



Contract Documents and Construction Specifications for Well No. 14 at Sports Park

City of Reedley

City Engineer

Noé Martinez, PE

AECOM Technical Services, Inc.

Project Manager

Mark Reitz, PE



60267686.01
July 2012

TABLE OF CONTENTS

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

001000	Notice Inviting Sealed Proposals (Bids)
004100	Bid Form
004120	Bid Bond
005200	Agreement
006111	Performance Bond
006112	Payment Bond
006220	Contractor's Certificate Regarding Workers' Compensation
006221	Workers' Compensation and Employers' Liability Certificate Of Insurance
006222	Workers' Compensation and Employers' Liability Insurance Endorsement
006223	Liability Insurance Certificate of Insurance
006224	Liability Insurance Endorsement

GENERAL PROVISIONS

007000	General Provisions
--------	--------------------

SPECIAL PROVISIONS – PART 1

DIVISION 01 - GENERAL REQUIREMENTS

007300	Supplement to General Provisions
011100	Coordination of Work, Permits, and Regulations
012000	Measurement and Payment
012200	Bid Item Descriptions
013300	Submittals
014210	General Abbreviations
015100	Construction Facilities and Temporary Controls
017410	Cleaning During Construction and Final Cleaning

SPECIAL PROVISIONS – PART 2 (TECHNICAL SPECIFICATIONS)

DIVISION 03 - CONCRETE

030500 General Concrete Construction

DIVISION 33 - UTILITIES

332100 Municipal Well

APPENDIX

City of Reedley Work Delay Form

SWPPP Permit for Sports Park Construction dated June 16, 2010, and all subsequent amendments thereto incorporated. Copy may be obtained from City of Reedley.

REFERENCE DOCUMENTS

Copies of the following documents may be obtained from the City of Reedley:

- A. Well 14 Test Well Geologic Log.
- B. Water Tower Geotechnical Investigation dated April 6, 2009.
- C. Water Tower Geoarchaeological Study dated October 6, 2010.

SECTION 001000 NOTICE INVITING SEALED PROPOSALS (BIDS)

FOR THE CONSTRUCTION OF: Well No. 14 at Sports Park

FOR THE: City of Reedley

NOTICE IS HEREBY GIVEN that the City Council of said CITY invites and will receive sealed proposals (bids) up to the hour of 2:00 p.m. on the 14th day of August 2012, for the furnishing to said CITY of all transportation, labor, materials, tools, equipment, services, permits, utilities, and other items necessary to construct said work. At said time, said proposals will be publicly opened and read aloud at the office of the City Engineer of the City of Reedley:

1733 9th Street, Reedley, CA 93654

Bids shall conform to and be responsive to the Contract Documents for the work. Copies of the Contract Documents are on file and may be examined in the office of the City Engineer and their website at www.reedley.ca.gov. Copies may also be examined at the following locations:

AECOM, 1360 E. Spruce Avenue, Fresno, CA 93720

Central California Builders Exchange, 1244 N. Mariposa, Fresno, CA 93703

Tulare-Kings County Builders Exchange, 1223 S. Lovers Lane, Visalia, CA 93292

Copies may be obtained at the office of the City Engineer of the City of Reedley by depositing \$50 per set, nonrefundable. An additional \$8.00 will be added if mailed. Prospective bidders must be on the planholders list in order to submit a bid proposal and to receive any addenda issued.

Description of Work: This project involves the drilling and casing of a municipal well, including developing, testing, and related tasks, within the City of Reedley Sports Park located near the intersection of Dinuba Avenue and Zumwalt Avenue.

Each bid shall be submitted on a form furnished as part of the Contract Documents and must be accompanied by cash, a cashier's check, a certified check, or a Bidder's bond executed by an admitted surety insurer, or substitute pursuant to Section 995.710 of the Code of Civil Procedure, in an amount not less than 10% of the amount of the bid, made payable to the order of or for the benefit of the City. The security of unsuccessful Bidders will be returned by the City no later than sixty (60) days following the date of award. Each bid shall be sealed and delivered to the City at the location designated in this notice for the opening of proposals at or before the time in this notice provided. The check or bond shall be given as guarantee that the Bidder will enter into a contract with the City and furnish the required payment and performance bonds, and certificates of insurance and endorsements if awarded the work, and will be declared forfeited if the Bidder refuses to timely enter into said contract or furnish the required bonds or certificates of insurance and endorsements if the Bidder's bid is accepted.

The City Council has obtained from the Director of the California Department of Industrial Relations a determination of the general prevailing rate of per diem wages and the general prevailing rate for legal holiday and overtime work in the locality in which said work is to be performed for each craft, classification, or type of worker needed. Not less than the determined rates shall be paid to all workers employed in the performance of the contract. Such rates of wages are on file with the Department of Industrial Relations and in the office of the City and are available to any interested party upon request.

The CONTRACTOR's license classification(s) required for this project are as follows:

Class 57 Well Driller's License

These classifications are provided for information purposes only. The Engineer does not warrant that all classifications required for the project are listed.

It is the City intent that "plans," as used in Public Contract Code Section 3300, is defined as the construction contract documents, which include both the drawings and the specifications.

Interpretations: All questions about the meaning or intent of the Contract Documents shall be directed to the office of the City Engineer in writing. Interpretations or clarifications considered necessary by the City Engineer in response to such questions will be resolved by the issuance of addenda delivered to all parties listed on the planholders list. Questions received less than 3 business days prior to the date of opening bids shall be considered nonresponsive and therefore not addressed. Only questions that have been resolved by formal written addenda shall be binding. Oral and other interpretations or clarifications will be without legal or contractual effect.

Bid Protests: Contractor shall follow the bid protest procedures outlined in Section 007300 for any and all claims against the City in connection with the bid process for this project.

The City Council reserves the right to select the schedule(s) under which the bids are to be compared and contract(s) awarded, to reject any and all bids, and to waive any and all irregularities in any bid.

The Bidder is required to sign the attached Noncollusion Affidavit and submit it with his bid.

BY THE ORDER OF THE CITY COUNCIL OF THE CITY OF REEDLEY

Advertisement Dates: July 25, 2012
August 8, 2012

END OF SECTION

SECTION 004100 BID FORM

PROPOSAL TO: City of Reedley
FOR THE CONSTRUCTION OF: Well No. 14 at Sports Park

Name of Bidder: _____

Business Address: _____

_____ Phone No. _____

To The Governing Body of the City of Reedley:

Pursuant to and in compliance with your Notice Inviting Sealed Proposals (Bids) and the other documents relating thereto, the undersigned Bidder, being fully familiar with the terms of the Contract Documents, local conditions affecting the performance of the contract, subsurface and physical conditions, the character, quality, quantities, and scope of the work, the cost of the work at the place where the work is to be done, and having given such notice to the ENGINEER of all conflicts, errors and deficiencies that the Bidder has detected and that the resolution thereof by the ENGINEER is acceptable and that the Contract Documents are sufficient to convey an understanding of the terms and conditions for performing the work, hereby proposes and agrees to perform within the time stipulated in the contract, including all of its component parts and everything required to be performed, and to furnish any and all of the labor, material, tools, equipment, transportation, services, permits, utilities, and all other items necessary to perform the contract and complete in a workmanlike manner, all of the work required in connection with the construction of said work all in strict conformity with the plans and specifications and other contract documents, including Addendum(s) _____, _____, _____, _____ for the prices hereinafter set forth.

The undersigned as Bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any person, firm, or corporation; and he proposes and agrees, if the proposal is accepted, that he will execute a contract with the OWNER in the form set forth in the Contract Documents and that he will accept in full payment thereof the following prices, to wit:

Name of Bidder _____

SCHEDULE OF WORK ITEMS
(See Bid Item Descriptions, Section 012200, for Detailed Scope of Work)

Item No.	Description	Quantity/ Units	Unit Price	Total Amount
1.	Mobilization and demobilization (not to exceed \$20,000)	Lump sum	--	
2.	Storm Water Pollution Prevention Plan	Lump sum	--	
3.	34-inch-diameter conductor casing and 42-inch-diameter bore hole (50 vertical feet)	Lump sum	--	
4.	30-inch-diameter well production hole	650 VF		
5.	18-inch internal diameter steel blank well casing	253 VF		
6.	18-inch internal diameter steel louvered well casing	450 VF		
7.	Gravel pack	490 VF		
8.	Annular seal	210 VF		
9.	Airlifting and swabbing	36 HR		
10.	Setting and removing well development pump	Lump sum	--	
11.	Well development by pumping and surging	36 HR		
12.	Pump test	22 HR		
13.	Miscellaneous work	Lump sum	--	
Total				

Total sum of Bid Items 1 through 13 written in words _____

The Owner reserves the right to reject all bids or to waive any informality of the bids received. The Owner also reserves the right to award the contract to the lowest bidder that best meets the requirements of these Contract Documents.

In case of a discrepancy between numerical and written amounts, the written amount shall govern.

Name of Bidder _____

Bidder hereby confirms that it has all licenses and permits required by federal, state, and local statutes, regulations, and ordinances. The following are the CONTRACTOR's applicable license numbers (add pages if needed):

Contractor's License No.

Expiration Date

_____	_____
_____	_____
_____	_____

Pursuant to the requirements of California Business and Professions Code Section 7028.15(e), a bid submitted to the OWNER by a contractor who is not licensed pursuant to Chapter 9 of Division 3 of the Business and Professions Code shall be considered nonresponsive and shall be rejected as provided for by law.

Signature of Bidder:

Dated: _____, 2012

NOTE: If Bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation and the corporate seal; if Bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership; if the Bidder is an individual, his signature shall be placed above; if the Bidder is a joint venture, the name of the joint venture shall be set forth above with the signature of an authorized representative of each venturer.

SECTION 004120 BID BOND

We, _____

as Principal, and _____
as Surety, jointly and severally, bind ourselves, our heirs, representatives, successors and assigns,
as set forth herein, to the

City of Reedley

(herein called Owner) for payment of the penal sum of _____

_____ Dollars (\$ _____), lawful money of the
United States. Principal has submitted the accompanying bid for the construction of

Well No. 14 at Sports Park

If the Principal is awarded the contract and enters into a written contract, in the form prescribed by the Owner, at the price designated by his bid, and files two bonds with the Owner, or substitute security in lieu thereof, one to guarantee payment for labor and materials and the other to guarantee faithful performance, in the time and manner specified by the Owner, and carries all insurance in type and amount which conforms to the Contract Documents and furnishes required certificates and endorsements thereof, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Forfeiture of this bond, or any deposit made in lieu thereof, shall not preclude the Owner from seeking all other remedies provided by law to cover losses sustained as a result of the Principal's failure to do any of the foregoing.

Principal and Surety agree that if the Owner is required to engage the services of an attorney in connection with the enforcement of this bond, each shall pay Owner's reasonable attorney's fees incurred with or without suit.

Executed on _____ DATE

PRINCIPAL

(Seal if Corporation) By _____
Title _____

(Attach Acknowledgment of Authorized Representative of Principal)

Any claims under this bond may be addressed to:

_____ (name and address of Surety)

_____ (name and address of Surety's agent for service of process in California, if different from above)

_____ (telephone number of Surety's agent in California)

(Attach Acknowledgment) _____ SURETY

By _____
(Attorney-in-Fact)

NOTICE:

No substitution or revision to this bond form will be accepted. Sureties must be authorized to do business in and have an agent for service of process in California. Certified copy of Power of Attorney must be attached.

END OF SECTION

SECTION 005200 AGREEMENT

THIS AGREEMENT, made and entered into by and between:

City of Reedley

hereinafter referred to as "Owner" and _____,
a corporation under the laws of the state of _____;
a partnership composed of _____
a joint venture composed of _____
an individual doing business as _____;
hereinafter referred to as "Contractor."

Owner and Contractor agree as follows:

- (1) SCOPE OF WORK: Contractor will furnish all materials and will perform all of the work for the construction of
Well No. 14 at Sports Park
in accordance with the plans and specifications and other contract documents therefor.
- (2) TIME FOR COMPLETION: The work shall be completed within the times set forth in Section 007300. Time is of the essence, and forfeiture due to delay will be assessed as provided for in the General Provisions.
- (3) CONTRACT SUM: Owner will pay Contractor in accordance with the prices shown in the Bid Form.
- (4) PAYMENTS: Monthly progress payments and the final payment will be made in accordance with the General Provisions as modified by the Special Provisions. The filing of the notice of completion by Owner shall be preceded by acceptance of the work made only by an action of the Governing Body of Owner in session.
- (5) COMPLIANCE WITH PUBLIC CONTRACTS LAW: Owner is a public agency in the State of California and is subject to the provisions of law relating to public contracts. It is agreed that all provisions of law applicable to public contracts are a part of this contract to the same extent as though set forth herein and will be complied with by Contractor.
- (6) CONTRACTOR'S REPRESENTATIONS: In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
 - (a) Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
 - (b) Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

- (c) Contractor is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, and performance of the Work.
 - (d) Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except underground facilities) which have been identified in the Supplementary Conditions as provided in the General Provisions.
 - (e) Contractor has obtained and carefully studied (or assumes responsibility for having done so) any additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods techniques, sequences, and procedures of construction to be employed by Contractor, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by Contractor, and safety precautions and programs incident thereof.
 - (f) Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract times, and in accordance with the other terms and conditions of the Contract Documents.
 - (g) Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 - (h) Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data within the Contract Documents.
 - (i) Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 - (j) The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- (7) ACCOUNTING RECORDS: Contractor shall check all materials, equipment, and labor entering into the Work and shall keep such full and detailed accounts as may be necessary for proper financial management under this Agreement, and the accounting methods shall be satisfactory to Owner. Owner shall be afforded access to all Contractor's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner.
- (8) CONTRACT DOCUMENTS: The complete contract includes all the Contract Documents set forth herein, to wit: Notice Inviting Sealed Proposals (Bids), Bid Form, Agreement,

Bid Bond, Performance Bond, Payment Bond, Contractor's Certificate Regarding Workers' Compensation, Certificate of Insurance (Workers' Compensation and Employers' Liability), Insurance Endorsement (Workers' Compensation and Employers' Liability), Certificate of Insurance (Liability), Insurance Endorsement (Liability), General Provisions, Special Provisions, Technical Specifications, Drawings, Plans, Appendices, and also addenda thereto and supplemental agreements.

- (9) SUCCESSOR AND ASSIGNS: Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.
- (10) PROMPT PAYMENT: As required by California law, the provisions of California Public Contract Code Section 20104.50, regarding prompt payment to contractors, are hereby incorporated in their entirety.
- (11) ATTORNEYS' FEES: Should either party to the contract bring an arbitration or mediation proceeding or other action to enforce any provision of the contract, including an action pursuant to Public Contract Code Section 20104.4, the prevailing party shall be entitled to recover his reasonable attorneys' fees and costs in connection therewith. The term "prevail" as used in this section shall include any action at law, in equity, or pursuant to arbitration in which either party has been successful.

This Agreement is executed by the Owner pursuant to an action of its Governing Body in session on _____, 2012, authorizing the same, and Contractor has caused this Agreement to be duly executed. The effective date will be the last date of execution by the parties.

Date: _____

By _____
(Authorized Representative of Owner)

Title: _____

Dated _____

(Contractor)

By _____
(Authorized Representative of Contractor)

(Seal if Corporation)

Title _____

(Attach Acknowledgment for Authorized Representative of Contractor)

APPROVED:

(Attorney for Owner)

CERTIFICATE OF CONTRACTOR

I, _____, certify that I am a/the _____ [designate sole proprietor, partner in partnership, or specify corporate office, e.g., secretary] in the entity named as Contractor in the foregoing contract.

I hereby expressly certify that the name of the entity to which I am associated is _____; that this entity is in good standing and has complied with all applicable laws and regulations, and that I have been expressly authorized by the proper parties in this entity to execute this contract on behalf of the above-named entity.

ATTEST: _____

Name _____
(Please Type)

Title _____

On this _____ day of _____, 2012, before me personally came _____ to me known, or proven to me on the basis of satisfactory evidence, who being duly sworn, did depose and say: that (he/she) is an authorized representative of the Contractor and acknowledged to me that (he/she) executed the within instrument on behalf of said Contractor, _____.

In witness whereof, I have signed and affixed my official seal on the date in this certificate first above written.

NOTARY PUBLIC

END OF SECTION

SECTION 006111 PERFORMANCE BOND

We, _____

as Principal, and _____
as Surety, jointly and severally, bind ourselves, our heirs, representatives, successors and assigns,
as set forth herein, to

City of Reedley

(herein called Owner) for payment of the penal sum of _____

_____ Dollars (\$ _____), lawful money of the
United States. Owner has awarded Principal a contract for the construction of

Well No. 14 at Sports Park

THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal shall in all things abide by and well and truly keep and perform the covenants, and agreements in the said contract, and any alteration thereof made as therein provided, on his part to be kept and performed at the time and in the manner therein specified, and shall faithfully fulfill the one-year guarantee of all materials and workmanship, and shall indemnify and save harmless the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees and agents, as therein stipulated, this obligation shall become null and void, otherwise, it shall be and remain in full force and effect.

Surety agrees that no change, extension of time, alteration, or addition to the terms of the contract, or the work to be performed thereunder, or the plans and specifications shall in any way affect its obligation on this bond, and it does hereby waive notice thereof.

Principal and Surety agree that if the Owner is required to engage the services of an attorney in connection with the enforcement of this bond, each shall pay Owner's reasonable attorney's fees incurred, with or without suit, in addition to the above sum.

Executed in four original counterparts on _____
DATE

PRINCIPAL

(Seal if Corporation) By _____

Title _____

(Attach Acknowledgment of Authorized Representative of Principal)

Any claims under this bond may be addressed to:

_____ (name and address of Surety)

_____ (name and address of Surety's agent for service of process in California, if different from above)
_____ (telephone number of Surety's agent in California)

(Attach Acknowledgment)

SURETY

By _____
(Attorney-in-Fact)

APPROVED:

(Attorney for Owner)

NOTICE:

Sureties must be authorized to do business in and have an agent for service of process in California. Certified copy of Power of Attorney must be attached.

END OF SECTION

SECTION 006112 PAYMENT BOND

We, _____

as Principal, and _____
as Surety, jointly and severally, bind ourselves, our heirs, representatives, successors and assigns,
as set forth herein, to the

City of Reedley

(herein called Owner) for payment of the penal sum of _____

_____ Dollars (\$ _____),
lawful money of the United States. Owner has awarded Principal a contract for the construction
of

Well No. 14 at Sports Park

If Principal or any of his subcontractors fails to pay any of the persons named in Section 3181 of the California Civil Code, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract or during the one-year guarantee period, 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 13020 of the Unemployment Insurance Code, with respect to such work and labor, then Surety will pay the same in an amount not exceeding the sum specified above, and also will pay, in case suit is brought upon this bond, such reasonable attorney's fees as shall be fixed by the court.

This bond shall inure to the benefit of any of the persons named in Section 3181 of the California Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Surety agrees that no change, extension of time, alteration, or addition to the terms of the contract, or the work to be performed thereunder, or the plans and specifications shall in any way affect its obligation on this bond, and it does hereby waive notice thereof.

Principal and Surety agree that should Owner become a party to any action on this bond that, each will also pay Owner's reasonable attorney's fees incurred therein in addition to the sum above set forth.

Executed in four original counterparts on _____ DATE

(Seal if Corporation) _____ PRINCIPAL

By _____

Title _____

(Attach Acknowledgment of Authorized Representative of Principal)

Any claims under this bond may be addressed to:

_____ (name and address of Surety)

_____ (name and address of Surety's agent for service of process in California, if different from above)

_____ (telephone number of Surety's agent in California)

(Attach Acknowledgment) _____ SURETY

APPROVED: _____ By _____ (Attorney-in-Fact)

(Attorney for Owner)

NOTICE:

Sureties must be authorized to do business in and have an agent for service of process in California. Certified copy of Power of Attorney must be attached.

END OF SECTION

SECTION 006220 CONTRACTOR'S CERTIFICATE REGARDING WORKERS' COMPENSATION

Description of Contract: City of Reedley
Well No. 14 at Sports Park

Labor Code Section 3700 provides (in part):

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

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

(b) By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees.”

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

Date: _____

(Contractor)

By _____

(Official Title)

(SEAL)

(Labor Code Section 1861 provides that the above certificate must be signed and filed by the Contractor with the Owner prior to performing any work under this contract.)

END OF SECTION

SECTION 006221 WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY
CERTIFICATE OF INSURANCE

Description of Contract: City of Reedley
Well No. 14 at Sports Park

Type of Insurance: Workers' Compensation and Employers' Liability
Insurance

THIS IS TO CERTIFY that the following policy has been issued by the below-stated company in conformance with the requirements of Article 3-4 of the General Provisions and is in force at this time, and is in a form approved by the Insurance Commissioner.

The Company will give at least ten (10) days' written notice to the Owner prior to cancellation of said policy for nonpayment of premium and thirty (30) days' written notice to the Owner prior to cancellation of said policy for any other reason.

<u>POLICY NUMBER</u>	<u>EXPIRATION DATE</u>	<u>LIMITS OF LIABILITY</u>
		Workers' Compensation: Statutory Limits Under the Laws of the State of California
		Employers' Liability:
		\$_____ Each Accident
		\$_____ Disease - Policy Limit
		\$_____ Disease - Each Employee

Named Insured (Contractor)

Insurance Company

Street Number

Street Number

City and State

City and State

By _____
(Company Representative)

(SEE NOTICE ON PAGE 2)

Insurance Company Agent for Service
of Process in California:

Name

Agency

Street Number

City and State

Telephone Number

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend, or alter the coverage afforded by the policy listed herein.

This is to certify that the policy has been issued to the named insured for the policy period indicated, notwithstanding any requirement, term, or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policy described herein is subject to all the terms, exclusions, and conditions of such policy.

NOTICE:

If the insurance called for is provided by more than one insurance company, a separate certificate shall be provided for each insurance company.

END OF SECTION

SECTION 006222 WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY
INSURANCE ENDORSEMENT

Description of Contract: City of Reedley
Well No. 14 at Sports Park

Type of Insurance: Workers' Compensation and Employers' Liability
Insurance

This endorsement forms a part of Policy No. _____.

ENDORSEMENT

It is agreed that with respect to such insurance as is afforded by the policy, the Company waives any right of subrogation it may acquire against the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, and employees by reason of any payment made on account of injury, including death resulting therefrom, sustained by any employee of the insured, arising out of the performance of the above-referenced contract.

The additional premium for this endorsement shall be _____%* of the California Workers' Compensation premium otherwise due on such remuneration.

This endorsement does not increase the Company's total limits of liability.

_____ Named Insured (Contractor)	_____ Insurance Company
_____ Street Number	_____ Street Number
_____ City and State	_____ City and State
	By _____ (Company Representative)

*Contractor's insurance company to fill in this percentage.

NOTICE:

If the insurance called for is provided by more than one policy, a separate endorsement shall be provided for each policy.

END OF SECTION

SECTION 006223 LIABILITY INSURANCE CERTIFICATE OF INSURANCE

Description of Contract: City of Reedley
Well No. 14 at Sports Park

Type of Insurance: Liability Insurance

THIS IS TO CERTIFY that the following policies have been issued by the below-stated company in conformance with the requirements of Article 3-4 of the General Provisions and are in force at this time:

Type of Insurance	Policy Number	Effective Date	Expiration Date	Limits	
General Liability				General Aggregate	\$
				Products—Comp/Ops Agg.	\$
				Personal & Adv. Injury	\$
				Each Occurrence	\$
				Fire Damage (Any one fire)	\$
				Med. Expense (Any one person)	\$
Automobile Liability				Combined Single Limit	\$
				Bodily Injury (Per person)	\$
				Bodily Injury (Per Accident)	\$
				Property Damage	\$
Excess Liability				Each Occurrence	\$
				Aggregate	\$

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend, or alter the coverage afforded by the policies listed herein.

This is to certify that the policy has been issued to the named insured for the policy period indicated, notwithstanding any requirement, term, or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions, and conditions of such policies.

The Company will give at least ten (10) days' written notice to the Owner prior to cancellation of said policy for nonpayment of premium and thirty (30) days' written notice to the Owner prior to cancellation of said policy for any other reason.

_____ Named Insured (Contractor)	_____ Insurance Company
_____ Street Number	_____ Street Number
_____ City and State	_____ City and State
	By _____ (Company Representative)

Insurance Company Agent for Service of Process in California:

Name

Agency

Street Number

City and State

Telephone Number

NOTICE:

If the insurance called for is provided by more than one insurance company, a separate certificate shall be provided for each insurance company.

