:

1. California Health and Safety Code, Division 20, Chapter 6.5, "Hazardous Waste Control."
2. California Code of Regulations, Title 17, Division 1, Chapter 11, "Occupational Lead Poisoning Prevention Program."
3. California Code of Regulations, Title 22, Division 4.5, Chapter 10, "Hazardous Waste Management System: General."
4. California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 4, Article 4, "Lead."
5. Occupational Safety and Health Administration (OSHA), 29 Code of Federal Regulation (CFR) Part 1926.62, "Lead."

NOTIFICATION

The Contractor shall notify the Engineer 3 business days in advance of the start of removal operations of lead based material.

Prior to performing operations involving the removal of lead based material, the Contractor shall provide written notification to all Federal, State and local agencies that regulate the removal, handling, transporting and disposal of lead in construction.

The Contractor shall notify the Division of Occupational Safety and Health (CAL OSHA) 24 hours prior to performing removal operations of materials containing lead or lead based materials.

QUALITY ASSURANCE

The lead related construction work shall be supervised by a California Department of Health Services Certified Lead Supervisor. The supervisor shall be on-site during abatement work preparation and post-abatement clean-up and be readily available as required by the California Code of Regulations, Title 17, Division 1, Chapter 8, Article 16, Work Practice Standard, 36100. Personnel for lead related construction work shall be California Department of Health Services Lead Worker Certified.

REGULATORY REQUIREMENTS

If measures being taken by the Contractor are inadequate to provide for worker safety and the containment and collection of residue from existing paint systems, the Engineer will direct the Contractor to revise operations and the compliance plans. Such directions will be in writing and will specify the items of work for which the Contractor's compliance plans are inadequate. No further work shall be performed on said items until the compliance plans are adequate and, if required, a revised compliance plan has been approved.

SAFETY

Construction activities (including demolition) that disturb materials or paints containing any amount of lead are subject to requirements in the California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 4, Article 4, "Lead."

Any work that disturbs the lead based paint will expose workers to health hazards and will:

1. Produce debris containing heavy metal in amounts that may exceed the thresholds established in Titles 8 and 22 of the California Code of Regulations.
2. Produce toxic fumes when heated.

The Contractor shall be responsible for verifying that all employees, who are involved in removal operations, wear the required protective devices during removal operations.

Personal protective equipment, training, and washing facilities, required by the Contractor's health and safety plan shall be supplied to State personnel by the Contractor. The number of State personnel will be 4.

State personnel shall complete a safety training program provided by the Contractor, that meets the requirements of Title 8, California Code of Regulations, Division 1, Chapter 4 and the Contractor's lead compliance plan.

MATERIAL

Not Used

CONSTRUCTION

HANDLING

The Contractor shall comply with all Federal, State, and local regulations for the removal of material containing lead prior to demolition and place removed material in approved plastic containers (double ply, 6 mil minimum thickness, plastic bags) with caution labels affixed to said bags. Such caution labels shall have conspicuous, legible lettering which spells out the following, or equivalent warning:

**CAUTION
CONTAINS LEAD**

Temporary storage on the ground of material and residue produced when the existing paint system is disturbed will not be permitted. Material and residue shall be stored in leak proof containers and shall be handled in such a manner that no spillage will occur.

At the option of the Contractor, the removed lead based materials may be placed directly into a roll off or drop box which shall have the same caution label affixed on all sides.

TRANSPORTING

The debris shall be hauled by a transporter currently registered with the California Department of Toxic Substances Control using correct manifesting procedures and vehicles displaying current certification of compliance. The Contractor shall make all arrangements with the operator of the disposal facility and perform any testing of the debris required by the operator. All vehicles used to transport hazardous waste material shall have affixed to the vehicle a valid Certificate of Compliance issued by United States Department of Transportation. If a roll off or drop box is utilized, both the drop box and the transporting vehicle shall have a valid Certificate of Compliance issued by the United States Department of Transportation.

DISPOSAL

The Engineer will obtain the required EPA generator identification numbers, and will sign the hazardous waste manifests.

All material and residue produced during removal operations shall be tested and profiled to determine hazardous waste characteristics. Dispose of residue and waste at an approved disposal facility in accordance with the requirements of the disposal facility operator.

The Contractor shall notify the proper authorities at the disposal site in advance of delivery of hazardous waste containing lead to the disposal site.

**ENGINEER'S ESTIMATE
06-463004**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21	204099	PLANT ESTABLISHMENT WORK	LS	LUMP SUM	LUMP SUM	
22	206401	MAINTAIN EXISTING IRRIGATION FACILITIES	LS	LUMP SUM	LUMP SUM	
23	208000	IRRIGATION SYSTEM	LS	LUMP SUM	LUMP SUM	
24	014031	6" IRRIGATION SLEEVE	LF	780		
25	568007	INSTALL SIGN OVERLAY	EA	4		
26	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	CY	590		
27	014032	PERVIOUS CONCRETE	CY	200		
28	014033	PRECAST CONCRETE PICNIC TABLE	EA	16		
29	994650	BUILDING WORK	LS	LUMP SUM	LUMP SUM	
30	071325	TEMPORARY FENCE (TYPE ESA)	LF	300		
31	760011	WELL DEVELOPMENT	LS	LUMP SUM	LUMP SUM	
32	760012	TESTING WELL	HR	8		
33	760021	DRILL PILOT HOLE	LF	350		
34	760022	REAMING WATER WELL	LF	350		
35	760025	CONDUCTOR CASING	LF	50		
36	760030	BLANK WELL CASING	LF	340		
37	760035	WELL SCREEN	LF	13		
38	760090	MOBILIZATION, DEMOBILIZATION, AND FINAL CLEANUP	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____