Insurers must be authorized to do business and have an agent for service of process in California and have at least a B+ VIII rating in accordance with the most current Best's Rating Guide.

END OF SECTION

SECTION 006224 LIABILITY INSURANCE ENDORSEMENT

Description of Contract: City of Reedley
Well No. 14 at Sports Park

Type of Insurance: Liability Insurance

This endorsement forms a part of Policy No. _____.

ENDORSEMENT

The Owner, the Engineer/Architect, the Owner's Representative, the Hydrogeologist, and their consultants, and each of their directors, officers, and employees are included as additional insureds under said policy but only while acting in their capacity as such and only as respects operations of the named insured. This insurance shall not apply to an additional insured to the degree that the loss or damage is ultimately determined to be the result of the additional insured's negligence (including any connected with the preparation or approval of maps, drawings, opinions, reports, surveys, designs, or specifications). The insurance afforded to these additional insureds is primary insurance. If the additional insureds have other insurance which might be applicable to any loss, the amount of this insurance shall not be reduced or prorated by the existence of such other insurance.

This endorsement does not increase the Company's total limits of liability.

Named Insured (Contractor)	Insurance Company
Street Number	Street Number
City and State	City and State
	By _____ (Company Representative)

NOTICE:

If the insurance called for is provided by more than one policy, a separate endorsement shall be provided for each policy.

END OF SECTION

SECTION 007000 GENERAL PROVISIONS

TABLE OF CONTENTS

- SECTION 1 – DEFINITIONS, TERMS, AND ABBREVIATIONS1
 - 1-1 DEFINITIONS1
 - 1-2 TERMS2
 - 1-3 ABBREVIATIONS2

- SECTION 2 – PROPOSAL REQUIREMENTS AND CONDITIONS4
 - 2-1 CONTRACT DOCUMENTS4
 - 2-2 LICENSE4
 - 2-3 PROPOSALS4
 - 2-4 WITHDRAWAL OF BID5
 - 2-5 BIDDERS INTERESTED IN MORE THAN ONE BID5
 - 2-6 INTERPRETATION OF PLANS AND OTHER CONTRACT DOCUMENTS5
 - 2-7 ADDENDA5
 - 2-8 EXISTING CONDITIONS AND EXAMINATION OF CONTRACT DOCUMENTS5

- SECTION 3 - AWARD AND EXECUTION OF CONTRACT7
 - 3-1 AWARD OF CONTRACT OR REJECTION OF BIDS7
 - 3-2 EXECUTION OF CONTRACT7
 - 3-3 BONDS7
 - 3-4 INSURANCE REQUIREMENTS8
 - 3-5 FAILURE TO EXECUTE CONTRACT8

- SECTION 4 - SCOPE OF WORK9
 - 4-1 WORK TO BE DONE9
 - 4-2 CHANGES IN THE WORK9
 - 4-3 OBSTRUCTIONS9
 - 4-4 UTILITIES9
 - 4-5 PLANS AND SPECIFICATIONS FURNISHED BY THE OWNER11
 - 4-6 FINAL CLEANUP11

- SECTION 5 - QUALITY OF THE WORK12
 - 5-1 AUTHORITY OF THE OWNER'S REPRESENTATIVE12
 - 5-2 SUPPLEMENTAL DRAWINGS12
 - 5-3 CONFORMITY WITH CONTRACT DOCUMENTS AND ALLOWABLE DEVIATIONS12
 - 5-4 MANUFACTURER'S INSTRUCTIONS12
 - 5-5 COORDINATION OF PLANS AND SPECIFICATIONS12
 - 5-6 INTERPRETATION OF PLANS AND SPECIFICATIONS13
 - 5-7 ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR13
 - 5-8 SUPERVISION AND SUPERINTENDENCE14
 - 5-9 SHOP DRAWINGS14
 - 5-10 QUALITY AND SAFETY OF MATERIALS AND EQUIPMENT15
 - 5-11 STANDARDS, CODES, SAMPLES, AND TESTS16
 - 5-12 OBSERVATION OF WORK BY OWNER'S REPRESENTATIVE16

5-13	REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK.....	17
5-14	ONE-YEAR GUARANTEE.....	17
SECTION 6 - PROSECUTION AND PROGRESS.....		19
6-1	SUBCONTRACTING.....	19
6-2	ASSIGNMENT.....	19
6-3	CONTRACTOR'S CONSTRUCTION SCHEDULE AND COST BREAKDOWN	19
6-4	TIME FOR COMPLETION AND FORFEITURE DUE TO DELAY	19
6-5	EXTENSION OF TIME	21
6-6	USE OF COMPLETED PORTIONS	21
SECTION 7 - LEGAL RELATIONS AND RESPONSIBILITIES		23
7-1	OBSERVING LAWS AND ORDINANCES.....	23
7-2	PERMITS AND LICENSES	23
7-3	INVENTIONS, PATENTS, AND COPYRIGHTS	23
7-4	PUBLIC CONVENIENCE AND SAFETY	23
7-5	RESPONSIBILITY FOR LOSS, DAMAGE, OR INJURIES.....	24
7-6	CONTRACTOR'S RESPONSIBILITY FOR THE WORK.....	24
7-7	PRESERVATION OF PROPERTY	25
7-8	REGIONAL NOTIFICATION CENTER CONTACT	25
7-9	EXCAVATION	26
7-10	SAFETY	27
7-11	PERSONAL LIABILITY	28
7-12	INDEMNITY.....	28
7-13	HOURS OF LABOR.....	29
7-14	PREVAILING WAGE	29
7-15	TRAVEL AND SUBSISTENCE PAYMENTS	30
7-16	APPRENTICES	30
7-17	WARRANTY OF TITLE	30
7-18	PROPERTY RIGHTS IN MATERIALS	31
7-19	MUTUAL RESPONSIBILITY OF CONTRACTORS	31
7-20	TERMINATION FOR BREACH.....	32
7-21	NOTICE AND SERVICE THEREOF	33
7-22	PARTIAL INVALIDITY	33
7-23	ATTORNEYS' FEES.....	34
7-24	LANDS AND RIGHTS-OF-WAY.....	34
7-25	WAIVER OF RIGHTS	34
7-26	TAXES	34
7-27	ASSIGNMENT OF ANTI-TRUST ACTIONS.....	34
7-28	PAYROLL RECORDS.....	35
7-29	RESOLUTION OF CLAIMS	36
SECTION 8 - CONTRACTOR'S INSURANCE.....		39
8-1	GENERAL.....	39
8-2	WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY INSURANCE	39
8-3	GENERAL AND AUTOMOBILE LIABILITY INSURANCE	39
8-4	BUILDERS' RISK "ALL RISK" OR INSTALLATION FLOATER INSURANCE	40
8-5	EARTHQUAKE AND FLOOD INSURANCE	40
8-6	CONTRACTOR'S LIABILITY NOT LIMITED BY INSURANCE.....	40

SECTION 9 - ESTIMATES AND PAYMENTS.....41

9-1 PAYMENT FOR CHANGES IN THE WORK41

9-2 PROGRESS PAYMENTS42

9-3 FINAL ESTIMATE AND PAYMENT.....42

9-4 OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE
APPLICATION THEREOF43

9-5 WITHHELD CONTRACT FUNDS.....43

9-6 REQUIRED RELEASES44

SECTION 1 – DEFINITIONS, TERMS, AND ABBREVIATIONS

1-1 DEFINITIONS

Whenever the following terms occur in the Contract Documents, the meaning shall be interpreted as follows:

ACCEPTANCE, FINAL ACCEPTANCE - The formal action by the Owner accepting the work as being complete.

ACCEPTED BID - The bid (proposal) accepted by the Owner.

BIDDER - Any individual, partnership, corporation, joint venture, or other combination thereof submitting a proposal for the work contemplated, acting directly or through an authorized representative.

CONTRACT - The written agreement executed between the Owner and the Contractor covering the performance of the work.

CONTRACTOR - The individual, partnership, corporation, joint venture, or other combination thereof who has entered into the contract with the Owner for the performance of the work. The term "Contractor" means the Contractor or his authorized representative.

CONTRACT DOCUMENTS - The contract documents set forth in the Agreement; also any and all supplemental agreements amending or extending the work contemplated. Supplemental agreements are written agreements covering alterations, amendments, or extensions to the contract and include contract change orders.

DAYS - Unless otherwise specified, days shall mean calendar days.

ENGINEER/ARCHITECT - AECOM Technical Services, Inc. and its subsidiaries. The term "Engineer/Architect" means the Engineer/Architect or his authorized representative.

OWNER - The public entity identified as such in the Agreement. The term "Owner" means the Owner or his authorized representative.

OWNER'S REPRESENTATIVE - The person or firm authorized in writing by the Owner to represent it during the performance of the work by the Contractor. The Owner's Representative means the Owner's Representative or his assistants.

PLANS, DRAWINGS - The plans (drawings), or reproductions thereof, which show the location, character, dimensions, and details of the work to be done.

SPECIAL PROVISIONS - Additions, deletions, and changes to the General Provisions and Standard Specifications.

SPECIFICATIONS - The directions, provisions, and requirements contained in the General Provisions and Standard Specifications as supplemented by the Special Provisions.

STANDARD SPECIFICATIONS - The contract documents identified or referenced as such.

SUBCONTRACTOR - An individual, partnership, corporation, joint venture, or other combination thereof who has a contract with the Contractor to perform any of the work at the site. Subcontractor also means an individual, partnership, corporation, joint venture, or other combination thereof who has a contract with another subcontractor to perform any of the work at the site.

STANDARD DRAWINGS, STANDARD PLANS - That portion of the plans identified or referenced as such.

UTILITY - Public or private fixed works for the transportation of fluids, gases, power, signals, or communications.

WORK - Any and all obligations, duties, and responsibilities necessary to complete the construction assigned to, or undertaken by, the Contractor pursuant to the Contract Documents including all labor necessary to produce such construction and all materials, equipment, and supplies incorporated or to be incorporated in the construction. Also, the completed construction or parts thereof required to be provided under the Contract Documents.

1-2 TERMS

Wherever the terms "required," "permitted," "ordered," "designated," "directed," "prescribed," or terms of like import are used, it shall be understood that the requirements, permission, order, designation, prescription, or direction of the Owner's Representative is intended. Similarly, the terms "acceptable," "satisfactory," "or equal," or terms of like import shall mean acceptable to or satisfactory to the Owner's Representative, unless otherwise expressly stated. The word "provide" shall be understood to mean furnish and install. Whenever the context so requires, the singular shall include the plural, and the masculine and neuter genders shall each include the other.

1-3 ABBREVIATIONS

Wherever the following abbreviations are used, they shall have the meanings indicated:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AI	The Asphalt Institute
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers

AISC	American Institute of Steel Construction
AISI	American Iron & Steel Institute
ANSI	American National Standards Institute (formerly USASI, USAS, ASA)
API	American Petroleum Institute
APWA	American Public Works Association
AREA	American Railway Engineering Association
ASA	American Standards Association (Now ANSI)
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
CRSI	Concrete Reinforcing Steel Institute
IEEE	Institute of Electrical and Electronics Engineers
NBFU	National Board of Fire Underwriters
NEMA	National Electrical Manufacturers Association
PCA	Portland Cement Association
State Specifications	California Standard Specifications, State of California, Department of Transportation, Division of Highways
SSPC	Steel Structures Painting Council
UBC	Uniform Building Code, Pacific Coast Building Officials Conference of the International Conference of Building Officials
U/L or UL	Underwriters' Laboratories, Inc.
USASI or USAS	United States of American Standards Institute (Now ANSI)

SECTION 2 – PROPOSAL REQUIREMENTS AND CONDITIONS

2-1 CONTRACT DOCUMENTS

The contract documents are set forth in the agreement form and the definition of "Contract Documents" in the section on DEFINITIONS, TERMS, AND ABBREVIATIONS.

2-2 LICENSE

No bid will be accepted from a bidder who is not licensed to conduct business in the state of California and licensed to perform the class of work defined by the Contract Documents.

2-3 PROPOSALS

Bids shall be made upon the bid form furnished by the Owner and a part of the Contract Documents. All bids shall be properly executed and with all items filled in; the signatures of all persons signing shall be in longhand. Erasures, interlineations, or other corrections shall be authenticated by affixing in the margin immediately opposite the correction the initials of a person signing the bid. If the unit price and the total amount named by a bidder for any item are not in agreement, the unit price alone shall be considered as representing the bidder's intention, and the totals shall be corrected to conform thereto.

Bids shall not contain any recapitulation of the work to be done. Alternative proposals will not be considered, except as called for. No oral, telegraphic, or telephonic proposals or modifications will be considered.

Bids shall be accompanied by a "Proposal Guarantee" in the form of a cashier's or a certified check, or bidder's bond or substitute security, in an amount not less than 10 percent of the amount of bid, made payable to or for the benefit of the Owner. Said check or bond or substitute shall be given as a guarantee that the bidder will enter into a contract and furnish the required bonds or substitutes and insurance certificates and endorsements if awarded the contract, and in case of refusal or failure to enter into said contract and furnish the required bonds or substitutes and insurance certificates and endorsements within 15 calendar days after notice of award by the Owner in writing, the check and the money represented by said check shall be forfeited to the Owner, or in the event that a bond or other security is deposited, said security shall be forfeited. Forfeiture does not preclude the Owner from seeking all other remedies provided by law to recover losses sustained as a result of the Contractor's failure to enter into the contract or to furnish the required bonds or substitutes, or insurance certificates and endorsements.

Bids shall be sealed in an envelope marked and addressed as set forth in the Special Provisions. Bids shall be delivered to the addressee at the location designated in the Notice Inviting Sealed Proposals on or before the day and hour set for the opening of bids in the Notice Inviting Sealed Proposals, and shall bear the name of the bidder. A bid will not be accepted after the date and time designated in the Notice Inviting Sealed Proposals. It is the sole responsibility of the bidder to see that his bid is delivered and received in proper time. Any bid received after said designated date and time shall be returned to the bidder unopened.

2-4 WITHDRAWAL OF BID

A bidder may withdraw his bid by a signed written request any time prior to the date and time for receiving bids designated in the Notice Inviting Sealed Proposals.

The withdrawal of a bid does not prejudice the right of a bidder to file a new bid so long as the new bid is delivered as set forth in the article on PROPOSALS prior to the closing time specified for all bids.

2-5 BIDDERS INTERESTED IN MORE THAN ONE BID

No person, partnership, or corporation shall be allowed to make or file, or be interested in more than one bid for the work, unless alternative bids are called for. A person, partnership, or corporation submitting a subproposal to a bidder, or who has quoted prices on material to a bidder, is not thereby disqualified from submitting a subproposal or quoting prices to other bidders.

2-6 INTERPRETATION OF PLANS AND OTHER CONTRACT DOCUMENTS

If any person or entity contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the plans, specifications, or other contract documents, or finds discrepancies in, or omissions from the plans and specifications or other contract documents, he may submit to the Engineer/Architect a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. An interpretation or correction of the Contract Documents will be made only by Addendum duly issued by the Engineer/Architect. A copy of such Addendum will be mailed or delivered to each person or entity that has received a set of such documents. The Owner and the Engineer/Architect will not be responsible for any other explanation or interpretation of the documents.

2-7 ADDENDA

Addenda issued before the time in which to submit bids expires shall be included in the bid and shall be made a part of the contract.

2-8 EXISTING CONDITIONS AND EXAMINATION OF CONTRACT DOCUMENTS

The bidder represents that he has carefully examined the Contract Documents and the site where the work is to be performed and that he has familiarized himself with all local conditions and federal, state and local laws, ordinances, rules, and regulations that may affect in any manner the performance of the work. The bidder further represents that he has studied all surveys and investigation reports about subsurface and latent physical conditions pertaining to the jobsite, that he has performed such additional surveys and investigations as he deems necessary to complete the work at his bid price, and that he has correlated the results of all such data with the requirements of the Contract Documents. The submittal of a bid shall be conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be encountered, including locality, uncertainty of weather and all other contingencies, and as to the character, quality, quantities, and scope of the work.

The plans and specifications for the work show subsurface conditions or otherwise hidden conditions as they are supposed or believed by the Engineer/Architect to exist; but it is not intended or to be inferred that the conditions as shown thereon constitute a representation that such conditions are actually existent. Except as otherwise specifically provided in the Contract Documents, the Owner, the Engineer/Architect, and their consultants shall not be liable for any loss sustained by the Contractor as a result of any variance of such conditions as shown on the plans and the actual conditions revealed during the progress of the work or otherwise.

Where the Owner or the Engineer/Architect or their consultants have made investigations of subsurface conditions in areas where the work is to be performed, such investigations were made only for the purpose of study and design. The conditions indicated by such investigations apply only at the specific location of each boring or excavation at the time the borings or excavations were made. Where such investigations have been made, bidders or Contractors may inspect the records as to such investigations subject to and upon the conditions hereinafter set forth. The inspection of the records shall be made at the office of the Engineer/Architect.

The records of such investigations are not a part of the contract and are shown solely for the convenience of the bidder or Contractor. It is expressly understood and agreed that the Owner, the Engineer/Architect, and their consultants assume no responsibility whatsoever in respect to the sufficiency or accuracy of the investigations; the records thereof; or of the interpretations set forth therein or made by the Owner's consultants, the Engineer/Architect or his consultants in the use thereof by the Engineer/Architect, and there is no warranty or guarantee, either express or implied, that the conditions indicated by such investigations or records thereof are representative of those existing throughout such areas, or any part thereof, or that unlooked-for developments may not occur, or that materials other than, or in proportions, densities, or other characteristics different from, those indicated may not be encountered.

When a log of test borings showing a record of the data obtained by the investigation of subsurface conditions by the Owner, the Engineer/Architect, or their consultants is included with the plans or other documents, it is expressly understood and agreed that said log of test borings does not constitute a part of the contract, represents only the opinion of the Owner or the Engineer/Architect or their consultants as to the character of the materials encountered by them in the test borings, is included in the plans or other documents only for the convenience of bidders, and its use is subject to all of the conditions and limitations set forth in this article.

The availability or use of information described in this article is not to be construed in any way as a waiver of the provisions of the first paragraph in this article and a bidder or Contractor is cautioned to make such independent investigations and examination as he deems necessary to satisfy himself as to conditions to be encountered in the performance of the work.

No information derived from such inspection of records of investigations or compilation thereof made by the Owner, the Engineer/Architect, or their consultants will in any way relieve the bidder or Contractor from any risk or from properly fulfilling the terms of the contract nor entitle the Contractor to any additional compensation.

SECTION 3 - AWARD AND EXECUTION OF CONTRACT

3-1 AWARD OF CONTRACT OR REJECTION OF BIDS

The award of the contract, if it be awarded, will be to the lowest responsible responsive bidder complying with the instructions contained in the Contract Documents. The Owner, however, reserves the right to select the schedules under which the bids are to be compared, to reject any and all bids, and to waive any irregularity in bids received. If, in the judgment of the Owner, a bid is unbalanced or if the bidder is not responsible, it shall be considered sufficient grounds for rejection of the entire bid.

The Owner shall have the period of time set forth in the Special Provisions after the opening of bids within which to accept or reject the bids. No bidder may withdraw his bid during said period. The Owner will return the proposal guarantees, except any guarantees which have been forfeited, and except bidders' bonds, to the respective bidders whose proposals they accompanied within ten days after the execution of the contract by the successful bidder or rejection of all bids or upon receipt of a written request therefor received after said period of time set forth in the Special Provisions.

Before award of the contract, any bidder shall furnish upon request a recent statement of his financial condition and previous construction experience or such other evidence of his qualifications as may be requested by the Owner. If a bidder fails to furnish in a timely manner the information requested, it shall be considered sufficient grounds for rejection of such bidder's entire bid.

3-2 EXECUTION OF CONTRACT

The form of agreement, bonds, and other documents which the successful bidder, as Contractor, will be required to execute are included as a part of the Contract Documents.

The contract shall be signed by the successful bidder and returned to the Owner, together with the bonds and certificates of insurance and endorsements, within 15 calendar days or such additional time as may be allowed by the Owner from the date of the mailing of notice from the Owner to the bidder or from the date of personal delivery of notice from the Owner to the bidder that the agreement is ready for signature. The agreement, bonds, certificates of insurance and endorsements, and other documents to be executed by the Contractor shall be executed in original-quadruplicate, one each of which shall be filed with the Owner and one each with the Attorney for the Owner and the Engineer/Architect for the Owner.

3-3 BONDS

The successful bidder, simultaneously with the execution of the Agreement, shall furnish a payment bond and a performance bond each in an amount equal to 100 percent of the contract amount, or equivalent cash or security in lieu of bonds pursuant to Section 995.710 of the Code of Civil Procedure. Bonds shall be furnished by surety companies satisfactory to the Owner on the forms furnished as part of the Contract Documents or ACORD forms acceptable to the Owner. Surety companies, to be acceptable to the Owner, must be authorized to do business and have an agent for service of process in California.

3-4 INSURANCE REQUIREMENTS

The successful bidder will be required to furnish the Owner proof of full compliance with all insurance requirements as specified in the section on CONTRACTOR'S INSURANCE. The forms of certificate of insurance and endorsement which the successful bidder, as Contractor, will be required to furnish are included as a part of the Contract Documents.

3-5 FAILURE TO EXECUTE CONTRACT

Failure by a bidder to whom the contract is awarded to execute the contract or to furnish the required bonds or insurance certificates and endorsements shall be just cause for the annulment of the award and the forfeiture of the proposal guarantee.

A bidder who is awarded the contract and fails to execute the contract or furnish the required bonds or insurance certificates and endorsements shall be liable to the Owner for all damages resulting therefrom including reasonable attorneys' fees. The proposal guarantee forfeited shall not be a limitation thereon.

SECTION 4 - SCOPE OF WORK

4-1 WORK TO BE DONE

The work to be done consists of furnishing all transportation, labor, materials, tools, equipment, services, permits, utilities and all other items which are necessary or appurtenant to construct and complete the entire project and construct the project designated in the Contract Documents, and to leave the grounds in a neat and presentable condition.

4-2 CHANGES IN THE WORK

The Owner may require changes in, additions to, or deductions from the work, including complete termination thereof. Adjustment, if any, in the amounts to be paid to the Contractor by reason of any such change, addition, or deduction shall be determined as set forth in the section on ESTIMATES AND PAYMENTS.

The Owner's Representative may order minor changes in the work not involving an increase or decrease in the contract amount, not involving a change in the time for completion, and not inconsistent with the purposes for which the work is being constructed. If the Contractor believes that any order for minor changes in the work involves changes in the contract amount or time for completion, he shall not proceed with the minor changes so ordered and shall within seven days of the receipt of such order notify the Owner's Representative in writing of his estimate of the changes in the contract amount and time for completion he believes to be appropriate.

No payment for changes in the work will be made, and no changes in the time for completion by reason of changes in the work will be made, unless the changes are covered by a written change order approved by the Owner in advance of the Contractor's proceeding with the changed work.

4-3 OBSTRUCTIONS

The Contractor shall remove and dispose of all structures, debris, or other obstructions of any character necessary to accommodate the work. Where such obstructions consist of improvements not required by law to be removed by the owner thereof, all such improvements shall be removed, maintained, and permanently replaced by the Contractor at his expense except as otherwise specifically provided in the Contract Documents.

4-4 UTILITIES

The Engineer/Architect has endeavored to determine the existence of utilities at the site of the work from the records of the owners of known utilities in the vicinity of the work. The positions of these utilities as derived from such records are shown on the plans. The service connections to these utilities may not be shown on the plans.

The Contractor shall make his own investigations, including exploratory excavations, to determine the locations and type of existing service laterals or appurtenances when their presence can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of the work. If the Contractor discovers utility

facilities not identified in the plans or specifications or in a position different from that shown in the plans and specifications, he shall immediately notify in writing the Owner's Representative and the owner of the utility facility.

The Owner shall have the responsibility for the timely removal, relocation, protection, and temporary maintenance of existing main or trunkline utility facilities which are not indicated in the plans and specifications with reasonable accuracy.

In case it should be necessary to remove, relocate, protect, or temporarily maintain a utility because of interference with the work, the work on such utility shall be performed and paid for as follows:

When it is necessary to remove, relocate, protect, or temporarily maintain an existing main or trunkline utility facility not indicated in the plans and specifications with reasonable accuracy, the Owner will compensate the Contractor for the costs of locating, for the costs of repairing damage not due to the failure of the Contractor to exercise reasonable care, for the costs of removing, relocating, protecting, or temporarily maintaining such utility facilities, and for the costs for equipment on the site necessarily idled during such work. These costs, the work to be done by the Contractor in locating, removing, relocating, protecting, or temporarily maintaining such utility facilities shall be covered by a written change order conforming to the provisions of the article on CHANGES IN THE WORK and the article on PAYMENT FOR CHANGES IN THE WORK. The Owner may make changes in the alignment and grade of the work to obviate the necessity to remove, relocate, protect, or temporarily maintain such utility facilities or to reduce the costs of the work involved in removing, relocating, protecting, or temporarily maintaining such utility facilities. Changes in alignment and grade will be ordered in accordance with the article on CHANGES IN THE WORK.

When it is necessary to remove, relocate, protect, or temporarily maintain a utility (other than [1] existing main or trunkline utility facilities not indicated in the plans and specifications with reasonable accuracy, or [2] existing service laterals or appurtenances when their presence cannot be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of the work) the cost of which is not required to be borne by the owner thereof, the Contractor shall bear all expenses incidental to the work on the utility or damage thereto. The work on the utility shall be done in a manner satisfactory to the owner thereof; it being understood that the owner of the utility has the option of doing such work with his own forces, or permitting the work to be done by the Contractor. No representations are made that the obligations to remove, relocate, protect, or temporarily maintain any utility and to pay the cost thereof is or is not required to be borne by the owner of such utility, and it shall be the responsibility of the Contractor to investigate to find out whether or not said cost is required to be borne by the owner of the utility.

The right is reserved to governmental agencies and to owners of utilities to enter at any time upon any street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the work and for the purpose of maintaining and making repairs to their property.

4-5 PLANS AND SPECIFICATIONS FURNISHED BY THE OWNER

The Owner will furnish to the Contractor free of charge all copies of plans and specifications reasonably necessary for the execution of the work. The Contractor shall keep one set of plans and specifications in good order available to the Owner's Representative at the site of the work.

4-6 FINAL CLEANUP

Upon completion and before making application for acceptance of the work, the Contractor shall clean all rights-of-way, streets, borrow pits, and all other grounds occupied by him in connection with the work of all rubbish, excess materials, temporary structures, and equipment, and all parts of the work and grounds occupied by him shall be left in a neat and presentable condition.

SECTION 5 - QUALITY OF THE WORK

5-1 AUTHORITY OF THE OWNER'S REPRESENTATIVE

The Owner's Representative shall decide any and all questions which may arise as to the interpretation of the plans and specifications and shall have authority to disapprove or reject materials and equipment furnished and work performed which, in his opinion, is not in accordance with the Contract Documents.

5-2 SUPPLEMENTAL DRAWINGS

The plans may be supplemented by such drawings as are necessary to better define the work. All such drawings delivered to the Contractor by the Owner's Representative shall be deemed written instructions to the Contractor. If the Contractor believes that any supplemental drawings call for changes in the work for which the contract amount or time for completion should be changed, he shall not proceed with the changes in the work so called for and shall within seven days of the receipt of the supplemental drawings notify the Owner's Representative in writing of his estimate of the changes in the contract amount and time for completion he believes to be appropriate.

No payment for changes in the work will be made and no change in the time for completion by reason of changes in the work will be made, unless the changes are covered by a written change order approved by the Owner in advance of the Contractor's proceeding with the changed work.

5-3 CONFORMITY WITH CONTRACT DOCUMENTS AND ALLOWABLE DEVIATIONS

The work shall conform to the lines, grades, dimensions, tolerances, and material and equipment requirements shown on the plans or set forth in the specifications. Although measurement, sampling, and testing may be considered evidence as to such conformity, the Owner's Representative shall be the sole judge as to whether the work or materials deviate from the plans and specifications, and his decision as to any allowable deviations therefrom shall be final.

If specific lines, grades, and dimensions are not shown on plans, those furnished by the Owner's Representative shall govern.

5-4 MANUFACTURER'S INSTRUCTIONS

All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier, or distributor, except as otherwise specifically provided in the Contract Documents.

5-5 COORDINATION OF PLANS AND SPECIFICATIONS

The specifications, plans, and other contract documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for the complete work. In the event of an apparent difference between plans and specifications, reference shall be made to the Owner's Representative whose decision thereon shall be final.

Special Provisions shall govern over General Provisions and Standard Specifications.

5-6 INTERPRETATION OF PLANS AND SPECIFICATIONS

Figured dimensions on drawings shall govern, but work not dimensioned shall be as directed. Work not particularly shown or specified shall be the same as similar parts that are shown or specified. Large-scale details shall take precedence over smaller scale drawings as to shape and details of construction. Specifications shall govern as to materials and workmanship. Drawings and specifications are intended to be fully complementary and to agree. The specification calling for the higher quality material or workmanship shall prevail. Materials or work described in words which so applied have a well-known technical or trade meaning shall be deemed to refer to such recognized standards. In the event of any discrepancy between any drawings and the figures thereon, the figures shall be taken as correct. In the event of any doubt or question arising respecting the true meaning of the plans or specifications, reference shall be made to the Owner's Representative whose decision thereon shall be final.

5-7 ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR

It is the duty of the Contractor to promptly notify the Owner's Representative in writing of any design, materials, or specified method that the Contractor believes may prove defective or insufficient. If the Contractor believes that a defect or insufficiency exists in design, materials, or specified method and fails to promptly notify the Owner's Representative in writing of this belief, the Contractor waives any right to assert that defect or insufficiency in design, materials, or specified method at any later date in any legal or equitable proceeding against Owner, or in any subsequent arbitration or settlement conference between the Owner and the Contractor. The Owner's Representative, on receipt of any such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work done by the Contractor after he comes to the belief that a defect or insufficiency exists in design, materials, or specified method which is directly or indirectly affected by such alleged defect or insufficiency in design, materials, or specified method will be at his own risk and he shall bear all cost arising therefrom.

If the Contractor, either before commencing work or in the course of the work, finds any discrepancy between the specifications and the plans or between either of them and the physical conditions at the site of the work or finds any error or omission in any of the plans or in any survey, he shall promptly notify the Owner's Representative of such discrepancy, error, or omission. If the Contractor observes that any plans or specifications are at variance with any applicable law, ordinance, regulation, order, or decree, he shall promptly notify the Owner's Representative in writing of such conflict. The Owner's Representative, on receipt of any such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work done by the Contractor after his discovery of such error, discrepancy, or conflict which is directly or indirectly affected by such error, discrepancy, or conflict will be at his own risk and he shall bear all cost arising therefrom.

5-8 SUPERVISION AND SUPERINTENDENCE

The Contractor shall supervise and direct the work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the work in accordance with the Contract Documents. The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but the Contractor shall not be solely responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence, or procedure of construction which is indicated in and required by the Contract Documents except as otherwise provided in the article on ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR.

The Contractor shall be responsible to see that the completed work complies with the Contract Documents.

The Contractor shall designate and keep on the work at all times during its progress a competent superintendent who shall not be replaced without written notice to the Owner's Representative. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor. During periods when the work is suspended, the Contractor shall make appropriate arrangements for any emergency work which may be required.

Whenever the superintendent is not present on any particular part of the work where the Owner's Representative may desire to inform the Contractor relative to interpretation of the plans and specifications or to disapproval or rejection of materials or work performed, the Owner's Representative may so inform the foreman or other worker in charge of the particular part of the work in reference to which the information is given. Information so given shall be as binding as if given to the superintendent.

5-9 SHOP DRAWINGS

Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data which are prepared by the Contractor or any subcontractor, manufacturer, supplier, or distributor and which illustrate some portion of the work.

The Contractor shall review, mark with his approval, and submit for review by the Owner's Representative Shop Drawings as called for in the Special Provisions and Standard Specifications or requested by the Owner's Representative. Drawings shall be submitted in sextuplet to the Owner's Representative and be accompanied by a letter of transmittal listing the drawings submitted. Drawings shall show the name of the project, the name of the Contractor, and, if any, the names of suppliers, manufacturers, and subcontractors. If the Shop Drawings incorporate any documents prepared by the Engineer/Architect, such Shop Drawings shall not reproduce the registration stamp or company logo of the Engineer/Architect. Shop Drawings shall be submitted with promptness and in orderly sequence so as to cause no delay in prosecution of the work.

Shop Drawings shall be complete in all respects. If the Shop Drawings show any deviations from the requirements of the plans and specifications because of standard shop practices or other reasons, the deviations and the reasons therefor shall be set forth in the letter of transmittal.

By submitting Shop Drawings, the Contractor represents that material, equipment, and other work shown thereon conforms to the plans and specifications, except for any deviations set forth in the letter of transmittal.

Within 30 calendar days after receipt of said drawings, the Owner's Representative will return two of the copies of the drawings to the Contractor with any comments noted thereon. If so noted by the Owner's Representative, the Contractor shall correct the drawings and resubmit them in the same manner as specified for the original submittal. The Contractor in the letter of transmittal accompanying resubmitted Shop Drawings shall direct specific attention to revisions other than the corrections requested by the Owner's Representative on previous submittals.

The review by the Owner's Representative is only of general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction of the work; the accuracy and completeness of the Shop Drawings; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

No portion of the work requiring a Shop Drawing submittal shall be commenced until the submittal has been reviewed by the Owner's Representative and returned to the Contractor with a notation indicating that resubmittal is not required.

If the Contractor believes that any Shop Drawing or communication relative thereto calls for changes in the work for which the contract amount or time for completion should be changed, he shall not proceed with the changes in the work so called for and shall promptly notify the Owner's Representative in writing of his estimate of the changes in the contract amount and time for completion he believes to be appropriate. No payment for changes in the work will be made and no change in the time for completion by reason of changes in the work will be made, unless the changes are covered by a written change order approved by the Owner in advance of the Contractor's proceeding with the changed work.

5-10 QUALITY AND SAFETY OF MATERIALS AND EQUIPMENT

All equipment, materials, and supplies to be incorporated in the work shall be new, unless otherwise specified. All equipment, materials, and supplies shall be produced in a good and workmanlike manner. When the quality of a material, process, or article is not specifically set forth in the plans and specifications, the best available quality of the material, process, or article shall be provided.

Whenever any material, process, or article is indicated or specified by grade, patent or proprietary name, or by name of manufacturer, such specification shall be deemed to be used for the purpose of facilitating description of the materials, process, or articles desired and shall be deemed to be followed by the words "or (approved) equal," and the Contractor may offer any material, process, or article which shall be substantially equal or better in every respect to that so

indicated or specified; provided, however, that if the material, process, or article offered by the Contractor is not, in the opinion of the Owner's Representative, equal or better in every respect to that specified, then the Contractor must furnish the material, process, or article specified or one that in the opinion of the Owner's Representative is the substantial equal or better in every respect. In the event that the Contractor furnishes material, process, or article more expensive than specified, the difference in cost of such material, process, or article so furnished shall be borne by the Contractor.

In accordance with Section 3400 of the Public Contract Code, the Contractor shall submit data substantiating requests for substitution of "equal" items within 35 days after award of the contract. This 35-day period of time is included in the number of days allowed for the completion of the work.

All materials, equipment, and supplies provided shall, without additional charge to Owner, fully conform with all applicable state and federal safety laws, rules, regulations, and orders, and it shall be Contractor's responsibility to provide only such materials, equipment, and supplies notwithstanding any omission in the Contract Documents therefor or that a particular material, equipment, or supply was specified.

5-11 STANDARDS, CODES, SAMPLES, AND TESTS

Whenever reference is made to a standard, code, specification, or test and the designation representing the date of adoption or latest revision thereof is omitted, it shall mean the latest revision of such standard, code, specification, or test in effect on the day the Notice Inviting Sealed Proposals (Bids) is dated.

Tests shall be made in accordance with commonly recognized procedures of technical organizations and such special procedures as may be prescribed elsewhere in the plans and specifications. The Contractor shall furnish without charge such samples for testing as may be required by the Owner's Representative.

5-12 OBSERVATION OF WORK BY OWNER'S REPRESENTATIVE

The Owner's Representative shall at all times have access to the work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge respecting the progress, workmanship, and character of materials and equipment used and employed in the work.

Whenever the Contractor varies the normal period during which work or any portion of it is carried on each day, he shall give timely notice to the Owner's Representative so that the Owner's Representative may, if he wishes, be present to observe the work in progress. If the Contractor fails to give such timely notice, any work done in the absence of the Owner's Representative will be subject to rejection.

The Contractor shall give timely notice to the Owner's Representative in advance of backfilling or otherwise covering any part of the work so that the Owner's Representative may, if he wishes, observe such part of the work before it is concealed.

The observation, if any, by the Owner's Representative of the work shall not relieve the Contractor of any of his obligations to fulfill the contract as prescribed. Defective work shall be made good, and materials and equipment furnished and work performed which is not in accordance with the Contract Documents may be rejected notwithstanding the fact that such materials, equipment, and work have been previously observed by the Owner's Representative or that payment therefor has been included in an estimate for payment.

5-13 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

Any work which does not conform to the requirements of the Contract Documents shall be remedied or removed and replaced by the Contractor, together with any other work which may be displaced in so doing, and no compensation will be allowed him for such removal, replacement, or remedial work. All nonconforming materials shall be immediately removed from the site.

Any work done beyond the lines and grades shown on the plans or established by the Owner's Representative or any changes in, additions to, or deductions from the work done without written authority will be considered as unauthorized and will not be paid for. Work so done may be ordered remedied, removed, or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply promptly with any order of the Owner's Representative made under the provisions of this article, the Owner's Representative shall have authority to cause nonconforming materials, rejected work, or unauthorized work to be remedied, removed, or replaced at the Contractor's expense and to deduct the costs from any moneys due or to become due the Contractor.

5-14 ONE-YEAR GUARANTEE

Besides guarantees required elsewhere, the Contractor shall and hereby does guarantee the work for a period of one year after the date of acceptance of the work by the Owner, except for any portion of the work that is utilized or placed into service by the Owner in accordance with the provisions of the article on USE OF COMPLETED PORTIONS. The guarantee period for portions of the work so utilized or placed into service shall be one year commencing on the date of the written notification to the Contractor described in the article on USE OF COMPLETED PORTIONS. The Contractor shall repair or remove and replace any and all work, together with any other work which may be displaced in so doing, that is found to be defective in workmanship and/or materials within said one-year periods, without expense whatsoever to the Owner, ordinary wear and tear and unusual abuse or neglect excepted. In the event of failure to comply with the above-mentioned conditions within one week after being notified in writing, the Owner is hereby authorized to proceed to have the defects remedied and made good at the expense of the Contractor, who hereby agrees to pay the cost and charges therefor immediately on demand. Such action by the Owner will not relieve the Contractor of the guarantees required by this article or elsewhere in the Contract Documents.

The performance bond and the payment bond shall continue in full force and effect for the guarantee period.

If, in the opinion of the Owner, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the Owner or to prevent interruption of operation of the Owner, the Owner will attempt to give the notice required by this article. If the Contractor cannot be contacted or does not comply with the Owner's request for correction within a reasonable time as determined by the Owner, the Owner may, notwithstanding the provisions of this article, proceed to make such correction or provide such attention; and the costs of such correction or attention shall be charged against the Contractor. Such action by the Owner will not relieve the Contractor of the guarantees required by this article or elsewhere in the Contract Documents.

This article does not in any way limit the guarantee on any items for which a longer guarantee is specified or on any items for which a manufacturer or supplier gives a guarantee for a longer period. The Contractor agrees to act as a co-guarantor with such manufacturer or supplier and shall furnish the Owner all appropriate guarantee or warranty certificates upon completion of the project. No guarantee period, whether provided for in this article or elsewhere, shall in any way limit the liability of Contractor or his sureties or insurers under the indemnity or insurance provisions of these General Provisions.

SECTION 6 - PROSECUTION AND PROGRESS

6-1 SUBCONTRACTING

If the Contractor shall subcontract any part of this contract, the Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractor and of the persons either directly or indirectly employed by his subcontractor as he is for the acts and omissions of persons directly employed by himself. Nothing contained in the Contract Documents shall create any contractual relationship between any subcontractor and the Owner. The Contractor shall cause every subcontractor to be bound by the terms of the Contract Documents.

The divisions and sections of the specifications and the identifications of any drawings shall not control the Contractor in dividing the work among subcontractors.

6-2 ASSIGNMENT

The performance of the contract may not be assigned, except upon the written consent of the Owner. Consent will not be given to any proposed assignment which would relieve the original Contractor or his surety of their responsibilities under the contract, nor will the Owner consent to any assignment of a part of the work under the contract.

Upon obtaining a prior written consent of the Owner, the Contractor may assign moneys due or to become due him under the contract, to the extent permitted by law, but any assignment of moneys shall be subject to all proper setoffs in favor of the Owner and to all deductions provided for in the contract, and particularly all money withheld, whether assigned or not, shall be subject to being used by the Owner for the completion of the work in the event that the Contractor should be in default therein.

No assignment of this contract will be approved unless it shall contain a provision that the funds to be paid to the assignee under the assignment are subject to a prior lien for services rendered or materials supplied for performance of the work called for under the contract in favor of all persons, firms, or corporations rendering such services or supplying such materials and that the Owner may withhold funds due until all work required by the Contract Documents is completed to the Owner's satisfaction.

6-3 CONTRACTOR'S CONSTRUCTION SCHEDULE AND COST BREAKDOWN

Within ten days after execution of the contract, the Contractor shall deliver to the Owner's Representative a construction progress schedule and cost breakdown in bar chart form showing the proposed dates of commencement and completion and cost of each of the various parts of the work and the anticipated amount of each monthly payment that will become due the Contractor in accordance therewith.

6-4 TIME FOR COMPLETION AND FORFEITURE DUE TO DELAY

The Contractor shall complete all or any designated portion of the work called for under the contract within the time set forth in the Special Provisions. Time is of the essence in this contract.

Failure of the Contractor to perform any covenant or condition contained in the Contract Documents within the time period specified shall constitute a material breach of this contract entitling the Owner to terminate the contract unless the Contractor applies for, and receives, an extension of time in accordance with the procedures set forth in this article and the article on EXTENSION OF TIME.

Failure of the Owner to insist upon the performance of any covenant or condition within the time period specified in the Contract Documents shall not constitute a waiver of the Contractor's duty to complete performance within the designated periods unless the waiver is in writing.

The Owner's agreement to waive a specific time provision or to extend the time for performance shall not constitute a waiver of any other time provisions contained in the Contract Documents. Failure of the Contractor to complete performance promptly within the additional time authorized in the waiver or extension of time agreement shall constitute a material breach of this contract entitling the Owner to terminate.

In accordance with Government Code 53069.85, Contractor agrees to forfeit and pay Owner the amount per day set forth in the Special Provisions for each and every day of delay which shall be deducted from any payments due or to become due the Contractor.

The Contractor shall not be deemed in breach of this contract and no forfeiture due to delay shall be made because of any delays in the completion of the work due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor, provided the Contractor requests an extension of time in accordance with the procedures set forth in this article and the article on EXTENSION OF TIME. Unforeseeable causes of delay beyond the control of Contractor shall include acts of God, acts of a public enemy, acts of the government, acts of the Owner, or acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and weather, or delays of subcontractors due to such causes, or delays caused by failure of the Owner or the owner of a utility to provide for removal or relocation of existing utility facilities. Delays caused by actions or neglect of Contractor or his agents, servants, employees, officers, subcontractors, directors, or of any party contracting to perform part or all of the work or to supply any equipment or materials shall not be excusable delays. Excusable delays (those beyond Contractor's control) shall not entitle the Contractor to any additional compensation except as noted below. The sole remedy of the Contractor shall be to seek an extension of time.

The Contractor will be compensated for damages incurred due to delays for which the Agency is responsible if such delays are unreasonable in the circumstances involved and were not within the contemplation of the parties when the contract was awarded to the Contractor. Such actual costs will be determined by the Engineer. The Agency will not be liable for, and in making this determination the Engineer will exclude, all damages which the Engineer determines the Contractor could have avoided by any reasonable means including, without limitation, the judicious handling of forces, equipment, or plant.

6-5 EXTENSION OF TIME

The time specified for completion of all of the work or any part of the work may be extended only by a written change order executed by the Owner or other written form executed by the Owner.

Requests for an extension of time must be delivered to the Owner's Representative within ten consecutive calendar days following the date of the occurrence which caused the delay. The request must be submitted in writing and must state the cause of the delay, the date of the occurrence causing the delay, and the amount of additional time requested. Requests for extensions of time shall be supported by all evidence reasonably available or known to the Contractor which would support the extension of time requested. Requests for extensions of time failing to include the information specified in this article and requests for extensions of time which are not received within the time specified above shall result in the forfeiture of the Contractor's right to receive any extension of time requested. Contractor shall request a time extension on the Work Delay Form in the Appendix.

If the Contractor is requesting an extension of time because of weather, he shall supply daily written reports to the Owner's Representative describing such weather and the work which could not be performed that day because of such weather or conditions resulting therefrom and which he otherwise would have performed.

The Owner's acceptance of the daily reports shall not be deemed an admission of the Contractor's right to receive an extension of time or a waiver of the Owner's right to strictly enforce the time provisions contained in the Contract Documents.

When the Contractor has submitted a request for an extension of time in accordance with the procedures of this article and the article on TIME FOR COMPLETION AND FORFEITURE DUE TO DELAY, the Governing Body of the Owner will ascertain the facts and extent of the delay and extend the time for completing the work if, in its judgment, the findings of fact justify such an extension, and its findings of facts thereon shall be final and conclusive. An extension of time may be granted by the Governing Body of the Owner after the expiration of the time originally fixed in the contract or as previously extended, and the extension so granted shall be deemed to commence and be effective from the date of such expiration.

Any extension of time shall not release the sureties upon any bond required under the contract.

6-6 USE OF COMPLETED PORTIONS

When the work or any portion of it is sufficiently complete to be utilized or placed into service, the Owner shall have the right upon written notification to the Contractor to utilize such portions of the work and to place the operable portions into service and to operate same.

Upon said notice and commencement of utilization or operation by the Owner, the Contractor shall be relieved of the duty of maintaining the portions so utilized or placed into operation; provided, however, that nothing in this article shall be construed as relieving the Contractor of the full responsibility for completing the work in its entirety, for making good defective work and materials, for protecting the work from damage, and for being responsible for damage and

for the work as set forth in the General Provisions and other contract documents nor shall such action by the Owner be deemed completion and acceptance, and such action shall not relieve the Contractor, his sureties, or insurers of the provisions of the section on CONTRACTOR'S INSURANCE, the article on INDEMNITY, and the article on GUARANTEES.

SECTION 7 - LEGAL RELATIONS AND RESPONSIBILITIES

7-1 OBSERVING LAWS AND ORDINANCES

The Contractor shall keep himself fully informed of all laws, ordinances, and regulations which in any manner affect those engaged or employed in the work or the materials used in the work or which in any way affect the conduct of the work and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over same. If any discrepancy or inconsistency is discovered in the plans, specifications, or contract for the work in relation to any such law, ordinance, regulation, order, or decree, he shall forthwith report the same to the Owner's Representative in writing and cease operations on that part of the work until the Owner's Representative has given him appropriate instructions as provided for in the article on ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR.

The Contractor shall at all times observe and comply with and shall cause all his agents, employees, subcontractors, and suppliers to observe and comply with all laws, ordinances, regulations, orders, and decrees, and shall hold harmless, indemnify, and defend the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents from and against all claims, damages, losses, expenses, and other costs, including costs of defense and attorneys' fees, arising out of or resulting from the violation of any such law, ordinance, regulation, order, or decree by the Contractor, his employees, agents, subcontractors, or suppliers.

7-2 PERMITS AND LICENSES

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work.

7-3 INVENTIONS, PATENTS, AND COPYRIGHTS

The Contractor shall pay all royalties and assume all costs arising from the use of any invention, design, process, materials, equipment, product, or device which is the subject of patent rights or copyrights.

The Contractor shall hold harmless, indemnify, and defend the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents from and against all claims, damages, losses, expenses, and other costs, including costs of defense and attorneys' fees, arising out of any infringement of patent rights or copyrights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, materials, equipment, product or device, and shall defend all such claims in connection with any alleged infringement of such rights.

7-4 PUBLIC CONVENIENCE AND SAFETY

The Contractor shall so conduct his operations as to offer the least possible obstruction and inconvenience to the public, and he shall have under construction no greater length or amount of work than he can prosecute properly with due regard to the rights of the public.

Convenient access to driveways, houses, and buildings along the line of work shall be maintained and temporary crossings shall be provided and maintained in good condition. Not more than one crossing or intersecting street or road shall be closed at any one time.

The Contractor shall provide and maintain such fences, barriers, directional signs, lights, and flagmen as are necessary to give adequate warning to the public at all times of any dangerous conditions to be encountered as a result of the construction work and to give directions to the public.

7-5 RESPONSIBILITY FOR LOSS, DAMAGE, OR INJURIES

The Contractor shall be responsible for all claims, demands, or liability from any cause arising out of or resulting from or in connection with the performance of the work, excepting only those as may be caused solely and exclusively by the fault or negligence of the Owner, the Engineer/Architect, the Owner's Representative, or their consultants, or their directors, officers, employees, and agents. Such responsibility shall extend to claims, demands, or liability for loss, damage, or injuries occurring after completion of the work as well as during the progress of the work.

In the event any hazardous materials, including but not limited to asbestos, are utilized in construction or hazardous materials are otherwise encountered during construction, the Contractor shall take all appropriate precautions to protect persons and property and shall comply with all applicable regulations for the installation and handling of such hazardous materials. The Contractor is solely responsible for protection of persons and property that could be affected by construction and the Contractor's handling of such materials.

7-6 CONTRACTOR'S RESPONSIBILITY FOR THE WORK

Until the acceptance of the work, the Contractor shall have the responsible charge and care of the work and of the materials to be used therein (including materials for which he has received partial payment or materials which have been furnished by the Owner) and shall bear the risk of injury, loss, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work.

The Contractor shall rebuild, repair, restore, and make good all injuries, losses, or damages to any portion of the work or the materials occasioned by any cause before its completion and acceptance and shall bear the expense thereof. Where necessary to protect the work or materials from damage, the Contractor shall at his expense provide suitable drainage and erect such temporary structures as are necessary to protect the work or materials from damage. The suspension of the work or the granting of an extension of time from any cause whatever shall not relieve the Contractor of his responsibility for the work and materials as herein specified.

In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorizations, shall act at his discretion to prevent such threatened loss or injury.

Notwithstanding the foregoing provisions of this article, the Contractor shall not be responsible for the cost of repairing or restoring damage to the work, which damage is determined to have

been proximately caused by an Act of God, in excess of 5 percent of the contracted amount, provided that the work damaged is built in accordance with accepted and applicable building standards and the plans and specifications. For the purposes of this paragraph, "Acts of God" shall include only the following occurrences or conditions and effect: earthquakes in excess of a magnitude of 3.5 on the Richter Scale and tidal waves.

7-7 PRESERVATION OF PROPERTY

The Contractor shall exercise due care to avoid injury to existing improvements or facilities, utility facilities, adjacent property, and trees and shrubbery that are not to be removed.

All trees, shrubbery, and landscaping that are not to be removed, and pole lines, fences, signs, survey markers and monuments, buildings and structures, conduits, pipelines under or above ground, sewer and waterlines, all highway or street facilities, and any other improvements or facilities within or adjacent to the work shall be protected from injury or damage, and the Contractor shall provide and install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operation, they shall be replaced or restored at the Contractor's expense to a condition as good as when the Contractor entered upon the work or as good as required by the plans and specifications if any such objects are a part of the work being performed.

The fact that any such pipe or other underground facility is not shown on the plans shall not relieve the Contractor of his responsibility under this article.

In addition to any requirements imposed by law, the Contractor shall shore up, brace, underpin, and protect as may be necessary, all foundations and other parts of all existing structures adjacent to and adjoining the site of the work which are in any way affected by the excavations or other operations connected with the performance of the work. Whenever any notice is required to be given by the Owner or the Contractor to any adjacent or adjoining landowner or other party before commencement of any work, such notice shall be given by the Contractor.

In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorizations, shall act at his discretion to prevent such threatened loss or injury.

7-8 REGIONAL NOTIFICATION CENTER CONTACT

Contractor, except in an emergency, shall contact the appropriate regional notification center at least two working days prior to commencing any excavation if the excavation will be conducted in an area or in a private easement which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the Owner, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and carried out by the Contractor unless such an inquiry identification number has been assigned to the Contractor or any subcontractor of the Contractor and the Owner has been given the identification number by the Contractor.

Emergency shall be defined as a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health,

property, or essential public services. Emergency includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage (Government Code Section 4216).

Subsurface installation means any underground pipeline, conduit, duct, wire, or other structure operated or maintained in or across a public street or public right-of-way (Government Code Section 4216).

7-9 EXCAVATION

7.9.1 EXCAVATION PLANS FOR WORKER PROTECTION REQUIRED BY LABOR CODE SECTION 6705

If the total amount of the contract is in excess of \$25,000, the Contractor shall submit to the Owner for acceptance, in advance of excavation, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of any trench or trenches five (5) feet or more in depth. The plan shall be prepared by a registered civil or structural engineer. As a part of the plan, a note shall be included stating that the registered civil or structural engineer certifies that the plan complies with the CAL/OSHA Construction Safety Orders, or that the registered civil or structural engineer certifies that the plan is not less effective than the shoring, bracing, sloping, or other provisions of the Safety Orders.

The Owner or the Engineer/Architect or their consultants may have made investigations of subsurface conditions in areas where the work is to be performed. If so, these investigations are identified in the Special Provisions and the records of such investigations are available for inspection at the office of the Engineer/Architect. The detailed plan showing the design of shoring, etc., which the Contractor is required to submit to the Owner for acceptance in advance of excavation will not be accepted by the Owner if the plan is based on subsurface conditions which are more favorable than those revealed by the investigations made by the Owner or the Engineer/Architect or their consultants; nor will the plan be accepted if it is based on soils-related design criteria which is less restrictive than the criteria set forth in the report on the aforesaid investigations of subsurface conditions.

The detailed plan showing the design of shoring, etc., shall include surcharge loads for nearby embankments and structures, for spoil banks, and for construction equipment and other construction loadings. The plan shall indicate for all trench conditions the minimum horizontal distances from the side of the trench at its top to the near side of the surcharge loads.

Nothing contained in this article shall be construed as relieving the Contractor of the full responsibility for providing shoring, bracing, sloping, or other provisions which are adequate for worker protection.

7.9.2 EXCAVATIONS BELOW FOUR (4) FEET

If any work required by this contract includes digging trenches or other excavations that extend deeper than four (4) feet below the surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the Owner in writing of any:

1. Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing law;
2. Subsurface or latent physical conditions at the site differing from those indicated;
3. Unknown physical conditions at the site of any unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.

Nothing in this section is intended to relieve the Contractor of his responsibility to carefully examine the Contract Documents and the site where the work is to be performed in accordance with Section 2-8 of the General Conditions; to familiarize himself with all local conditions and federal, state, and local laws, ordinances, rules, and regulations that may affect the performance of any work; to study all surveys and investigation reports about subsurface and latent physical conditions pertaining to the jobsite; to perform such additional surveys and investigations as the Contractor deems necessary to complete the work at his bid price; and to correlate the results of all such data with the requirements of the Contract Documents.

If the Owner determines that hazardous waste exists and that conditions exist which Contractor could not discover through the investigations required by the preceding paragraph, the Owner shall notify the Contractor and the Contractor may request a change order in accordance with the Contract Documents. Nothing in this section shall relieve the Contractor of the obligation to pay all fees and costs associated with removal and cleanup of any hazardous waste used at, or brought to, the jobsite by the Contractor. Nor shall this section relieve the Contractor of responsibility for site conditions discoverable by any investigation required by the preceding paragraph.

In the event that a dispute arises between the Owner and the Contractor involving hazardous waste and whether site conditions differ materially from those the Contractor could or should have discovered by the investigations required by this contract, the Contractor shall not be excused from the scheduled completion date provided in the Contract Documents and shall proceed with all work in the manner and in the time required by the Contract Documents.

7-10 SAFETY

In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions of the jobsite, including safety of all persons and property during performance of the work, and the Contractor shall fully comply with all state, federal and other laws, rules, regulations, and orders relating to safety of workers and all others.

The right of the Engineer/Architect or the Owner's Representative to conduct construction review or observation of the Contractor's performance will not include review or observation of the adequacy of the Contractor's safety measures in, on, or near the construction site.

7-11 PERSONAL LIABILITY

No director, officer, employee, or agent of the Owner, the Engineer/Architect, the Owner's Representative, or their consultants shall be personally responsible for any liability arising under or by virtue of the contract.

7-12 INDEMNITY

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, agents, and employees from and against all claims, damages, losses, expenses, and other costs, including costs of defense and attorneys' fees, arising out of or resulting from or in connection with the performance of the work, both on and off the jobsite, provided that any of the foregoing (1) is attributable to personal injury, bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself), including the loss of use resulting therefrom, and (2) is caused in whole or in part by any act or omission of the Contractor, any subcontractor, any supplier, anyone directly or indirectly employed by any of them or anyone for whose acts or omissions any of them may be liable, regardless of whether or not caused in part by any act or omission (active, passive, or comparative negligence included, excepting the active negligence of the Owner), of a party indemnified hereunder.

In any and all claims against the indemnified parties by any employee of the Contractor, any subcontractor, any supplier, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under the first and fourth paragraphs in this article on INDEMNITY shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable, by or for the Contractor, or any subcontractor, or any supplier, or other persons under workers' compensation acts, disability benefit acts, or other employee acts.

The obligations of the Contractor under the first and fourth paragraphs in this article on INDEMNITY shall not extend to the liability of the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents, arising out of or resulting from or in connection with the preparation or approval of maps, drawings, opinions, reports, surveys, designs or specifications, providing that the foregoing was the sole and exclusive cause of the loss, damage, or injury.

The Contractor shall also indemnify and hold harmless the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents from and against all losses, expenses, damages (including damages to the work itself), attorneys' fees, and other costs, including all costs of defense, which any of them may incur with respect to the failure, neglect, or refusal of Contractor to faithfully perform the work and all of the Contractor's obligations under the contract. Such costs, expenses, and damages shall include all cost, including attorneys' fees, incurred by the indemnified parties in any lawsuit to which they are a party.

7-13 HOURS OF LABOR

The Contractor shall forfeit as a penalty to the Owner \$25 for each worker employed in the execution of the contract by the Contractor or any subcontractor under him for each calendar day during which such worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of the Labor Code and, in particular, Section 1810 to Section 1815 thereof, inclusive, except that work performed by employees of Contractors in excess of 8 hours per day and 40 hours during any one week shall be permitted upon compensation for all hours worked in excess of 8 hours per day at not less than one and one-half times the basic rate of pay as provided in said Section 1815.

7-14 PREVAILING WAGE

The Contractor shall comply with Labor Code Section 1775. In accordance with said Section 1775, the Contractor shall forfeit as a penalty to the Owner up to \$50 for each calendar day or portion thereof for each worker paid less than the stipulated prevailing rates for such work or craft in which such worker is employed for any work done under the contract by him or by any subcontractor under him in violation of the provisions of the Labor Code and in particular, Labor Code Sections 1770 to 1780, inclusive. The amount of the forfeiture will be determined by the Labor Commissioner based on the considerations specified in Labor Code Section 1775. In addition to said penalty and pursuant to said Section 1775, the difference between such stipulated prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage rate shall be paid to each worker by the Contractor. Pursuant to Labor Code Section 1775, to the extent there is insufficient money due a Contractor to cover all penalties forfeited and amounts due, the Division of Labor Standards Enforcement shall be notified of the violation and the Division of Labor Standards Enforcement may maintain an action in any court of competent jurisdiction to recover the penalties and amounts due pursuant to Labor Code Section 1775.

Section 1776 of the Labor Code requires each contractor and its subcontractors to keep accurate payroll records and make such available for inspection by persons and entities identified in that section, in the manner stated therein. Section 1776(g), places the responsibility for compliance with Section 1776 on the prime contractor.

Pursuant to Labor Code Section 1777.1, whenever any contractor or subcontractor performing a public works project is found by the Labor Commissioner to be in violation of Labor Code Section 1770, et seq. with the intent to defraud, except Section 1775, the contractor or subcontractor or any firm, corporation, partnership or association in which the contractor or subcontractor has a substantial interest shall be ineligible to bid on or to receive any public works contract for a period of not less than one year or more than three years. The period of debarment shall run from the date the determination of the violation is made by the Labor Commissioner.

Whenever any contractor or subcontractor performing a public works project pursuant to this chapter is found by the Labor Commission to be in willful violation of this chapter, except Section 1777.5, the contractor or subcontractor or any firm, corporation, partnership, or association in which the contractor or subcontractor has a substantial interest shall be ineligible to bid on or to receive any public works contract for a period up to three years for each second

and subsequent violation occurring within three of a separate and previous willful violation of this chapter. These periods of debarment shall run from the date the determination of the violation is made by the Labor Commissioner.

A willful violation occurs when the contractor or subcontractor knew or reasonably should have known of his or her obligations under the public works law and deliberately fails or refuses to comply with its provisions.

7-15 TRAVEL AND SUBSISTENCE PAYMENTS

Each worker needed to execute the work must be paid travel and subsistence payments as defined in the applicable collective bargaining agreements filed in accordance with Labor Code Section 1773.8.

7-16 APPRENTICES

Attention is directed to the provisions in Sections 1777.5, 1777.6 and 1777.7 of the Labor Code concerning the employment of apprentices by the Contractor or any subcontractor under him.

The Contractor and any subcontractor under him shall comply with the requirements of Sections 1777.5 and 1777.6 of the Labor Code in the employment of apprentices.

Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

Willful violations of Section 1777.5 will result in the Contractor, and the business entity under which the Contractor is doing business, being denied 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 commencing from the date the determination of noncompliance by the Administrator of Apprenticeship becomes an order of the California Apprenticeship Council. In addition, if the Contractor violates Section 1777.5, he will forfeit as a civil penalty the sum of Fifty Dollars (\$50.00) for each calendar day of noncompliance which shall be withheld from progress payments by Owner upon notice from the Department of Industrial Relations. (Labor Code Section 1777.7.)

In lieu of the penalty provided for above, 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 noncompliance.

7-17 WARRANTY OF TITLE

No materials, supplies, or equipment for the work under this contract shall be purchased subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest therein or any part thereof is retained by the seller or supplier. The Contractor warrants clear and good title to all materials, supplies, and equipment installed and incorporated in the

work and agrees upon completion of all work to deliver the premises, together with all improvements and appurtenances constructed or placed thereon by him, to the Owner free from any claims, liens, encumbrances, or charges and further agrees that neither he nor any person, firm, or corporation furnishing any material or labor for any work covered by the contract shall have any right to a lien upon the premises or any improvement or appurtenance thereon, provided that this shall not preclude the Contractor from installing metering devices or other equipment of utility companies or of municipalities, the title of which is commonly retained by the utility company or the municipality. Nothing contained in this article, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any right under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this article shall be inserted in all subcontracts and material contracts, and notices of its provision shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

7-18 PROPERTY RIGHTS IN MATERIALS

Nothing in the contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil, or after payment has been made for materials delivered to the site of the work, or stored subject to or under the control of the Owner. All such materials shall become the property of the Owner upon being so attached or affixed or upon payment for materials delivered to the site of the work or stored subject to or under the control of the Owner.

Soil, stone, gravel, and other materials found at the site of the work and which conform to the plans and specifications for incorporation into the work may be used in the work. No other use shall be made of such materials except as may be otherwise described in the plans and specifications.

7-19 MUTUAL RESPONSIBILITY OF CONTRACTORS

Nothing in the contract shall be interpreted as granting to the Contractor exclusive occupancy of the site of the project. The Contractor must ascertain to his own satisfaction the scope of the project and the nature of any other contracts that have been or may be awarded by the Owner in the construction of the project, to the end that the Contractor may perform this contract in the light of such other contracts, if any.

The Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on the project. If the performance of any contract for the project is likely to be interfered with by the simultaneous performance of some other contract or contracts, the Owner's Representative shall decide which contractor shall cease work temporarily and which contractor shall continue or whether the work under the contracts can be coordinated so that the contractors may proceed simultaneously. On all questions concerning conflicting interest of contractors performing related work, the decision of the Owner's Representative shall be binding upon all contractors concerned and the Owner, the Engineer/Architect, the Owner's Representative, and their consultants shall not be responsible for any damages suffered or extra costs incurred by the Contractor resulting directly or indirectly from the award or performance or attempted

performance of any other contract or contracts on the project or caused by a decision or omission of the Owner's Representative respecting the order of precedence in the performance of the contracts.

If through acts of neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration, if such other contractor or subcontractor will so settle. If such other contractor or subcontractor shall assert any claim against the Owner, the Engineer/Architect, the Owner's Representative, or their consultants or any of their directors, officers, employees, or agents on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall hold harmless, indemnify, and defend the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents against any such claim, including all attorneys' fees and any other costs incurred by the indemnified parties relative to any such claim.

7-20 TERMINATION FOR BREACH

If the Contractor refuses or fails to prosecute the work or any separable part thereof with such diligence as will ensure its completion within the time specified herein, or any extension thereof, or fails to complete such work within such time, or if the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he files a petition to take advantage of any debtor's act, or if he or any of his subcontractors should violate any of the provisions of the contract, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials to complete the work in the time specified, or if he should fail to make prompt payment to subcontractors or for material or labor, or if he should persistently disregard laws, ordinances, or instructions given by the Owner or Owner's Representative, the Owner may, without prejudice to any other right or remedy, serve written notice upon the Contractor and his surety of his intention to terminate the contract, said notice to contain the reasons for such intention to terminate the contract, and unless within ten days after the service of such notice such violations shall cease and satisfactory arrangements for the corrections thereof be made, the contract shall upon the expiration of said ten days cease and terminate. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished.

In the event of any such termination, the Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the contract; provided, however, that if the surety within 15 days after the serving upon it of a notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within 30 days from the date of serving said notice, the Owner may take over the work and prosecute the same to completion, by contract or by any other method it may deem advisable, for the account and at the expense of the Contractor, and his surety shall be liable to the Owner for any excess cost or other damage occasioned the Owner thereby, and in such event the Owner may, without liability for so doing, take possession of and utilize in completing the work such materials, appliances, plants, and other property belonging to the Contractor that may be on the site of the work and be necessary therefor. For any portion of such work that the Owner elects to complete by furnishing its own

employees, materials, tools, and equipment, the Owner shall be compensated for such in accordance with the schedule of compensation for force account work in the article on PAYMENT FOR CHANGES IN THE WORK.

If the unpaid balance of the contract price exceeds the direct and indirect costs of completing the work, including, but not limited to, all costs to Owner arising from professional services and attorneys' fees and all costs generated to insure or bond the work of substituted contractors or subcontractors utilized to complete the work, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner promptly upon demand; on failure of Contractor to pay, the Surety shall pay on demand by Owner. Any portion of such difference not paid by Contractor or surety within 30 days following the mailing of a demand for such costs by Owner shall earn interest at the rate of 10 percent per annum or the maximum rate authorized by California law, whichever is lower.

The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to the Owner.

In the event a national emergency occurs, and public work being performed by contract is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment or labor, as the result of an order or a proclamation of the President of the United States, or of an order of any federal authority, and the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the work, then the Owner and the Contractor may, by written agreement, terminate said contract.

7-21 NOTICE AND SERVICE THEREOF

Any notice required or given under the contract shall be in writing, be dated, and signed by the party giving such notice or his duly authorized representative, and be served as follows:

If to the Owner, by personal delivery or by deposit in the United States mail.

If to the Contractor, by personal delivery to the Contractor or to his authorized representative at the site of the project or by deposit in the United States mail.

If to the surety or any other person, by personal delivery to said surety or other person or by deposit in the United States mail.

All mailed notices shall be in sealed envelopes, shall be sent by certified mail with postage prepaid, and shall be addressed to the addresses in the Contract Documents or such substitute addresses which a party designates in writing and serves as set forth herein.

7-22 PARTIAL INVALIDITY

If any provision of this contract is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remaining provisions shall nevertheless continue in full force without being impaired or invalidated in any way.

7-23 ATTORNEYS' FEES

Should either party to the contract bring an arbitration or mediation proceeding or other action to enforce any provision of the contract, including an action pursuant to Public Contract Code Section 20104.4, the prevailing party shall be entitled to recover his reasonable attorneys' fees and costs in connection therewith. The term "prevail" as used in this section shall include any action at law, in equity, or pursuant to arbitration in which either party has been successful.

7-24 LANDS AND RIGHTS-OF-WAY

The lands and rights-of-way for the facility to be constructed will be provided by the Owner. The Contractor shall make his own arrangements and pay all expenses for additional area required by him outside the limits of the Owner's lands and rights-of-way.

Work in public right-of-way shall be done in accordance with the requirements of the permit issued by the public agency in whose right-of-way the work is located in addition to conforming to the plans and specifications. If a permit is not required, the work shall conform to the standards of the public agency involved in addition to conforming to the plans and specifications.

7-25 WAIVER OF RIGHTS

Except as otherwise specifically provided in the Contract Documents, no action or failure to act by the Owner, Engineer/Architect Owner's Representative, or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract Documents, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder.

7-26 TAXES

The Contractor shall pay all sales, consumer, use, and other taxes.

NOTICE OF TAXABLE POSSESSORY INTEREST - The terms of this document may result in the creation of a possessory interest. If such a possessory interest is vested in a private party to this document, the private party may be subjected to the payment of personal property taxes levied on such interest.

7-27 ASSIGNMENT OF ANTI-TRUST ACTIONS

In entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of

action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder.

7-28 PAYROLL RECORDS

It shall be the responsibility of the Contractor to maintain 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 employee in accordance with Labor Code Section 1776, and to ensure that each subcontractor also complies with all provisions of Labor Code Section 1776 and this contract provision.

All payroll records shall be certified as accurate by the applicable contractor or subcontractor or its agent having authority over such matters.

The Contractor shall ensure that all payroll records are available for inspection at the Contractor's principal office during normal business hours and shall notify the Owner, in writing, of the place where all payroll records are located from time to time.

The Contractor shall furnish a copy of all payroll records, upon request, to employees or their authorized agents, to the Owner, to the Division of Labor Standards Enforcement, and to the Division of Apprenticeship Standards of the Department of Industrial Relations. The Contractor shall also furnish a copy of payroll records to the general public upon request provided the public request is made through the Owner, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement of the Department of Industrial Relations. In no event shall members of the general public be given access to payroll records at the Contractor's principal office.

Records made available to the general public in accordance with the prior paragraph shall be marked or obliterated in such a manner that the name and address of the Contractor and/or subcontractor and the name, address, and telephone number of all employees does not appear on the modified record.

The Contractor shall file a certified copy of any requested payroll records with the entity that requested such records within ten days of the date a written request for payroll records has been received.

Failure of the Contractor to comply with any provision of this article or Labor Code Section 1776 within ten days of the date a written request for compliance is received shall result in a forfeiture of \$25 per calendar day or portion thereof, for each worker, until strict compliance is obtained. Upon notification by the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement of the Department of Industrial Relations, the Owner shall withhold penalties under this article or Labor Code Section 1776 from the Contractor's payments then due.

7-29 RESOLUTION OF CLAIMS

Public works contract claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between a contractor and a local public agency shall be resolved in accordance with the provisions of **Article 1.5 (Sections 20104-20104.6, inclusive) of Chapter 1 of Part 3 of Division 2 of the Public Contract Code**. Article 1.5 requires that its provisions or a summary thereof be set forth in the plans and specifications for any work which may give rise to a claim thereunder. Accordingly, this contract incorporates all of the terms and conditions of Article 1.5, as follows:

7-29.1 SECTION 20104.01

- A. This article applies to all public works claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between a contractor and a local agency.
- B. This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) and of Chapter 1, Part 2.
- C. "Public Work" has the same meaning as in Sections 3100 and 3106 of the Civil Code, except the "public work" does not include any work or improvement contracted for by the State or the Regents of the University of California.
- D. "Claim" means a separate demand by the contractor for (1) a time extension, (2) payment of money or damages arising from work done by or on behalf of the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (3) an amount of the payment of which is disputed by the local agency.
- E. The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work which may give rise to a claim under this article.
- F. This article applies only to contracts entered into on or after January 1, 1991.

7-29.2 SECTION 20104.2

For any claim subject to this article, the following requirements apply:

- A. The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.
- B. For claims of less than fifty thousand dollars (\$50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the local agency may have against the claimant.

1. If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision upon mutual agreement of the local agency and the claimant.
 2. The local agency's written response to the claim as further documented shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.
- C. For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defense or claims the local agency may have against the claimant.
1. If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision upon mutual agreement of the local agency and the claimant.
 2. The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than taken by the claimant in producing the additional information or requested documentation, whichever is greater.
- D. If the claimant disputes the local agency's written response or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet-and-confer conference within 30 days for settlement of the dispute.
- E. If, following the meet-and-confer conference, the claim or any portion remains in dispute, the claimant may file a claim pursuant to Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time the claim is denied, including any period of time utilized by the meet-and-confer conference.

7-29.3 SECTION 20104.4

The following procedures are established for all civil actions filed to resolve claims subject to this article.

- A. Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by the mutual stipulation of both parties. The mediation process shall provide for the selection within

15 days by both parties of disinterested third person as a mediator, shall be commenced within 30 days of the submittal and shall be conducted within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

- B. If the matter remains in dispute, the case shall be submitted to the judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986 (Article 3 commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rule pertaining to judicial arbitration.

Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rates, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. IN no event shall these fees or expenses be paid by state or county funds.

- C. In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who, after receiving an arbitration award, request a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.
- D. The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process. Arbitrators shall be experienced in construction law.

7-29.4 SECTION 20104.6

- A. No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the contract.
- B. In any suit filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

SECTION 8 - CONTRACTOR'S INSURANCE

8-1 GENERAL

The Contractor shall not commence or continue to perform any work unless he, at his own expense, has in full force and effect all required insurance. The Contractor shall not permit any subcontractor to perform work on this project unless all of the required insurance has been complied with by such subcontractor.

The types of insurance the Contractor shall obtain and maintain are Workers' Compensation and Employers' Liability Insurance, General and Automobile Liability Insurance, Builders' Risk "All Risk" or Installation Floater Insurance, and, if so determined by the Owner at the time of award of the contract, Earthquake and Flood Insurance, all as set forth herein.

Workers' Compensation and Employers' Liability Insurance and Liability Insurance shall be maintained in effect for the full guarantee period.

Insurers must be authorized to do business and have an agent for service of process in California and must have at least a "B+ VIII" rating in accordance with the most current Best's Rating Guide.

As evidence of specified insurance coverage, the Contractor shall provide certificates of insurance on the industry standard ACORD forms and endorsements as acceptable to the Owner.

8-2 WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY INSURANCE

Upon execution of the Agreement the Contractor shall provide a certificate(s) of insurance certifying that it has obtained full Workers' Compensation Insurance coverage for no less than the statutory limits and Employers' Liability Insurance coverage in limits not less than the amounts set forth in the Special Provisions, for all persons whom it employs or may employ in carrying out the work under the Contract. This insurance shall be in strict accordance with the requirements of the most current and applicable state Workers' Compensation Insurance laws and include a waiver of subrogation in favor of Engineer and Owner.

8-3 GENERAL AND AUTOMOBILE LIABILITY INSURANCE

Upon execution of the Agreement, the Contractor shall provide a certificate(s) of insurance showing that he has Liability Insurance coverage in limits not less than the amounts set forth in the Special Provisions.

Included in such insurance shall be a "Cross Liability" or "Severability of Interest" clause.

The Liability Insurance coverage shall include each of the following types of insurance or coverage for exposures, as applicable:

A. General Liability

- (1) Commercial Form.

- (2) Premises-Operations.
- (3) Explosion and Collapse Hazard.
- (4) Underground Hazard.
- (5) Products/Completed Operations.
- (6) Blanket Contractual Insurance.
- (7) Broad Form Property Damage.
- (8) Independent Contractors.
- (9) Personal Injury and Advertising Injury.

B. Automobile Liability

- (1) Business Auto Form Including Loading and Unloading.
- (2) Owned.
- (3) Hired.
- (4) Non-Owned.

Included with the Certificate(s) of Insurance shall be endorsements which name as additional insureds the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, and employees and state that the insurance afforded to these additional insureds shall be primary insurance and if the additional insureds have other insurance which might be applicable to any loss, the amount of the insurance provided under this article on GENERAL AND AUTOMOBILE LIABILITY INSURANCE shall not be reduced or prorated by the existence of such other insurance.

8-4 BUILDERS' RISK "ALL RISK" OR INSTALLATION FLOATER INSURANCE

Not required.

8-5 EARTHQUAKE AND FLOOD INSURANCE

Not required.

8-6 CONTRACTOR'S LIABILITY NOT LIMITED BY INSURANCE

Nothing contained in these insurance requirements is to be construed as limiting the liability of the Contractor or the Contractor's insurers.

SECTION 9 - ESTIMATES AND PAYMENTS

9-1 PAYMENT FOR CHANGES IN THE WORK

Changes in, additions to, or deductions from the work, including increases or decreases in the quantity of any item or portion of the work, shall be set forth in a written change order executed by the Owner and by the Contractor which shall specify:

The changes, additions, and deductions to be made.

The increase or decrease in compensation due the Contractor, if any.

Adjustment in the time of completion, if any.

Adjustment in the compensation due the Contractor shall be determined by one or more of the following methods in the order of precedence listed below:

Unit prices contained in the contract.

Mutually agreeable lump-sum or unit prices. If requested by the Owner's Representative, the Contractor shall furnish an itemized breakdown of the quantities and prices used in computing proposed lump-sum and unit prices.

Force account whereby the Contractor is compensated for furnishing labor, materials, tools, and equipment as follows:

Cost of labor plus 15 percent for workers directly engaged in the performance of the work. Cost of labor shall include actual wages paid including employer payments to or on behalf of the workers for health and welfare, pension, vacation, and similar purposes plus payments imposed on payroll amounts by state and federal laws plus subsistence and travel allowance payments to workers.

Cost of material plus 15 percent. Cost of material shall include sales tax, freight, and delivery charges. The Owner reserves the right to furnish such materials as he deems advisable and the Contractor shall not be paid the 15 percent markup on such materials.

For tools and equipment actually engaged in the performance of the work, rental rates plus 15 percent. The rental rates shall be those prevailing in the area where the work is performed. No rental charge shall be made for the use of tools or equipment having a replacement value of \$500 or less.

Subcontractor invoices to the Contractor plus 5 percent. Subcontractor invoices shall be based on the above-described cost of labor plus 15 percent, cost of material plus 15 percent, and tool and equipment rental rates plus 15 percent.

No payment shall be made for any item not set forth above, including without limitation, Contractor's overhead, general administrative expense, supervision, or damages claimed for delay in prosecuting the remainder of the work.

For force account work, the Contractor shall submit to the Owner's Representative for his verification daily work sheets showing an itemized breakdown of labor, materials, tools, and equipment used in performing the work. No payment will be made for work not verified by the Owner's Representative.

9-2 PROGRESS PAYMENTS

The Owner shall, on or before the tenth day of each calendar month after actual construction work is started, cause an estimate in writing to be made by the Owner's Representative of the value of the work completed by the Contractor and of materials delivered on the ground at the site of the work or stored subject to or under the control of the Owner to the first of the month in which the estimate is made. In estimating such value, the Owner's Representative may take into consideration, along with other facts and conditions deemed by him to be proper, the ratio of the difficulty or cost of the work done to the probable difficulty or cost of the work remaining to be done. Pursuant to SB 293 of the California Legislation, the Owner shall retain 5 percent of such estimated value as part security for the fulfillment of the contract by the Contractor, unless the Contractor has substituted equivalent securities as defined by Section 9-5 of these General Provisions, and shall by the end of each month in which the estimate is made pay to the Contractor the balance of such estimated value after deducting therefrom all previous payments and all sums to be kept or retained under the terms of the contract. At the discretion of the Owner, at any time after fifty (50) percent of the work has been completed, if the Owner's Representative finds that satisfactory progress is being made, the Owner may reduce the amount retained from any of the remaining partial progress payments in accordance with Section 9203 of the State Public Contract Code.

9-3 FINAL ESTIMATE AND PAYMENT

When the work has been substantially completed, the Owner's Representative will make a final estimate of the total amount of work done thereunder and the amount to be paid therefor under the terms of the contract. If the Owner finds the work has been substantially completed according to the contract, he shall accept the work, shall file a notice of completion, and shall pay the entire sum so found to be due after deducting therefrom all previous payments and all amounts to be retained under the provisions of the contract. All prior progress estimates and payments shall be subject to correction in the final estimate and payment. The final payment shall not be due and payable until the expiration of sixty (60) days after the occurrence of any of the definitions of "completion" for purposes of Public Contract Code Section 7107 (see definitions of "completion" below). Any final payment and release of retentions will exclude any amounts withheld in conformance with Section 9-4 "Owner's Right to Withhold Certain Amounts and Make Application Thereof" and Public Contract Code Section 7107.

For purposes of retention release under Public Contract Code Section 7107, "completion" means any of the following:

1. The occupation, beneficial use, and enjoyment of a work of improvement, excluding any operation only for testing, start-up, or commissioning, by the public agency, or its agent, accompanied by cessation of labor on the work of improvement.
2. The acceptance by public agency, or its agent, of the work of improvement.
3. After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 100 days or more due to factors beyond the control of the Contractor.
4. After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 30 days or more, if the public agencies files for record of notice of cessation or notice of completion.

It is mutually agreed between the parties to the contract that no certificate given or payment made under the contract shall be conclusive evidence of performance of the contract and no payment shall be construed to be an acceptance of any defective work or improper materials.

9-4 OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF

In addition to the amount which the Owner may retain under the above article on PROGRESS PAYMENTS, the Owner may withhold a sufficient amount or amounts from any payment otherwise due to the Contractor as in his judgment may be necessary to cover:

Payments which may be past due and payable for properly filed claims against the Contractor or any subcontractors for labor or materials furnished in or about the performance of the work under this contract.

Estimated or actual costs for correcting defective work not remedied.

Amounts claimed by the Owner as forfeiture due to delay or other offsets.

The Owner may apply such withheld amount or amounts to the payment of such claims in his discretion. In so doing, the Owner shall be deemed the agent of the Contractor and any payments so made by the Owner shall be considered as a payment made under the contract by the Owner to the Contractor, and the Owner shall not be liable to the Contractor for such payment made in good faith. Such payments may be made without prior judicial determination of the claim or claims. The Owner will render to the Contractor a proper account of such funds disbursed in behalf of the Contractor.

9-5 WITHHELD CONTRACT FUNDS

Pursuant to Public Contract Code Section 22300, equivalent securities may be substituted for monies withheld to ensure performance of the contract, except contracts for which there will be financing provided by the Farmers Home Administration of the United States Department of Agriculture pursuant to the Consolidated Farm and Rural Development Act (7 U.S.C. Sec. 1921 et seq.), or where federal regulations and/or policies do not allow such substitution. The Owner

reserves the right to solely determine the adequacy of the securities being proposed by the Contractor and the value of those securities. The Owner shall also be entitled to charge an administrative fee, as determined by Owner in its sole discretion, for substituting equivalent securities for retention amounts. The Owner's decisions with respect to the administration of the provisions of Section 22300 shall be final and shall include, but not be limited to, determinations of what securities are equivalent, the value of the securities, the negotiability of the securities, the costs of administration and the determination of whether or not the administration should be accomplished by an independent agency or by the Owner. The Owner shall be entitled, at any time, to request the deposit of additional securities of a value designated by Owner, in Owner's sole discretion, to satisfy this requirement. If the Owner does not receive satisfactory securities within twelve (12) consecutive days of the date of the written request, Owner shall be entitled to withhold amounts due Contractor until securities of satisfactory value to Owner have been received.

9-6 REQUIRED RELEASES

The Contractor shall not be entitled to any payment specified in his Contract which is undisputed until such time as the Contractor has executed a release, in the following form or an approved alternate, releasing the Owner from all claims relating to the work for which the Contractor is being paid. The release form contains space for the Contractor to claim any disputed amount and to designate the retention amount for each period associated with the release. Contractor hereby expressly agrees that failure on his part to designate any disputed amount or to designate the correct retention amount for each release period on the release form shall constitute an express waiver of the right of the Contractor to claim any disputed amount or any retention amount at any later date. The Owner shall have no obligation to pay the Contractor for any work done until the release form attached to these contract documents has been executed by the Contractor and submitted to the Owner.

RELEASE FORM

OWNER: _____

NAME OF CONTRACTOR: _____

PROJECT DESCRIPTION: _____

PERIOD WORK PERFORMED: _____

The above-named Contractor hereby acknowledges payment in full for all compensation of whatever nature due the Contractor for all labor and materials furnished and for all work performed on the above-referenced project for the period specified above with the exception of contract retention amounts and disputed claims specifically shown below.

RETENTION AMOUNT FOR THIS PERIOD: \$ _____

DISPUTED CLAIMS

DESCRIPTION OF CLAIM

AMOUNT CLAIMED

The Contractor further expressly waives and releases any claim the Contractor may have, of whatever type or nature, for the period specified which is not shown as a retention amount or a disputed claim on this form. This release and waiver has been made voluntarily by Contractor without any fraud, duress, or undue influence by any person or entity.

Contractor further certifies, warrants, and represents that all bills for labor, materials and work due subcontractors for the specified period have been paid in full and that the parties signing below on behalf of Contractor have express authority to execute this release.

DATED: _____

PRINT NAME OF CONTRACTOR

DESCRIBE ENTITY (Partnership, Corporate, etc.)

By _____

By _____

SECTION 007300 SUPPLEMENT TO GENERAL PROVISIONS

A. Definitions

Whenever the following terms occur in the contract documents, their meaning is as follows:

OWNER	City of Reedley 1733 9 th Street Reedley, CA 93654 (559) 637-4200 (559) 637-2139
GOVERNING BODY	City Council
ENGINEER	AECOM Technical Services, Inc. 1360 E. Spruce Avenue, Suite 101 Fresno, CA 93720 (559) 448-8222 voice (559) 448-8233 fax
OWNER'S REPRESENTATIVE	As designated by the City including the Engineer and Hydrogeologist
HYDROGEOLOGIST	Kenneth D. Schmidt and Associates 600 W. Shaw Avenue, Suite 250 Fresno, CA 93704 (559) 224-4412
SECTIONS 007300 to 019999	The Special Provisions - Part I - Special Conditions. Modifications to general requirements of the specifications.
SECTIONS 020000 to 435000	The Special Provisions - Part II - Technical Specifications. Numbered section subjects are selected for indexing convenience only and do not indicate division of work among trades or subcontractors.

B. Terms

Command-type sentences used in the contract documents refer to and are directed to the Contractor.

C. Marking and Addressing Bid Envelope

Seal the bid in an envelope addressed to the Owner and marked:

BID FOR
CONSTRUCTION OF
WELL NO. 14 AT SPORTS PARK

D. Award of Contract or Rejection of Bids

Within a period of 45 calendar days after the opening of bids, the Owner will accept or reject the bids.

E. Time for Completion and Forfeiture Due to Delay

1. Work shall be substantially completed within 60 CONSECUTIVE CALENDAR DAYS, from Notice to Proceed.
2. As allowed by Government Code 53069.85, forfeiture for each day completion is delayed beyond the time allowed will be at the rate of \$500 per day.

F. Amount of Liability Insurance

General Liability:	Bodily Injury and Property Damage coverage shall be for not less than	
	\$1,000,000	General Aggregate.
	\$1,000,000	Products/Completed Operations Aggregate.
	\$1,000,000	Personal and Advertising Injury.
	\$1,000,000	Each Occurrence.
	OR	
	Bodily Injury and Property Damage coverage shall be in a Combined Single Limit of not less than	
	\$1,000,000	Each Occurrence and Aggregate.
Automobile Liability:	Bodily Injury coverage shall be for not less than	
	\$1,000,000	Each Person.
	\$1,000,000	Each Accident.
	\$1,000,000	Property Damage coverage shall be for not less than
OR		

	\$1,000,000	Bodily Injury and Property Damage coverage shall be in a Combined Single Limit of not less than
Employers' Liability:	Bodily Injury coverage shall be for not less than	
	\$1,000,000	Each Accident.
	\$1,000,000	Each Disease-Policy Limit.
	\$1,000,000	Each Disease-Each Employee.

G. Other Contracts

1. The Owner has awarded the following contracts for other work at the project sites:
 - a. Water tower construction
2. Cooperate with the above contractors in constructing the facilities in the project herein.

H. Investigations and Reports

The following reports, which have been prepared for the Owner but are not part of these Contract Documents, are available for review upon request:

1. Well 14 casing hammer test well geologic log.
2. Water tower geotechnical investigation.
3. Water tower geoarchaeological study.

I. Traffic Control

1. Contractor is responsible and shall comply with all applicable federal, state, county, and local requirements as required for traffic control and public safety during project construction. Coordination with the proper agencies and the placement and maintenance of warning signs, lights, and other traffic control devices, as may be required, shall be the responsibility of the Contractor.
2. Contractor shall comply with all requirements from the City of Reedley Encroachment Permit issued for this project.

J. Air Pollution Control

The Contractor shall comply with all pollution control rules, regulations, ordinances, and statutes that apply to the work performed under the Contract including any air pollution rules, regulations, ordinances, and statues specified in Section 11017 of the Government Code. The Contractor must also comply with all rules and regulations of the San Joaquin

Valley Air Pollution Control District (SJVAPCD) in constructing the facilities in the project herein.

K. Water Pollution Control

1. The Contractor shall exercise every reasonable precaution to protect streams, lakes, reservoirs, waterways, and other bodies of water from pollution with fuels, oils, bitumens, calcium chloride, and other harmful materials and shall conduct and schedule his operations so as to avoid or minimize muddying and silting of said streams, lakes, reservoirs, waterways, and bodies of water.
2. The Contractor shall comply with California Regional Water Quality Control Board Order No. 5-00-175 regarding waste discharge requirements, general order for dewatering, and other low-thread discharges to surface waters.
3. The Contractor shall comply with the California State Water Resources Control Board (SWRCB) Construction Activities Storm Water General Permit No. 2009-0009-DWQ (NPDES No. CAS000002) for discharges of storm water associated with the construction activities pursuant to the requirements and guidelines contained in the Storm Water Pollution Prevention Plan (SWPPP) prepared for this project as part of a master SWPPP including the water tower construction activities.
4. The Contractor shall provide the services of the consultant currently under contract for the water tower project for furnishing Qualified SWPPP Practitioner (QSP) services as outlined in the SWPPP prepared for this project and pursuant to the SWRCB permit. QSP services shall include, but not be limited to, coordination with the Owner's Qualified SWPPP Developer (QSD) Representative, site and project reconnaissance, inspecting, testing, and reporting.
5. The Contractor shall construct and maintain storm water BMPs outlined in the SWPPP and shall include, but not be limited to, sedimentation basins, straw bale/filter fabric barriers, vehicle and equipment trackout, water bars, rice wattles, erosion control matting, spill containment for hazardous materials, spill cleanup measures, and bermed material storage areas.
6. Nothing in the terms of the Contract shall relieve the Contractor of the responsibility for compliance with Sections 5650 and 12015 of the Fish and Game Code or other applicable statutes relating to prevention or abatement of water pollution.

L. City of Reedley Standard Specifications and Plans

The Contractor shall comply with all of the provisions set forth in the City of Reedley's Standard Specifications and Plans for construction referenced herewith. The Contractor shall conform to all of the provisions from the City of Reedley's Standard Specifications and Plans applicable to this work and that are not included within these documents. The provisions from City of Reedley Standard Specifications and Plans shall be used to supplement the work, not contradict and/or supersede the requirements included within these documents.

M. Environmental Mitigation Measures

1. If, during construction activities, any archaeological or historical resources are uncovered, discovered, or otherwise detected or observed, activities within 50 feet of the find area shall cease. A qualified archaeologist shall be contacted and advise the lead agency of the site's significance. If the findings are deemed significant, appropriate mitigation measures shall be required prior to any resumption of work in the affected area.
2. If, during construction, any skeletal remains are uncovered, discovered, or otherwise detected or observed, activities in the affected area shall cease. A qualified archaeologist, the County Coroner, and local Native American organizations shall be consulted, and appropriate measures shall be required that may include avoidance of the burial site or reburial of the remains.

N. Bid Protest Procedures

The lack of prompt procedure to resolve disputes regarding the bidding process would impair the Owner's ability to carry out its purpose of contracting this project in a timely manner. Therefore, to the maximum extent authorized by law and notwithstanding any other procedures specified in these Contract Documents, all disputes and/or protests regarding the bidding process shall be subject to the following procedure. In submitting a bid to the Owner for this project, the bidder agrees to comply with and to be bound by this procedure.

1. Any bid protest must be submitted in writing to the City before 5:00 p.m. on the fifth working day following bid opening.
2. The bid protest must contain a complete statement of the basis for the protest and all supporting documentation. A nonrefundable fee of one thousand dollars (\$1,000) made payable to the City of Reedley shall accompany the protest documents and will be used by the Owner to recover costs in evaluating the bid protest. A bid protest submitted without the requisite fee will be considered incomplete and will not be considered by the Owner.
3. The party filing the protest must have actually submitted a bid for the work. A subcontractor of a party submitting a bid for the work may not submit a bid protest.
4. A party may not rely on the bid protest submitted by another bidder but must timely pursue its own protest.
5. The protest must refer to the specific portion of the Contract Documents which forms the basis for the protest.
6. The protest must include the name, address, and telephone number of the person representing the protesting party.

7. The party filing the protest must concurrently transmit a copy of the initial protest document and any attached documentation to all other bidders, and the bid protest must contain proof of service of the bid protest on the other bidders.
8. The protested bidder shall have up to five (5) working days after the filing of a bid protest to submit a written response. The responding bidder shall transmit the response to the protesting bidder concurrent with the delivery to the Owner.
9. The procedure and time limits set forth in this paragraph are mandatory and are the bidder's sole and exclusive remedy in the event of a bid protest. The bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue the bid protest, including filing a Government Code Claim or legal proceedings.
10. The Owner will evaluate all proper bid protests before the award of the contract to the lowest responsive and responsible bidder.

END OF SECTION

SECTION 011100 COORDINATION OF WORK, PERMITS, AND REGULATIONS

A. Description

This section generally describes the project and includes permits and regulations.

B. General Nature of Work

The work involves construction of a municipal well.

C. Location of Project Site

The City of Reedley Well No. 14 at Sports Park project site is located at 2453 E. Dinuba Avenue, Reedley, CA 93654 (APN 370-240-60T, T14S, R23E, S36).

D. Permits

1. The following permits for the permanent work have been obtained by the Owner:
 - a. City of Reedley Storm Water Pollution Prevention Plan.
2. Contractor shall obtain and pay the fees for the following permits:

Name or Type of Permit	Name, Address, Telephone Number of Permitting Agency
City of Reedley non-fee encroachment permit	City of Reedley 1733 9th Street Reedley, CA 93654 (559) 637-4200
Construction water permit for water obtained from City-owned fire hydrants	City of Reedley 1733 9th Street Reedley, CA 93654 (559) 637-4200
Well drilling permit	County of Fresno P.O. Box 11867 Fresno, CA 93775 (559) 445-3271

Contact the permitting agencies listed above for current fees associated with each permit.

3. The permits contain requirements that affect the cost of project work and some permanent permits require supplementary work permits and fees to execute construction. Comply with the permit requirements and obtain and pay the fees involved with the supplementary work permits.

END OF SECTION

SECTION 012000 MEASUREMENT AND PAYMENT

A. Work Listed in the Schedule of Work Items

1. Work under this contract will be paid on a unit price or lump-sum basis as outlined on the Bid Form and Section 012200 for the quantity of work installed.
2. The unit prices and lump-sum prices include full compensation for furnishing the labor, materials, tools, and equipment and doing all the work involved to complete the work included in the contract documents.
3. The application for payment will be for a specific item based on the percentage completed or quantity installed. The percentage complete will be based on the value of the partially completed work relative to the value of the item when entirely completed and ready for service.

B. Work Not Listed in the Schedule of Work Items

1. The General Provisions and items in the Special Provisions, general requirements, and specifications which are not listed in the schedule of work items of the Bid Form are, in general, applicable to more than one listed work item, and no separate work item is provided therefor. Include the cost of work not listed but necessary to complete the project designated in the contract documents in the various listed work items of the Bid Form and Section 012200.
2. The bids for the work are intended to establish a total cost for the work in its entirety. Should the Contractor feel that the cost for the work has not been established by specific items in the Bid Form and Section 012200, include the cost for that work in some related bid item so that the Proposal for the project reflects the total cost for completing the work in its entirety.

C. Mobilization

Payment for mobilization shall be made at the time of the first progress payment after the Contractor has purchased bonds and insurance.

END OF SECTION

SECTION 012200 BID ITEM DESCRIPTIONS

Compensation for all work specified to be performed under this contract and shown on the plans will be made under payment items listed herein and shown on the Bid Schedule. The contract prices for the said payment items shall be full compensation for all of the costs connected therewith including all labor, materials, tools, equipment, and incidentals furnished and doing all the work involved in completing the items of work including final cleanup as specified herein. It is the intent of this contract that the sum of all prices listed in the Bid Schedule shall represent the total lump sum cost of all work shown on the plans and specified herein. Where items of work are not specifically defined in the schedule or included in the bid items, these items shall be included in those bid items which are most closely related to the required work.

Separate payment will not be made for any item which is not specifically set forth in the bid items contained in the Proposal. Therefore, the Contractor's entire compensation for doing all work in accordance with the Contract Documents shall be included in the prices stated in the Proposal.

Bid Item 1 - Mobilization and Demobilization (not to exceed \$20,000)

This item is a lump-sum bid for preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for obtaining permits, bonds, and insurance; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site. Also included is demobilization of all equipment, personnel, supplies, and materials from the site. This bid item is limited to a maximum of \$20,000. A maximum of 80% of the bid amount shall be paid for mobilization and shall be paid with the first regular monthly pay request.

Bid Item 2 - Storm Water Pollution Prevention Plan

This item is a lump sum bid for implementing and maintaining storm water pollution control measures as outlined in the SWPPP prepared for this project and pursuant to SWRCB Permit No. 2009-009-DWQ (NPDES No. CAS000002). Payment shall include, but not be limited to, the cost for furnishing the services of a qualified SWPPP practitioner, constructing and maintaining BMPs as shown on the plans, and per these Contract Documents.

Bid Item 3 - 34-Inch-Diameter Conductor Casing and 42-Inch-Diameter Bore Hole (50 Vertical Feet)

This item is a lump sum bid for furnishing and installing the 34-inch-diameter blank conductor casing including the construction of a 42-inch-diameter bore hole and cement grout seal as shown on the plans and in accordance with the Technical Specifications.

Bid Item 4 - 30-Inch-Diameter Well Production Hole

This item is a unit price bid for constructing the 30-inch-diameter hole as shown on the plans and in accordance with the Technical Specifications. Measurement shall be made per vertical foot

from the bottom of the conductor casing to the bottom of the completed 30-inch-diameter hole as shown in the plans.

Bid Item 5 - 18-Inch Internal Diameter Steel Blank Well Casing

This item is a unit price bid for furnishing and installing the 18-inch internal diameter (ID) blank well casing as shown on the plans and in accordance with the Technical Specifications. Measurement shall be made per vertical foot of 18-inch ID blank well casing actually installed as shown on the plans.

Bid Item 6 - 18-Inch Internal Diameter Steel Louvered Well Casing

This item is a unit price bid for furnishing and installing the 18-inch ID louvered well casing as shown on the plans and in accordance with the Technical Specifications. Measurement shall be made per vertical foot of 18-inch ID louvered well casing actually installed as shown on the plans.

Bid Item 7 - Gravel Pack

This item is a unit price bid for furnishing and installing the gravel pack as shown on the plans and in accordance with the Technical Specifications. Measurement shall be made per foot of gravel pack actually installed, including filling the gravel-fill piping, as shown on the plans.

Bid Item 8 - Annular Seal

This item is a unit price bid for furnishing and installing the sand cement grout seal as shown on the plans and in accordance with the Technical Specifications. Measurement shall be made per vertical foot of annular cement seal actually installed from the top of the conductor casing to the top of the gravel pack, including bentonite plug, as shown on the plans.

Bid Item 9 - Airlifting and Swabbing

This item is a unit price bid for cleaning and swabbing the well as described in the Technical Specifications. Measurement shall be made on an hourly basis during which the cleaning and swabbing work is being operated properly, and no payment shall be made for additional time required due to breakdown or improper use of the Contractor's equipment.

Bid Item 10 - Setting and Removing Well Development Pump

This item is a lump sum bid for setting and removing a pump and engine to develop the well as described in the Technical Specifications. Payment shall include all costs for setting the pump at a minimum depth of 220 feet and removing the equipment at the conclusion of the test pumping.

Bid Item 11 - Well Development by Pumping and Surging

This item is a unit price bid for operating the development pump to develop the well as described in the Technical Specifications. Payment shall include all costs of operating the pump. Measurement shall be made on an hourly basis during which the pump is in proper operation, and no payment shall be made for additional time required due to failure of the pump or engine due to fault of the Contractor or others.

Bid Item 12 - Pump Test

This item is a unit price bid for operating the development pump and engine as described in the Technical Specifications. Payment shall include operating the pump at the rates described in the Technical Specifications and as directed by the Owner's Representative. Measurement shall be made on an hourly basis during which the pump is being operated properly. If the time must be extended due to failure of the pump or engine due to fault of the Contractor or others, no additional payment shall be made.

Bid Item 13 - Miscellaneous Work

This item is a lump sum bid for performing all necessary work, furnishing and installing all other miscellaneous items, and obtaining all permits needed to provide a fully developed production well in accordance with the Technical Specifications. Payment shall include, but not be limited to, the cost of the E-log, caliper log, TV log, testing, driller's report, 3-inch gravel feed tube, 3-inch-diameter casing vent pipe, 1.5-inch-diameter sounding tube, concrete pedestal, casing cap, and all other tests and items necessary to provide a complete production well as shown on the plans and in accordance with the Technical Specifications. It shall also include City of Reedley construction water permit, Fresno County well drilling permit, construction water for well development and other construction activities, cleanup, project closeout, and all other work not included within previous bid items as shown on the plans and in accordance with the Technical Specifications to provide a complete and operational project.

END OF SECTION

SECTION 013300 SUBMITTALS

A. Shop Drawings

1. Submit shop drawings in accordance with the General Provisions.
2. The use of contract drawing reproductions for shop drawings is subject to rejection.
3. Submit six copies of shop drawings. The Owner's Representative will keep four copies and return two copies. If the Contractor desires more than two copies, he shall transfer the Owner's Representative's comments onto additional copies at his own expense. Clearly indicate the specification section and drawing number to which each shop drawing is referenced.
4. If the Contractor submits shop drawings of equipment by manufacturers other than those listed in the specifications, provide the following information with the submittal:
 - a. The name and address of at least three companies or agencies that are currently using the equipment.
 - b. The name and telephone number of at least one person at each of the above companies or agencies whom the Owner's Representative may contact.
 - c. A description of the equipment that was installed at the above locations. The description shall be in sufficient detail to allow the Owner's Representative to compare it with the equipment that is proposed to be installed in this project.
5. For materials originating outside of the United States for which tests are required, provide recertification and retesting by an independent domestic testing laboratory.

B. Samples

1. Furnish samples of the various materials, together with the finish thereon, as specified for and intended to be used on or in the work. Send samples to the office of the Owner's Representative, carriage prepaid.
2. Submit samples before purchasing, fabricating, applying, or installing such materials and finishes.
3. Submit samples, other than field samples, in duplicate. A cover letter shall accompany the sample and shall list all items being transmitted, designating their particular usage and location in the project. One sample marked "Resubmittal Not Required" will be returned to the Contractor; rejected samples will not be returned.

4. Samples shall be submitted and resubmitted until acceptable. Materials, finishes, and workmanship in the completed project shall be equal in every respect to that of the samples so submitted and accepted.
5. Samples shall conform to materials, fixtures, equipment, surface textures, colors, etc., as required by drawings and specifications or as requested by the Owner's Representative.
6. Identify sample as to product, color, manufacturer, trade name, lot, style, model, etc., location of use, and contract document reference, as well as the names of the Contractor, supplier, project, and Owner's Representative.
7. Samples shall be 8 inches by 10 inches in size and shall be limited in thickness to a minimum consistent with sample presentation. In lieu thereof, submit the actual full-size item.
8. Samples of value may be returned to the Contractor for use in the project after review, analysis, comparison, and/or testing as may be required by the Owner's Representative.
9. Furnish one 8-inch by 10-inch sample of the finally reviewed materials, colors, or textures to the Owner's Representative for final record. Such material samples shall carry on the back all identification as previously described including, if paint sample, manufacturer, mix, proportion, name of color, building, Contractor, subcontractor, and surfaces to which applied.

C. Submittal Requirements

1. Make submittals promptly in such sequence as to cause no delay in the work. Schedule submission a minimum of 30 calendar days before reviewed submittals will be needed.
2. Submittals shall contain:
 - a. The date of submission and the dates of any previous submissions.
 - b. The project title and number.
 - c. Contract identification.
 - d. The names of:
 - (1) Contractor.
 - (2) Supplier.
 - (3) Manufacturer.
 - e. Identification of the product, with the specification section number.

- f. Field dimensions, clearly identified as such.
- g. Relationship to adjacent or critical features of the work or materials.
- h. Identification of deviations from contract documents.
- i. Identification of revisions on resubmittals.
- j. A 5-inch by 5-inch blank space for Engineer's stamps.
- k. Contractor's stamp, initialed or signed, shall certify Contractor's review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal that the product meets the requirements of the work and of the contract documents.

D. Submittal Format

1. Each submittal shall have a transmittal form. A sample transmittal form is included at the end of this section. Every page in a submittal shall be numbered in sequence. Each copy of a submittal shall be collated and stapled or bound, as appropriate. Copies not collated will be rejected.
2. Where product data from a manufacturer is submitted, clearly mark which model is proposed, with all pertinent data, capacities, dimensions, clearances, diagrams, controls, connections, anchorage, and supports. Present a sufficient level of detail for assessment of compliance with the contract documents.
3. Each submittal shall be assigned a unique number. Submittals shall be numbered sequentially. The submittal numbers shall be clearly noted on the transmittal. Original submittals shall be assigned a numeric submittal number. Resubmittals shall bear an alphanumeric system which consists of the number assigned to the original submittal for that item followed by a letter of the alphabet to represent that it is a subsequent submittal of the original. For example, if Submittal 25 requires a resubmittal, the first resubmittal will bear the designation "25-A" and the second resubmittal will bear the designation "25-B" and so on.
4. Disorganized submittals that do not meet the requirements above will be returned without review.

E. Contractor's Record Drawings

Provide and maintain on the jobsite one complete set of prints of all drawings which form a part of the contract. Immediately after each portion of the work is installed, indicate all deviations from the original design shown in the drawings either by additional sketches or ink thereon. Upon completion of the job, deliver this record set to the Owner's Representative.

SHOP DRAWING SUBMITTAL NO. _____

AECOM
1360 E. Spruce Avenue, Suite 101
Fresno, CA 93720

ATTN: _____

ATTN: _____

PROJECT

AECOM PROJECT NO.

OWNER PROJECT NO.

CONTRACTOR PROJECT NO.

ITEM NO.	COPIES	DESCRIPTION	PREVIOUS SUBMITTAL NO.	SPEC. SECTION NO.	PLAN SHEET NO.

SUBMITTED BY: _____

CONTRACTOR

DATE

SUBMITTAL RETURN (TO BE COMPLETED BY ENGINEER)

ITEM NO.	COPIES	RESUBMIT		COMMENTS
		YES	NO	

COPY: _____

RETURNED BY: _____

ENGINEER

DATE

END OF SECTION

SECTION 014210 GENERAL ABBREVIATIONS

A. General

Interpret abbreviations used in the drawings and in the specifications as tabulated below. If an abbreviation on a drawing is not explained below, it shall be as explained in ANSI Y1.1. The interpretation of abbreviations shall consider the context or discipline in which they are used, for example:

1. FF usually means "finish floor" when referring to a floor slab.
2. FF usually means "flat face" when referring to a pipe flange.

B. List of General Abbreviations

Abbreviation	Term
A	
A	Ampere/Area
AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturer's Association
AAS	Airport Advisory Service
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
AB	Anchor Bolt/Aggregate Base
ABAN	Abandoned
ABC	Asphalt Base Course
ABS	Acrylonitrile-Butadiene-Styrene
ABT	About
AC	Acre/Asphaltic Concrete/Alternating Current/Air Conditioning
ACCU	Air Cooled Condensing Unit
ACGIH	American Conference of Governmental Industrial Hygienists
ACI	American Concrete Institute
ACP	Asbestos-Cement Pipe
ACU	Air Conditioning Unit
AD	Access Door
ADA	Americans with Disabilities Act
ADDL	Additional
ADJ	Adjacent
AE	Architect-Engineer

Abbreviation	Term
AF	Air Filter/Ampere Frame
AFB	Air Force Base
AFBMA	Anti-Friction Bearing Manufacturer's Association
AGA	American Gas Association
AGMA	American Gear Manufacturer's Association
AHD	Ahead
AHU	Air Handling Unit
AI	The Asphalt Institute
ALA	American Institute of Architects
AICS	Amperes Interrupting Capacity, Symmetrical
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AL	Aluminum
ALIGN	Alignment
ALM	Alarm
ALTN	Alternate
AMB	Ambient
AMCA	Air Movement and Control Association
AMP	Ampere
ANCH	Anchor
ANG	Angle
ANSI	American National Standards Institute
API	American Petroleum Institute
APPROX	Approximate
APWA	American Public Works Association
ARCH	Architecture/Architectural
AREA	American Railway Engineering Association
ARI	Air Conditioning and Refrigeration Institute
ARV	Air-Release Valve
ARVV	Air-Release/Vacuum Valve
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASPH	Asphalt
ASSY	Assembly
ASTM	American Society of Testing and Materials

Abbreviation	Term
ATS	Automatic Transfer Switch
AVE	Avenue
AVG	Average
AWG	American Wire Gauge
AWPA	American Wood Preservers Association
AWPB	American Wood Preservers Bureau
AWS	American Welding Society
AWWA	American Water Works Association
B	
BB	Back-to-Back
BC	Beginning of Curve/Back of Curve/Bolt Circle
BCR	Begin Curb Return
BEG	Begin
BEP	Best Efficiency Point
BETW	Between
BF	Blind Flange
BHP	Brake Horsepower
BK	Back/Brake
BKR	Breaker
BL	Base Line
BLDG	Building
BLK	Block
BM	Bench Mark/Beam
BO	Blowoff
BOCA	Building Officials Code Administration International, Inc.
BOD	Biochemical Oxygen Demand
BOT	Bottom
BP	Baseplate
BR	Bronze/Branch
BRG	Bearing
BTN	Button
BTU	British Thermal Unit
BUR CBL	Buried Cable
BV	Butterfly Valve
BVC	Begin Vertical Curve
BW	Block Wall
C	
C	Conduit/Celsius

Abbreviation	Term
CAB	Crushed Aggregate Base
CALTRANS	California Department of Transportation
CANTIL	Cantilevered
CAP	Capacity
CATV	Cable Television
CB	Catch Basin/Circuit Breaker
CBC	California Building Code
CC	Cooling Coil
C-C	Center-to-Center
CCB	Concrete Block
CCP	Concrete Cylinder Pipe
CCS	Central Control Station
CCTV	Closed-Circuit Television
CD	Cross Drain/Condensate Drain/Ceiling Diffuser
CEC	California Electrical Code
CEM	Cement
CF	Cubic Feet/Curb Face
CFH	Cubic Feet Per Hour
CFM	Cubic Feet Per Minute
CFS	Cubic Feet Per Second
CG	Ceiling Grill
C & G	Curb and Gutter
CGA	Compressed Gas Association
CH	Chiller
CHG	Change
CHKD PL	Checkered Plate
CI	Cast Iron
CIP	Cast in Place/Cast-Iron Pipe
CIPP	Cured-in-Place Pipe
CISP	Cast- Iron Soil Pipe
CISPI	Cast-Iron Soil Pipe Institute
CJ	Construction Joint
CL	Centerline/Class/Clearance
CLR	Clear
CMAA	Crane Manufacturer's Association of America
CMC	Cement-Mortar Coated or Coating
CML	Cement-Mortar Lined or Lining
CMLCSP	Cement-Mortar Lined and Coated Steel Pipe

Abbreviation	Term
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arch
CMU	Concrete Masonry Unit
CO	Cleanout/Conduit Only
COL	Column
COMM	Communication
COMP	Composite
COMPL	Complete
CONC	Concrete
CONN	Connection
CONST	Construct or Construction
CONT	Continuous
CONTR	Contractor
COORD	Coordinate/Coordinated
COP	Copper
COR	Corner
CPLG	Coupling
CPU	Central Processing Unit
CRES	Corrosion-Resistant Steel
CRI	Carpet and Rug Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Carbon Steel/Commercial Standard
CSP	Corrugated Steel Pipe
CT	Center Top/Current Transformer
CTG	Coating
CTR	Center
CTV	Cable Television
CULV	Culvert
CU YD, CY	Cubic Yard
CYL	Cylinder
D	
D	Degree of Curvature
DB	Direct Buried/Decibel
DBL	Double
DC	Direct Current
DEPT	Department
DET	Detail/Detour
DG	Decomposed Granite

Abbreviation	Term
DI	Drop Inlet/Ductile Iron
DIA	Diameter
DIAG	Diagonal
DIM	Dimension
DIMJ	Ductile-Iron Mechanical Joint
DIP	Ductile-Iron Pipe
DIPRA	Ductile-Iron Pipe Research Association
DISCH	Discharge
DIST	Distance
DIV	Divide/Division
DO	Dissolved Oxygen
DMH	Drop Manhole
DN	Down
DP	Differential Pressure
DPI	Differential Pressure Indicator
DPNL	Distribution Panel
DR	Drain/Door
DSL	Diesel
DWG	Drawing
DWY	Driveway
E	
E	East
EA	Each
EC	End of Curve
ECC	Eccentric
ECR	End of Curb Return
ED	External Distance
EDUC	Eductor
EE	Each End
EF	Each Face/Exhaust Fan
EFF	Efficiency
EFL	Effluent
EG	Exhaust Grill
EGL	Energy Grade Line
EL	Elevation/Each Layer
E/L	Easement Line
ELEC	Electric
ELEV	Elevation

Abbreviation	Term
ELL	Elbow
ELP	Elliptical
EMB	Embankment
ENC	Encasement
ENCL	Enclosure
ENG	Engine
ENGR	Engineer
EOP	Edge of Pavement
EOS	Equivalent Opening Size
EOTW	Edge of Traveled Way
EP	Explosion Proof/Edge of Pavement
EPA	Environmental Protection Agency (Federal)
EPDM	Ethylene Propylene Diene Monomer
EPR	Ethylene-Propylene Rubber
EQ	Equation
EQL	Equal
ESMT	Easement
EST	Estimate or Estimated
ETC	And so Forth
ETM	Elapsed Time Meter
EVAP	Evaporator
EVC	End Vertical Curve
EW	Each Way
EWV	Electric Water Cooler
EXC	Excavate or Excavation
EXP	Expansion
EXST	Existing
EXT	Exterior/Extension
F	
F	Fahrenheit/Floor
FAA	Federal Aviation Administration
FAB	Fabricate
FBRBD	Fiberboard
FC	Foot-Candle
FCC	Filter Control Console
FCO	Floor Cleanout
FCV	Flow Control Valve
FD	Floor Drain

Abbreviation	Term
FDN	Foundation
FE	Flanged End
FF	Finished Floor/Flat Face
FG	Finished Grade
FHY	Fire Hydrant
F&I	Furnish and Install
FIG	Figure
FIN	Final
FIT	Fitting
FL	Floor/Flow Line
FLEX	Flexible/Flexure
FLG	Flange
FLT	Float
FLUOR	Fluorescent
FM	Force Main/Factory Mutual
FMH	Flexible Metal Hose
FNSH	Finish
FOC	Face of Concrete
FOS	Face of Stud
FPC	Flexible Pipe Coupling
FPM	Feet Per Minute
FPS	Feet Per Second
FPT	Female Pipe Thread
FRP	Fiberglass-Reinforced Plastic
FS	Finished Surface/Floor Sink/Federal Specifications
FSTNR	Fastener
FT	Feet or Foot
FTG	Footing
FUT	Future
FWY	Freeway
FX	Fire Extinguisher
G	
G	Gas
GA	Gauge
GAL	Gallon
GALV	Galvanized
GAS	Gasoline
GB	Grade Break

Abbreviation	Term
GDR	Guard Rail
GE	Grooved End
GEN	Generator
GENL	General
GFI	Ground Fault Interrupter
GM	Gas Main
GMAW	Gas Metal Arc Welding
GMT	Greenwich Mean Time
GND	Ground
GPD	Gallons Per Day
GPM	Gallons Per Minute
GR	Grade
GRTG	Grating
GSKT	Gasket
GUT	Gutter
GV	Gate Valve
GWB	Gypsum Wallboard
GWBX	Gypsum Wallboard, Fire Rated
GYP	Gypsum
H	
H	Humidistat
HARN	Harness
HB	Hose Bibb
HC	Heating Coil
HD	Heavy Duty
HDPE	High Density Polyethylene
HEPA	High Efficiency Particulate Air
HGL	Hydraulic Grade Line
HID	High Intensity Discharge
HOA	Hand-Off-Automatic
HOR	Hand-Off-Remote
HORIZ	Horizontal
HP	Horsepower/High Pressure
HPS	High Pressure Sodium
HPT	High Point
HR	Hour/Handrail
HS	High Strength
HT	Height

Abbreviation	Term
HTG	Heating
HTR	Heater
HV	Hose Valve
HVAC	Heating, Ventilating, and Air Conditioning
HVY	Heavy
HW	Headwall/Hot Water
HWL	High Water Level
HWY	Highway
HYDR	Hydraulic
HZ	Hertz (cycles per second)
I	
I	Intersection Angle
ICBO	International Conference of Building Officials
ID	Inside Diameter
IE	Invert Elevation
IEEE	Institute of Electrical and Electronics Engineers
IN	Inches
INCAND	Incandescent
INCL	Include
INL	Inlet
INS	Insulating
INSTL	Install or Installation
INTR	Interior/Intersection
INV	Invert
IP	Iron Pipe
IPS	Iron Pipe Size
IPT	Iron Pipe Thread
IRR	Irrigation
ISA	Instrument Society of America
J	
J	Joist
JB	Junction Box
JCT	Junction
JIC	Joint Industrial Council
JN	Join
JT	Joint
K	
KG	Kilogram

Abbreviation	Term
KM	Kilometer
KIPS	Thousands of Pounds
KV	Kilovolt
KVA	Kilovolt-Ampere
KW	Kilowatt
KWH	Kilowatt-Hour
KWHM	Kilowatt-Hour Meter
L	
L	Length of Curve/Long/Left
LATL	Lateral
LAV	Lavatory
LB	Pound
LBR	Lumber
LCL	Local
LF	Linear Foot
LG	Long
LGTH	Length
LI	Level Indicator
LLO	Long Leg Outstanding
LOC	Location/Locate
LONGIT	Longitudinal
LOS	Lockout Stop
LP	Light Pole
LPT	Low Point
LR	Long Radius
LS	Lift Station
LT	Left/Light
LTG	Lighting
LWC	Lightweight Concrete
LWIC	Lightweight Insulating Concrete
LWL	Low Water Level
M	
MA	Milliampere
MAG	Magnet/Magnetic
MATL	Material
MAX	Maximum
MB	Machine Bolt/Megabyte/Millibars
MBH	Thousand BTU Per Hour

Abbreviation	Term
MECH	Mechanical
MC	Metal Channel
MCC	Motor Control Center
MCM	Thousand Circular Mils
MCP	Motor Circuit Protector
MD	Motorized Damper
MFR	Manufacturer
MG	Million Gallons/Milligram
MGD	Million Gallons Per Day
MG/L	Milligrams Per Liter
MH	Manhole
MHZ	Megahertz
MI	Malleable Iron/Mile
MIL	Military Specifications
MIN	Minimum
MISC	Miscellaneous
MLSS	Mixed Liquor Suspended Solids
MLVSS	Mixed Liquor Volatile Suspended Solids
MJ	Mechanical Joint
MMA	Monorail Manufacturer's Association
MO	Motor Operator/Motor Operated/Masonry Opening
MOD	Modification
MON	Monument
MOT	Motor
MPT	Male Pipe Thread
MSL	Mean Sea Level
MSS	Manufacturer's Standardization Society
MTD	Mounted
N	
N	North/Neutral/Nitrogen
NA	Not Applicable
NAAMM	National Association of Architectural Metal Manufacturers
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
N & C	Nail and Cap
NC	Normally Closed
NDT	Nondestructive Testing
NE	Northeast

Abbreviation	Term
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFC	National Fire Code
NH	National Hose
NIC	Not in Contract
NIP	Nipple
NMTBA	National Machine Tool Builders Association
NO	Number/Normally Open
NOM	Nominal
NPT	National Pipe Taper
NRS	Nonrising Stem
NSF	National Sanitation Foundation
NTS	Not to Scale
NTU	Nephelometric Turbidity Unit
NW	Northwest
NWL	Normal Water Level
O	
OA	Overall/Outside Air
OC	On Center/Overcurrent
OD	Outside Diameter
ODP	Open Dripproof
OE	Or Equal
OF	Outside Face
OPER	Operator
OPNG	Opening
OPP	Opposite
ORIG	Original
OSA	Outside Air
OSHA	Occupational Safety and Health Administration
O TO O	Out to Out
OVFL	Overflow
OVHD	Overhead
P	
P	Pole
PARA	Paragraph
PB	Push Button/Pull Box
PC	Point of Curvature/Programmable Controller
PCA	Portland Cement Association

Abbreviation	Term
PCC	Point of Compound Curvature/Portland Cement Concrete
PDI	Plumbing and Drainage Institute
PE	Plain End/Polyethylene/Professional Engineer
PEN	Penetration
PERF	Perforated
PF	Power Factor
PG	Pressure Gauge
PI	Point of Intersection
PJTN	Projection
PKWY	Parkway
PL	Plate/Property Line
PLATF	Platform
PLC	Programmable Logic Controller
PLF	Pounds Per Lineal Foot
PNL	Panel
POB	Point of Beginning
POC	Point of Connection
POJ	Push-On Joint
PP	Power Pole/Polypropylene
PPB	Parts Per Billion
PPM	Parts Per Million
PR	Pair
PRC	Point of Reverse Curve
PRESS	Pressure
PRL	Parallel
PROV	Provisions
PRPSD	Proposed
PRVC	Point of Reverse Vertical Curve
PSI	Pounds Per Square Inch
PSIG	Pounds Per Square Inch Gauge
PSF	Pounds Per Square Foot
PSHL	Pressure Switch (High/Low)
PSL	Pressure Switch (Low)
PT	Point of Tangency
PV	Plug Valve
PVC	Polyvinyl Chloride
PVMT	Pavement
PWR	Power

Abbreviation	Term
Q	
Q	Flow Rate
QTY	Quantity
R	
R	Right/Radius
RAD	Radius/Radial
RAF	Return Air Fan
RAG	Return Air Grille
RC	Reinforced Concrete
RCB	Reinforced Concrete Box
RCP	Reinforced Concrete Pipe
RCPA	Reinforced Concrete Pipe Arch
RD	Road
RDC	Reduce
RDCR	Reducer
RDWY	Roadway
REF	Reference
REINF	Reinforce or Reinforced
RELOC	Relocated
REQ	Required/Requirement
REQD	Required
REV	Revise/Revision
RF	Raised Face
RH	Relative Humidity
RND	Round
RJ	Restrained Joint
RLG	Railing
RPM	Revolutions Per Minute
RR	Railroad
RST	Reinforcing Steel
RT	Right
RTD	Resistance Temperature Detector
RTU	Remote Terminal Unit
R/W	Right-of-Way
S	
S	South/Slope in Feet Per Foot/Sewer
SAE	Society of Automotive Engineers
SAN	Sanitary

Abbreviation	Term
SAR	Supply Air Register
SBCCI	Southern Building Codes Congress International
SC	Seal Coat
SCFM	Standard Cubic Feet Per Minute
SCHED	Schedule
SCR	Silicon-Controlled Rectifier/Selective Catalytic Reduction
SCRN	Screen
SD	Storm Drain
SDG	Siding
SDI	Steel Deck Institute
SDWK	Sidewalk
SE	Southeast
SECT	Section
SF	Square Feet
SGL	Single
SH	Sheet/Sheeting/Shielded
SIM	Similar
SLP	Slope
SLV	Sleeve
SM	Sheet Metal
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SMAW	Shielded Metal Arc Welding
SOL	Solenoid
SOV	Solenoid-Operated Valve
SP	Space/Steel Pipe/Static Pressure/Spare
SPCG	Spacing
SPEC	Specification
SPLC	Splice
SPRT	Support
SQ	Square
SQ FT	Square Feet
SR	Short Radius
SS	Sanitary Sewer
SSPC	Steel Structures Painting Council
SST	Stainless Steel
ST	Street
STA	Station
STBY	Standby

Abbreviation	Term
STC	Sound Transmission Class
STD	Standard
STK	Stake
STL	Steel
STR	Straight
STRL	Structural
STRUCT	Structure
STS	Storm Sewer
STGR	Stringer
STWY	Stairway
SURF	Surface
SW	Southwest
SWG	Swing
SWI	Steel Window Institute
SYMM	Symmetrical
SYS	System
T	
T	Ton/Tangent Length of Curve/Telephone
TAN	Tangent
T/B	Top of Beam
TB	Top of Bank/Terminal Board
T & B	Top and Bottom
TBG	Tubing
TBM	Temporary Bench Mark
TC	Top of Curb
TD	Time Delay
TDH	Total Dynamic Head
TDS	Total Dissolved Solids
TEFC	Totally Enclosed Fan Cooled
TEL	Telephone
TEMP	Temperature/Temporary
TENV	Totally Enclosed Nonventilated
THB	Thrust Block
THD	Thread or Threaded
THH	Thrust Harness
THK	Thick
TIG	Tungsten Inert Gas
TIR	Total Indicator Reading

Abbreviation	Term
TO	Turnout
T/O	Top of
TOC	Top of Concrete
TOS	Top of Slab/Top of Steel
TOT	Total
TP	Telephone Pole
TRD	Tread
TRA	Tie Rod Assembly
TS	Tube Steel
TV	Television
TYP	Typical
U	
UBC	Uniform Building Code
UD	Underdrain
UG	Underground
UH	Unit Heater
UHMW	Ultra High Molecular Weight
UL	Underwriters' Laboratories, Inc.
ULT	Ultimate
UNO	Unless Noted Otherwise
UPS	Uninterruptible Power Supply
UR	Urinal
USGS	United States Geological Survey
UTC	Underground Telephone Cable
UTR	Up Through Roof
UV	Ultraviolet
V	
V	Vent/Valve/Volt
VAC	Vacuum/Volts, Alternating Current
VC	Vertical Curve
VCP	Vitrified Clay Pipe
VEL	Velocity
VERT	Vertical
VF	Vertical Foot or Feet
VFD	Variable Frequency Drive
VOL	Volume
VPC	Vertical Point of Curve
VPI	Vertical Point of Intersection

Abbreviation	Term
VPT	Vertical Point of Tangency
VSS	Volatile Suspended Solids
VTR	Vent Through Roof
W	
W	West/Watt/Wide/Water
W/	With
WC	Water Closet
WCO	Wall Cleanout
WG	Water Gauge
WH	Wall Hydrant
WL	Waterline
WLD	Welded
WM	Water Meter/Water Main
W/O	Without
WP	Waterproof/Working Point
WRGWB	Water-Resistant Gypsum Wallboard
WSE	Water Surface Elevation
WSP	Water Stop
WT	Weight
WTR	Water
WWF	Welded Wire Fabric (same as WWR)
WWM	Woven Wire Mesh (same as WWR)
WWR	Welded Wire Reinforcement
X	
XFMR	Transformer
XFR	Transfer
Y	
YCO	Yard Cleanout
YD	Yard
YP	Yield Point
YR	Year
YS	Yield Strength

END OF SECTION

SECTION 015100 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

A. Construction Water

1. Related Work Specified Elsewhere:
 - a. Municipal Well: 332100.
 - b. General Concrete Construction: 030500.
2. The Contractor may obtain water from the City of Reedley water system located on the Sports Park site in accordance with a permit to be obtained by the Contractor from the City. The permit requires a refundable deposit of \$750 and a nonrefundable monthly use fee of \$55/month.
3. Include the cost for delivery of construction water in the appropriate bid item to which it is appurtenant. The cost shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all the work necessary to develop a sufficient water supply and furnishing the necessary equipment for applying the water as described in these specifications.

B. Electrical Power--Construction Phase

Provide for the purchase of power or provide portable power for the construction of the project where existing outlets are not available. Provide for the extension of utility lines to the point of usage. The cost of power shall be included in the appropriate bid items to which it is appurtenant and shall include full compensation for furnishing all labor, materials, tools, and equipment required to obtain and distribute power for construction purposes.

C. Dust Control

Perform dust control operations to prevent construction operations from producing dust in amounts harmful to persons or causing a nuisance to persons living nearby or occupying buildings in the vicinity of the work. Use water or dust preventative to control dust.

D. Fire Danger

Minimize fire danger in the vicinity of and adjacent to the construction site. Provide labor and equipment to protect the surrounding private property from fire damage resulting from construction operations.

E. Construction Staking

Staking of the production well location shall be provided by the Owner's Representative and witnessed by the Contractor. Staking shall include vertical and horizontal measurements.

END OF SECTION

SECTION 017410 CLEANING DURING CONSTRUCTION AND FINAL CLEANING

A. General

1. This section includes cleaning during construction and final cleaning on completion of the work.
2. At all times maintain areas covered by the contract and adjacent properties and public access roads free from accumulations of waste, debris, and rubbish caused by construction operations.
3. Conduct cleaning and disposal operations to comply with local ordinances and antipollution laws. Do not burn or bury rubbish or waste materials on project site. Do not dispose of volatile wastes, such as mineral spirits, oil, or paint thinner, in storm or sanitary drains. Do not dispose of wastes into streams or waterways.
4. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Cleaning During Construction

1. During execution of work, clean site, adjacent properties, and public access roads and dispose of waste materials, debris, and rubbish to assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
2. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
3. Provide containers for collection and disposal of waste materials, debris, and rubbish.
4. Cover or wet excavated material leaving and arriving at the site to prevent blowing dust. Clean the public access roads to the site of any material falling from the haul trucks.

C. Final Cleaning

1. At the completion of work and immediately prior to final inspection, clean the entire project site.
2. Remove from the site temporary structures and materials, equipment, and appurtenances not required as part of, or appurtenant to, the completed work.

END OF SECTION

SECTION 030500 GENERAL CONCRETE CONSTRUCTION

PART 1 - GENERAL

A. Description

This section includes materials, installation, and testing of formwork, reinforcing steel, joints, concrete, and finishing and curing for general concrete construction.

B. Related Work Specified Elsewhere

Municipal Well: 332100.

C. Submittals

1. Submit shop drawings in accordance with the General Provisions and Section 013300.
2. Prepare concrete and mortar mix designs and laboratory 7-day and 28-day compressive tests, or submit test reports of 7- and 28-day compressive tests of the mix where the same mix has been used on two previous projects. Submit mix design in writing for review by the Owner at least 15 days before placing of any concrete.
3. Submit manufacturer's catalog data and descriptive literature for form coatings and curing compound, joint sealant, joint filler, color additive, and epoxy anchor adhesive.
4. Submit mill test certificates identifying chemical and physical analyses of each load of reinforcing steel delivered. If mill test reports are unavailable and the quantity of steel for a structure exceeds 5 tons, provide a laboratory test to prove conformance with the specified ASTM standard.
5. Submit reinforcing bending lists and placing drawings for all reinforcing. Placing drawings shall indicate all openings (mechanical, electrical, equipment, and architectural) including additional reinforcing at openings and corner bar arrangements at intersecting beams, walls, and footings indicated in the typical detail and structural drawings. Placing drawings shall be coordinated with the concrete placing schedule. Each bending list and placing drawing submitted shall be complete for each major element of a structure (grade slabs, footings, walls, deck, floor, or roof slabs) including dowels and corner bars. Furnishing such lists shall not be construed that the lists will be reviewed for accuracy. The Contractor shall be wholly and completely responsible for the accuracy of the lists and for furnishing and placing reinforcing steel in accordance with the details shown in the drawings and as specified. Placing drawings shall be prepared by the Contractor and shall not incorporate photocopies of the contract drawings.

6. Submit six copies of a report from a testing laboratory verifying that aggregate material contains less than 1% asbestos by weight or volume and conforms to the specified gradations or characteristics.

PART 2 - MATERIALS

A. Nondomestic Cement and Additives

1. The use of nondomestic cement and additives in concrete may be permitted only after review of a written request to use such materials. The request to use nondomestic materials shall include a chemical analysis that indicates the material meets the project specifications. Certifications that state the nondomestic materials meet the project requirements will not be accepted.
2. Test reports for concrete materials shall be current to within three months of inclusion into the project and shall be identifiable to the materials supplied.

B. Formwork

1. Design forms according to ACI 347.
2. Class I Forms: Use steel forms, ply form, or smooth-surface plywood 3/4-inch minimum thickness for straight surfaces and 1/2-inch minimum thickness for curved surfaces.
3. Class II Forms: Use plywood in good condition, metal, or smooth-planed boards free from large or loose knots with tongue and groove or ship lap joints.
4. Class II forms may be used for exterior concrete surfaces that are 1 foot or more below finished grade. Use Class I forms for all other surfaces.
5. Coat forms with form release agent.

C. Bond Breaker

Bond breaker shall be a nonstaining type which will provide a positive bond prevention, such as Williams Tilt-Up Compound, as manufactured by Williams Distributors, Inc., Seattle, Washington; Silcoseal 77, as manufactured by SCA Construction Supply Division, Superior Concrete Accessories, Franklin Park, Illinois; or equal.

D. Form Release Agent

1. Form release agent shall effectively prevent absorption of moisture and prevent bond with the concrete. Agent shall be nonstaining and nontoxic after 30 days.
2. For steel forms, release agent shall prevent discoloration of the concrete due to rust.

E. Reinforcing Steel

1. Reinforcement shall conform to ASTM A615, Grade 60.
2. Fabricate reinforcing in accordance with the current edition of the Manual of Standard Practice, published by the Concrete Reinforcing Steel Institute. Bend reinforcing steel cold.
3. Deliver reinforcing steel to the site bundled and with identifying tags.

F. Welded Wire Reinforcement

Welded wire reinforcement shall conform to ASTM A185.

G. Tie Wire

Tie wire shall be 16 gauge minimum, black, soft annealed.

H. Bar Supports

Bar supports in beams and slabs exposed to view after form stripping shall be galvanized and plastic coated. Use concrete supports for reinforcing in concrete placed on grade.

I. Bar Couplers

Reinforcing steel bar splicing couplers shall be a mechanical type as manufactured by Dayton Barsplice Inc. or equal. Use couplers that do not reduce tensile or ultimate strength of bars.

J. Joint Sealant for Concrete Structures

1. Joint sealant shall be a multipart, gray, nonstaining, nonsagging, gun grade polyurethane sealant, which cures at ambient temperature to a firm, flexible, resilient, tear-resistant rubber. Sealant shall comply with ASTM C920, Type M, Grade P, Class 25 for horizontal joints and Grade NS, Class 25 for vertical joints and be recommended by the manufacturer for continuous immersion in water.

Characteristic or Parameter	Technical Requirements
Pot life	1 to 3 hours
Hardness	35 Shore A, ± 5 , ASTM D2240
Elongation	650%, ASTM D412
Tensile strength	200 psi, ASTM D412
Peel strength on concrete	No adhesion loss at 25 pounds
Temperature service range	40°F to 167°F
Immersion in water	Continuous

2. Sealant shall be Tremco Vulkem 227 or Sikaflex-2CNS (for Grade NS, Class 25), Sikaflex-2CSL of Sika Corporation or Vulkem 245 (for Type M, Grade P, Class 25), or equal. Troweling of sealants into joints will not be permitted.

K. Preformed Control Joint

Preformed control joint shall be a one-piece, flexible, PVC joint former, such as Kold-Seal Zip-Per Strip KSF-150-50-50, manufactured by Vinylex Corp., Knoxville, Tennessee, or a one-piece steel strip with preformed groove, such as Keyed Kold Retained Kap, manufactured by Burke Concrete Accessories, Inc., San Mateo, California, or equal. Provide the preformed control joint material in full-length unspliced pieces.

L. Premolded Joint Filler

Joint filler shall be preformed, nonextruded type constructed of closed-cell neoprene conforming to ASTM D1752, Type I, as manufactured by W. R. Grace Company of Cambridge, Massachusetts; W. R. Meadows, Inc., Elgin, Illinois; or equal.

M. Cement

1. Use domestic portland cement that conforms to ASTM C150 and C595, Type II/V. Use Type III cement for high early strength concrete only for special locations and only when reviewed in advance by the Owner's Representative. Use Type I cement for tremie concrete. Pozzolan content of concrete mix shall not exceed 20% of the total weight.
2. Use only one brand of cement in any individual structure. Use no cement that has become damaged, partially set, lumpy, or caked. Reject the entire contents of the sack or container that contains such cement. Use no salvaged or reclaimed cement.
3. Maximum tricalcium aluminate shall not exceed 8%. The maximum percent alkalis shall not exceed 0.6%.

N. Aggregates

Aggregates shall be natural rock, sand, or crushed natural rock; shall comply with ASTM C33; and shall contain less than 1% asbestos by weight or volume. Aggregates shall be free from any substances that will react with the cement alkalis, as determined by Appendix X-1 of ASTM C33.

O. Water and Ice

Use water and ice that is clean and free from objectionable quantities of organic matter, alkali, salts, and other impurities that might reduce the strength, durability, or otherwise adversely affect the quality of the concrete. Water shall not contain more than 500 mg/L of chlorides or more than 500 mg/L of sulfate.

P. Color Additive for Exterior Electrical Duct Encasement

For exterior electrical duct concrete encasements, use a color additive for identification purposes: brick red "Colorfull" as manufactured by Owl Manufacturing Company, Arcadia, California; coral red "Chromix C-22" as manufactured by L. M. Scofield Company, Los Angeles, California; or equal. Add the color additive while the concrete is being mixed using the quantity per cubic yard of concrete recommended by the manufacturer for the class of concrete indicated.

Q. Concrete Admixtures

1. Class A concrete shall contain an air-entraining admixture conforming to ASTM C260. Admixtures shall be Master Builders MB-AE 90, Sika AER, or equal.
2. Class A concrete shall contain a water-reducing admixture conforming to ASTM C494, Type A. It shall be compatible with the air-entraining admixtures. The amount of admixture added to the concrete shall be in accordance with the manufacturer's recommendations. Admixture shall be Master Builders Pozzoloth polymer-type normal setting, Plastocrete 161, Sika Chemical Corporation, or equal.
3. Pozzolan Admixture: Where specified, provide concrete containing pozzolan admixture conforming to ASTM C618.
4. Do not use any admixture that contains chlorides or other corrosive elements in any concrete. Admixtures shall be nontoxic after 30 days.

R. Grout

1. Nonshrink grout shall conform to ASTM C1107 and to these specifications. Use a nongas-liberating type, cement base, premixed product requiring only the addition of water for the required consistency. Grout shall be UPCON High Flow, Master Flow 928, or equal. Components shall be inorganic.
2. Ordinary type grout (dry pack) shall consist of one part portland cement to two parts sand (100% passing a No. 8 sieve). Add sufficient water to form a damp formable consistency.
3. Expansive Grout: Premixed, cementitious mixture with a minimum 28-day strength of 3,500 psi. Provide air-entraining admixture as recommended by the manufacturer.
4. Epoxy Grout:
 - a. Mix the two components of epoxy bonding compound in compliance with the manufacturer's instructions.
 - b. Use sand that is oven dry and meets the following gradation requirements for epoxy grout:

Sieve Size	No. 8	No. 50	No. 100
% Passing	100	30 ±15	5 ±5

S. Grout Bedding for Horizontal Joints

The grout placed on horizontal construction joints shall be a mixture of cement, sand, and water in the same proportions and strength used in the overplaced concrete with coarse aggregate omitted.

T. Repair Mortar

1. Mortar used for repair of concrete voids shall be made of the same materials as used for concrete, except that the coarse aggregate shall be omitted or the mortar shall consist of not more than one part cement to two and one-half parts sand by damp loose volume. The quantity of mixing water shall be no more than necessary for handling and placing.
2. Materials for repair of major defects or cracks shall be in accordance with “Repair of Defects and Cracks” specified in Part 3.

U. Bonding Compound

1. Epoxy bonding compound shall be Sikadur 32 Hi-Mod, Sika Chemical Corporation, Lyndhurst, New Jersey; Concrevive by BASF; Euco Epoxy 452 by Euclid Chemical Company; or equal.
2. Nonepoxy bonding compound shall be Weldcrete by Larsen Products Corp., Link by Sta-Dry Manufacturing Corp., Euco Weld by Euclid Chemical Co., or equivalent. The compound shall be rewettable for up to two weeks.

V. Concrete Mix Design

1. Conform to ASTM C94, except as modified by these specifications.
2. Air content as determined by ASTM C231 shall be 4% ±1%.
3. Maximum water-cement ratio for Class A concrete = 0.50 by weight.
4. Use classes of concrete as described in the following table:

Class	Type of Work	28-Day Compressive Strength (in psi)	Minimum Cement Content (in lbs per C.Y.)
A	Concrete for all foundations, structures and concrete not otherwise specified. Concrete fill at structure foundations, cradle, supports across pipe trenches, and pump pedestal.	4,000	564
B	Pavement, sidewalks, thrust blocks	3,000	470
C	Floor grout, miscellaneous unreinforced concrete.	2,000	376

5. Measure slump in accordance with ASTM C143. Slump shall be as follows:

Slab on grade or heavy sections wider (in plan view) than 3 feet	3 inches maximum
Footings, walls, suspended slabs, beams, and columns	4 inches maximum
Pavement	2 inches maximum
Floor grout	4 inches maximum

Proportion and produce the concrete to have a maximum slump as shown. A tolerance of up to 1 inch above the indicated maximum shall be allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. Concrete of lower than usual slump may be used provided it is properly placed and consolidated.

6. Aggregate size shall be 3/4 inch maximum for slabs and sections 8 inches thick and less. Aggregate size shall be 1 inch maximum for slabs and sections greater than 8 inches and less than 17 inches. Aggregate size shall be 1-1/2 inches maximum for all larger slabs and sections. Aggregate size for floor grout shall be maximum 3/8 inch.

7. Combined aggregate grading shall be as shown in the following table:

Sieve Sizes	Maximum Aggregate Size		
	1-1/2"	1"	3/4"
	Percent Passing		
2"	100	---	---
1-1/2"	90 - 100	100	---
1"	50 - 86	90 - 100	100
3/4"	45 - 75	55 - 100	90 - 100
3/8"	38 - 55	45 - 75	60 - 80
No. 4	30 - 45	35 - 60	40 - 60
No. 8	23 - 38	27 - 45	30 - 45
No. 16	17 - 33	20 - 35	20 - 35
No. 30	10 - 22	12 - 25	13 - 23
No. 50	4 - 10	5 - 15	5 - 15
No. 100	1 - 3	1 - 5	0 - 5
No. 200	0 - 2	0 - 2	0 - 2

8. Mix design for pumped concrete shall produce a plastic and workable mix. The percentage of sand in the mix shall be based on the void content of the coarse aggregate.

W. Curing Compound

1. Curing compound shall conform to ASTM C309, Type 1-D, Class A.
2. Curing compound shall be compatible with required finishes and coatings and shall meet the State of California Clean Air Quality Standards which limit the quantity of volatile organic compounds to 350 grams per liter.

X. Clear Floor Hardener (Surface Applied)

Floor hardener shall be a colorless, aqueous solution of zinc and/or magnesium fluosilicate. Each gallon of the fluosilicate solution shall contain not less than 2 pounds of crystals. Hardener shall be Saniseal, a product of master Builders Company, Cleveland, Ohio; Hornolith, a product of Grace Construction Materials, Cambridge, Massachusetts; Lapidolith, a product of Sonneborn, Minneapolis, Minnesota; or equal. The solution shall be delivered ready for use in the manufacturer's original sealed containers.

Y. Mats, Paper, and Sheeting for Curing

1. Burlap mats shall conform to AASHTO M182.
2. Sisal-kraft paper and polyethylene sheets shall conform to ASTM C171.

Z. Reinforcing Dowel Adhesive

Dowel anchor adhesive shall be HSE 2411 by Hilti; Sikadur 31, Hi-Mod Gel by Sika; or equal.

PART 3 - EXECUTION

A. Form Tolerances

1. Failure of the forms to produce the specified concrete surface and surface tolerance shall be grounds for rejection of the concrete work. Rejected work shall be repaired or replaced at no additional cost to the Owner.
2. The following table indicates tolerances or allowable variations from dimensions or positions of structural concrete work:

	Maximum Tolerance (inch)
Sleeves and inserts	+1/4 -1/4
Projected ends of anchors	+1/4 -0.0
Anchor bolt setting	+1/4 -1/4
Finished concrete, all locations	+1/4 -1/4 in 10 feet
	Max ±1 inch in total length

The planes or axes from which the above tolerances are to be measured shall be as follows:

Sleeves and inserts:	Centerline of sleeve or insert
Projected ends of anchors:	Plane perpendicular to the end of the anchor as located in the drawings
Anchor bolt setting:	Centerline of anchor bolt
Finish concrete:	The concrete surface as defined in the drawings

Where equipment is to be installed, comply with manufacturer's tolerances if more restrictive than above.

B. Form Surface Preparation

1. Clean form surfaces to be in contact with concrete of foreign material prior to installation.
2. Coat form surfaces in contact with concrete with a release agent prior to form installation.

C. Form Reuse

Reuse only forms that provide a uniform surface texture on exposed concrete surfaces. Apply light sanding or other surface treatment between uses for uniform texture. Plug unused tie rod holes with corks, shave flush, and sand the concrete surface side. Do not patch forms other than filling tie rod holes, except in the case of Class II forms. Do not use metal patching discs on Class I forms.

D. Removal of Forms

1. Forms and shoring for elevated structural slabs or beams shall remain in place until the concrete has reached a compressive strength equal to the specified 28-day compressive strength as determined by test cylinders. Do not remove supports and reshore. The following table indicates the minimum allowable time after the last cast concrete is placed before forms, shoring, or wall bracing may be removed:

Sides of footings and encasements	24 hours
Walls, vertical sides of beams, girders, columns, and similar members not supporting loads	48 hours

2. Do not remove forms from concrete that has been placed with outside air temperature below 50°F without first determining if the concrete has properly set without regard for time. Do not apply heavy loading on green concrete. Immediately after forms are removed, the surface of the concrete shall be carefully examined and any irregularities in the surface shall be repaired and finished as specified.

E. Formed Openings

Openings shall be of sufficient size to permit final alignment of pipes or other items without deflection or offsets of any kind. Allow space for packing where items pass through the wall to ensure watertightness. Provide openings with continuous keyways and water stops. Provide a slight flare to facilitate grouting and the escape of entrained air during grouting. Provide formed openings with reinforcement as indicated in the typical structural details. Reinforcing shall be at least 2 inches clear from the opening surfaces and encased items.

F. Embedded Items

Set anchor bolts and other embedded items accurately and hold securely in position until the concrete is placed and set. Check all special castings, channels, or other metal parts that are to be embedded in the concrete prior to and again after concreting. Check nailing blocks, plugs, and strips necessary for the attachment of trim, finish, and similar work prior to concreting.

G. Beveled Edges (Chamfer)

Form 3/4-inch beveled edges on exposed concrete edges and corners, beam soffit corners, and where indicated in the drawings. Reentrant corners in concrete members shall not have fillets, unless otherwise shown in the drawings. The top edges of slabs, walkways, beams, and walls may be beveled with an edging trowel in lieu of using chamfer strips.

H. Construction Joints

1. Provide construction joints where shown in the drawings.
2. Place expansion joint fillers every 30 feet in straight runs of walks, at right-angle turns, and wherever concrete walks butt into vertical surfaces.
3. For control joints of nonstructural slabs, provide partial depth plastic strips set flush with finished surface or 1/8-inch-wide joints cut with a diamond saw. Use control joints one-quarter to one-third the depth of the slab unless otherwise indicated.
4. Construction joints shall be keyed, unless otherwise detailed. Form keyways by beveled strips or boards placed at right angles to the direction of shear. Except where otherwise shown in the drawings or specified, keyways shall be at least 1-1/2 inches in depth over at least 25% of the area of the section.
5. When it is necessary to make a joint because of an emergency, furnish and place reinforcing dowels across the joint normal to the face of joint created if not normal to specified reinforcement and at the centerline of the concrete section being terminated. Carefully remove set concrete to a plane but rough surface near normal to adjacent formed or finish surfaces. Embed and extend dowels 48 bar diameters each side of the joint. Size and spacing of dowels shall match the largest reinforcing in the member but no closer than 6 inches on center. Furnishing and placing such reinforcing steel shall be at the Contractor's expense.
6. After a concrete placement pour has been completed to the construction joint and the concrete has hardened, thoroughly clean the entire surface of the joint of surface laitance, loose or defective concrete, and foreign material. Expose clean aggregate by sandblasting and thoroughly cleaning the surface of construction joints before placing the new concrete. Cover horizontal construction joints with grout bedding. Spread uniformly and work thoroughly into all irregularities of the surface. The consistency of the mortar shall be suitable for placing and working and shall be placed immediately prior to placing new concrete.
7. In case of emergency, place additional construction joints. (An interval of 45 minutes constitutes cause for an emergency construction joint.)

I. Expansion Joints

Provide expansion joints with continuous edge reservoirs, which shall be filled with a joint sealant. Leave the material used for forming the reservoirs in place until immediately

before the grooves are cleaned and filled with joint sealant. After removing edge forms from the reservoir, remove grout, loose concrete, and fins; then sandblast the slots. Allow the reservoirs to become thoroughly dry; then blow out the reservoirs and immediately prime and fill with the expansion joint sealant and backup materials. The primer used shall be supplied by the same manufacturer supplying the joint sealant.

J. Time Between Pours

At least two hours shall elapse after depositing concrete in the columns or walls before depositing in beams, girders, or slabs supported thereon. Place beams, girders, brackets, column capitals, and haunches monolithically as part of the floor or roof system, unless otherwise indicated in the drawings.

K. Installation of Premolded Joint Filler

Install in joint accurately as shown. Attach to concrete with a bonding agent recommended by the joint sealant and joint filler manufacturer for compatibility.

L. Installation of Joint Sealants

1. Immediately before installing the joint sealant, clean the joint cavity by sandblasting or power wire brushing. Install bond breaker tape per manufacturer's instructions.
2. After the joints have been prepared as described above, apply the joint sealant. Apply the primer, if required, and joint sealant only with the equipment and methods recommended by the joint sealant manufacturer. Application criteria for the sealant materials, such as temperature and moisture requirements and primer cure time, shall be in accordance with the recommendations of the sealant manufacturer.
3. Apply masking tape along the edges of the exposed surface of the exposed joints. Trowel the joints smooth with a tuck pointing tool wiped with a solvent recommended by the sealant manufacturer.
4. After the sealant has been applied, remove the masking tape and any sealant spillage.

M. Placing Reinforcement

1. Place reinforcing steel in accordance with the current edition of Recommended Practice for Placing Reinforcing Bars, published by the Concrete Reinforcing Steel Institute.
2. Place reinforcing in accordance with the following, unless otherwise indicated:
 - a. Reinforcement indicated in the drawings is continuous through the structure to the farthest extent possible. Terminate bars and hooks 2 inches clear from faces of concrete.

- b. Splices may be used to provide continuity due to bar length limitations. Minimum length of bars spliced for this reason is 30 feet. Splicing of reinforcement that is detailed to be continuous in the drawings is not permitted.
3. Reinforcing steel, before being positioned and just prior to placing concrete, shall be free from loose mill and rust scale and from any coatings that may destroy or reduce the bond. Clean reinforcing steel by sandblasting or wire brushing and remove mortar, oil, or dirt to remove materials that may reduce the bond.
4. Do not straighten or rebend reinforcing steel in the field.
5. Position reinforcing steel in accordance with the drawings and secure by using annealed wire ties or clips at intersections and support by concrete or metal supports, spacers, or metal hangers. Do not place metal clips or supports in contact with the forms. Bend tie wires away from the forms to provide the specified concrete coverage. Bars, in addition to those shown in the drawings, which may be found necessary or desirable by the Contractor for the purpose of securing reinforcement in position shall be provided by the Contractor at his own expense.
6. Place reinforcement a minimum of 2 inches clear of any metal pipe or fittings.
7. Secure reinforcing dowels in place prior to placing concrete. Do not press dowels into the concrete after the concrete has been placed.
8. Roll wire mesh used for reinforcement flat before placing concrete. Support and tie wire mesh to prevent movement during concrete placement.
9. Position dowels for masonry walls to occur at reinforced block cells.

N. Site-Mixed Concrete

Conform to ACI 304.

O. Ready-Mixed Concrete

Conform to ASTM C94.

P. Placing Concrete

Conform to ACI 304.

Q. Pumping Concrete

Conform to ACI 304.2R-91.

R. Weather Requirements

1. Conform to ACI 305 for placing during hot weather.

2. Conform to ACI 306 for placing during cold weather.

S. Bonding to Old Concrete

Coat the contact surfaces of structural sections with epoxy bonding compound. The method of preparation and application of the bonding compound shall conform to the manufacturer's printed instructions and recommendations for specific application for this project.

T. Grouting Machinery Foundations

Block out the original concrete or finish off a sufficient distance below the bottom of the machinery base to provide for the thickness of grout shown in the drawings. After the machinery has been set in position and placed at the proper elevation by steel wedges, fill the space between the bottom of the machinery base and the original pour of concrete with a pourable nonshrink grout. Grout and grouting procedure shall be in accordance with API 686, Chapter 4, paragraphs 3.6 and 3.7, and Chapter 5.

U. Backfill Against Walls

1. Do not place backfill against walls until the concrete has obtained a compressive strength equal to the specified 28-day compressive strength. Where backfill is to be placed on both sides of the wall, place the backfill uniformly on both sides.
2. Do not backfill the walls of structures that are laterally restrained or supported by suspended slabs or slabs on grade until the slab is poured and the concrete has reached the specified compressive strength.

V. Concrete Finishes

1. Complete concrete surfaces in accordance with the following schedule:

Finish Designation	Area Applied
F-3	Beams, columns, and walls of structures or buildings exposed to view. Underside of formed floors or slabs.
F-4	Exterior and interior surfaces to be coated.
S-4	Slabs and floors of structures or buildings exposed to view.
E-1	Exposed edges. EXCEPTION: edges normally covered with earth.
E-2	Top of walls, beams, and similar unformed surfaces.

2. Finish F-3: In addition to Finish F-1, remove fins, fill depressions 1/4 inch or deeper, fill depressions and airholes with mortar. Dampen surfaces and then spread a slurry consisting of one part cement and one and one-half parts sand by damp

loose volume, over the surface with clean burlap pads or sponge rubber floats. Remove any surplus by scraping and then rubbing with clean burlap.

Finish F-4: Repair defective concrete, remove fins, fill depressions 1/16 inch or deeper, fill tie holes, remove mortar spatter, and remove bulges higher than 1/16 inch.

Finish S-4: Steel trowel finish without local depressions or high points and apply a light hair-broom finish. Do not use stiff bristle brooms or brushes. Leave hair-broom lines parallel to the direction of slab drainage.

Finish E-1: Provide chamfer or beveled edges.

Finish E-2: Strike smooth and float to an F-3 or F-4 finish.

W. Curing Concrete

1. Conform to ACI 308.
2. Water cure with burlap mats unless optional curing methods are permitted.
3. Do not use curing compound on surfaces that are to be coated in accordance with Section 099000.
4. It is the responsibility of the Contractor to select the appropriate curing method in response to climatical and/or site conditions occurring at the time of concrete placement. Take appropriate measures as described in ACI 305 and 306 for protecting and curing concrete during hot and cold weather.

X. Repair of Defects and Cracks

1. Do not repair defects until concrete has been evaluated by the Owner's Representative.
2. Surface Defects:
 - a. Repair surface defects that are smaller than 1 foot across in any direction and are less than 1/2 inch in depth.
 - b. Repair by removing the honeycombed and other defective concrete down to sound concrete, cut or grind edges perpendicular to the surface and at least 3/8 inch deep, abrasive clean and thoroughly dampen the surface, work into the surface an epoxy bonding agent, and fill the hole with one part cement to one part fine sand. Match the finish on the adjacent concrete, and cure as specified.
3. Severe Defects:

- a. Repair severe defects that are larger than surface defects but do not appear to affect the structural integrity of the structure.
 - b. Repair by removing the honeycombed and other defective concrete down to sound concrete, make edges of the repair area perpendicular to the surface, as required above, sandblast the sound concrete surface, coat the exposed surfaces with epoxy bonding compound, place nonshrink grout, match the finish on the adjacent concrete, and cure as specified.
4. Repair minor cracks in concrete structures that are wider than 1/10 inch by cutting out a square edged and uniformly aligned joint 3/8 inch wide by 3/4 inch deep, preparing exposed surfaces of the joint, priming the joint, and applying polyurethane joint sealant.
 5. If the cracks are major or affect the hydraulic capacity or function of the element, the Owner's Representative may require the concrete to be repaired by epoxy injection.
 6. Major Defects and Cracks: If the defects affect the structural integrity of the structure or if patching does not satisfactorily restore quality and appearance to the surface, the Owner's Representative may require the concrete to be removed and replaced, complete.

Y. Clear Hardener Application (Surface Applied)

1. Cure, clean, and keep floors dry to receive hardener. Complete work immediately above floors prior to applying hardener. Apply hardener evenly, using three coats, allowing 24 hours between coats. The first coat shall be one-third strength, second coat one-half strength, and third coat two-thirds strength. Apply each coat so as to remain wet on the concrete surface for 15 minutes. Apply proprietary hardeners in conformance with the manufacturer's instructions. After the final coat is completed and dry, remove surplus hardener from the surface by scrubbing and mopping with water.
2. Apply hardener to the surfaces designated in the drawings.

Z. Concrete Tests

1. Concrete quality testing will be performed on the concrete by the Contractor by retaining a certified testing laboratory and as follows:
 - a. Frequency of Sampling: Cast four concrete test cylinders from each 50 cubic yards, or fraction thereof, of each class of concrete placed in any one day. Sampling and curing of cylinders shall conform to ASTM C31.
 - b. Strength Testing: Test cylinders in accordance with ASTM C39. Test one cylinder at 7 days for information; test two cylinders at 28 days for acceptance; and hold one cylinder for verification. Strength acceptance will be

based on the average of the strengths of the two cylinders tested at 28 days. If one cylinder of a 28-day test manifests evidence of improper sampling, molding, or testing, other than low strength, discard it and use the fourth cylinder for the test result.

- c. Determine concrete slump by ASTM C143 with each strength test sampling and as required to establish consistency.
 - d. Determine air content of the concrete using ASTM C231 to verify the percentage of air in the concrete immediately prior to depositing in forms.
 - e. The average value of concrete strength tests shall be equal to or greater than the specified 28-day strength. No test shall be less than 90% of the specified 28-day strength.
 - f. If the 28-day strength tests fail to meet the specified minimum compressive strength, the concrete will be assumed to be defective and one set of three cores from each area may be taken as selected by the Owner and in accordance with ASTM C42. If the average compressive strength of the set of three concrete cores fails to equal 90% of the specified minimum compressive strength or if any single core is less than 75% of the minimum compressive strength, the concrete will be considered defective. The Owner may require additional coring, nondestructive load testing, or repair of defective concrete. Costs of coring, testing of cores, load testing, and required repairing pertaining thereto shall be paid by the Contractor at no extra cost to the Owner.
2. To facilitate concrete sampling and testing, the Contractor shall:
- a. Furnish labor to assist the Owner in obtaining and handling samples at the project site.
 - b. Advise the Owner in advance of concrete placing operations to allow for scheduling and completion of quality testing.
 - c. Provide and maintain facilities for safe storage and proper curing of concrete test specimens on the project site, as required by ASTM C31.

END OF SECTION

SECTION 332100 MUNICIPAL WELL

PART 1 - GENERAL

A. Description

This section describes the construction of a 700-foot-deep municipal supply well by the reverse circulation method of drilling. A casing hammer test hole was drilled near the new well site. Results of the test hole are available from the Owner or the Owner's Representative for review upon request. The test hole has been destroyed and filled with a sand/cement slurry. The exact depth and perforation interval is subject to change based on the results of electric log for the production well hole. The expected water production rate for the completed production well is approximately 2,500 gpm. The actual water production rate will be determined during pump testing of the completed well.

B. Location

The production well shall be constructed at the location shown on the Plans.

C. Contractor References

The Contractor shall have at least 5 years' experience in drilling municipal production wells using the drilling, developing, and test pumping methods specified herein. The bidder shall submit to the Owner and Owner's Representative five references for whom successful reverse rotary well drilling of municipal wells, as described in these specifications and to a depth of at least 700 feet, was performed if so requested prior to contract award. In listing these references, the bidder shall give the name of the person or firm for whom the work was performed, the address and telephone number at which that person or firm can be contacted, and a description of the work performed.

D. Work to be Performed by the Contractor

1. All drilling, casing, sealing, developing, pump installations, monitoring, and other work incidental to the production well shall be performed by the Contractor, who shall be a licensed well driller in the state of California and possess a valid C-57 well driller's license. The Contractor shall construct the well using the reverse rotary method and shall provide all necessary equipment for development and test pumping of the well.
2. The Contractor shall prepare and maintain access to the work area as well as provide sufficient room for the efficient operation of his equipment. The Contractor shall be held as having examined the drilling site and access roads in order to acquaint himself with local conditions, and no allowance will be made after the bid has been accepted for any errors or omissions made by the Contractor due to site conditions.

3. The Contractor shall diligently pursue all work to completion. Upon completion of the production well, the Contractor shall level the drill site, and remove all materials incidental to the drilling operations. Drill cuttings may be spread over the property near the well site as shown on the plans and graded to drain after drying.
4. The Contractor shall, at his own expense, furnish all equipment, material (including lost circulation materials and mud), supplies, and personnel necessary to perform the work (including, but not limited to, drilling rig, water truck, a crew comprised of experienced drillers, and helpers).
5. The Contractor shall pay any federal, local, or state taxes assessed or levied on account thereof, in accordance with the practices generally acceptable for the nature of work to be performed under this Agreement.

E. Contractor to Furnish, Handle, and Store Materials and Equipment

The entire cost of furnishing, transporting, unloading, hauling, handling, sorting, and caring for all equipment, materials, tools, and supplies, and of removing same from the site of the work has hereinafter specified, shall be included in prices bid in the proposal for the work for which the materials are required. The drilling shall be done with well drilling equipment of proper type and size and in good working condition so that the work can be performed without interruption arising from defective or improper equipment. All materials that will become a part of the completed work shall be new. All equipment, materials, tools, and supplies not a part of the completed well shall remain the property of the Contractor and shall be removed from the site upon completion of the work.

F. Standards and Permits

The production well shall be constructed in accordance with the County of Fresno Well Ordinance, the California Water Well standards, and as described in these specifications. The Contractor shall obtain and pay for a well drilling permit from the County of Fresno and shall report the results of the drilling to the California Department of Water Resources.

G. Notification

1. The Contractor shall give written notice to the Owner's Representative of specific operations as follows:
 - a. At least 72 hours advance notice of start of drilling operations at the well site.
 - b. 12 hours advance notice of the start of electric logging.
 - c. 24 hours advance notice of start of installation of casing, gravel pack, and annular seal.
 - d. 24 hours advance notice of start of development of completed well.

- e. 12 hours advance notice of start of the pump test.
- f. 1 day advance notice of TV and alignment tests.

H. Submittals

- 1. Submit sample of gravel pack and manufacturer's literature and certification of casing materials.
- 2. Submit four copies of the well final written report to the Owner's Representative.
- 3. Submit copies of the driller's log and description of drill cuttings to the Owner and the Owner's Representative.

I. Well Abandonment

In the event the Contractor shall abandon a hole because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these specifications and the Contractor is unable to correct the condition at his own expense or negotiate a mutually-acceptable cost reduction for specification deviations, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Owner's Representative. The Contractor shall destroy the old hole by filling with sand-cement grout completely from bottom to top with a tremie pipe and in conformance with regulations of the Fresno County Water Well Ordinance.

J. Partial Well Abandonment

In the event that it is determined by the Owner's Representative that the lower portion of the hole be abandoned due to poor water quality or other reasons, the lower portion of the hole shall be sealed by filling with sand-cement grout with a tremie pipe completely from the bottom to the selected level. The grout seal shall be allowed to remain in place for 24 hours prior to beginning the reaming of the hole above the seal. This additional work, if required, shall be paid for as Extra Work in accordance with the General Provisions.

PART 2 - MATERIALS

A. Conductor Casing

- 1. The conductor casing shall be manufactured in accordance with the latest edition of ASTM A139, Grade B, or ASTM A211 and with the following conditions:
 - a. The inside diameter shall be 34 inches, and the wall thickness shall be 0.312 inch.
 - b. The casing sections shall be factory assembled in not less than 20-foot lengths.

- c. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 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 and the outside edge of the adjacent casing length 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 inches at any point from a true plane at right angles to the axis of the casing.
- d. Three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be welded shut following welding of the casing sections.

B. Well Casing

1. The well casing shall be manufactured in accordance with the latest edition of ASTM Specification A139 Grade B or ASTM A211, with the following conditions:
 - a. The steel from which the casing is manufactured shall contain not less than 0.41% copper by ladle analysis. Provide three copies of certification of compliance from casing manufacturer.
 - b. The inside diameter shall be 18 inches, and the wall thickness shall be 0.375 inch.
 - c. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 20-foot lengths.
 - d. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length 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 inches at any point from a true point at right angles to the axis of the casing. Diametrical clearance between casing O.D. and collar I.D. shall be 1/16 inch +1/32 inch.
 - e. Three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be filled by welding when the casing is installed.

C. Louvered Well Casing

The louvered well casing shall be manufactured in accordance with the aforementioned well casing requirements. Inside diameter shall be 18 inches, and wall thickness shall be

0.3125 inch. The louvers shall be machine made, horizontal to the axis of the casing and of louver form with the aperture facing downward. The louvered casing shall be "full flo". The slot size shall be 0.06 inches.

D. Gravel

The gravel shall be sand (gravel) composed of sound, durable, well-rounded, naturally stream worn particles, containing no silt, clay, organic matter, or deleterious materials. Gravel size shall be 8 x 16. The Contractor shall provide a certificate of gradation of the gravel material to be used 48 hours prior to installation.

E. Sand Cement Grout

Sand cement grout shall be composed of not more than two parts by weight of sand and one part of portland type II cement to 4.5 to 6.5 gallons of clean water per sack of cement. This is approximately an 11-sack mix.

F. Drilling Fluid

1. Potable water alone shall be employed as a drilling fluid. Should lost circulation or other drilling problems occur, bentonite or other materials may be used with the prior approval of the Owner's Representative. No additional payment will be made for bentonite or other materials used during well construction. A description of the procedures to ensure the removal of these additives during development must be included with the request to add bentonite or other materials.
2. The Contractor shall obtain water from the City's water system as shown on the plans.
3. A backflow prevention device shall be required per Section 015100.
4. The Contractor may dispose of the surplus drilling fluid on-site as shown on the plans and as directed by the Owner's Representative. The site used for the drilling pit shall be returned to its original condition and compacted to 95% relative density following completion of the well.

G. Bentonite

Bentonite for the plug between the gravel pack and cement annular seal shall be low-uranium type. Samples of the material, along with manufacturer's literature, shall be submitted for review by the Owner's Representative 7 days prior to use.

H. Concrete Base, Sounding Tube, Casing Vent, and Gravel Feed Tube

1. In accordance with the plans and as described below, the following items shall be installed.

- a. A 3-inch-diameter standard weight steel gravel feed tube shall be installed as shown on the plans. The upper end of the tube shall be a galvanized section, threaded and provided with a cap as shown on the plans.
- b. A 1-1/2-inch-diameter standard weight galvanized steel pipe sounding tube attached to the outside of the casing as shown on the Plans.
- c. A 3-inch-diameter standard-weight steel casing vent shall be installed as shown on the plans.
- d. A concrete pedestal shall be constructed as shown on the plans.

PART 3 - EXECUTION

A. Installing Conductor Casing

1. Well surface conductor casing is required for this project. A permanent conductor casing shall be cemented in place in accordance with applicable state and county regulations and as shown on the plans and specified herein. Separate payment shall be made for the conductor casing.
2. The permanent conductor casing shall be installed as shown in the plans and as described below:
 - a. The conductor casing shall be 50 feet deep.
 - b. The bore hole diameter for the conductor casing shall be 42 inches.
 - c. Alignment guides (3 at each depth) shall be placed near the bottom and top of the conductor.
 - d. The annular space between the conductor casing and the hole shall be filled with a sand-cement grout which shall be placed with a tremie pipe from the bottom up. The tremie pipe shall initially be placed near the bottom and gradually raised as the grout is added. The grout shall be allowed to set for 24 hours prior to further work at the site.

B. Drilling Hole

A 30-inch-diameter hole shall be drilled to a depth of at least 700 feet below the ground surface by the reverse rotary method.

C. Taking Formation Samples

Representative formation samples shall be gathered at each change of formation, but in no case at more than 10-foot intervals during drilling. The samples shall be collected in large heavy-duty zip-lock plastic bags. Each sample shall be plainly marked with the well name, the depth at which the sample was taken, and the date collected. The Contractor shall also

prepare a log of the formations drilled from the surface to total depth showing each change of formation.

D. Logging

1. The Contractor shall arrange and pay for an electric log to be run. The log shall include:
 - a. A spontaneous potential curve.
 - b. Double resistivity curves.
2. A caliper log shall also be run on the hole prior to installing casing.
3. Prior to stopping the drilling fluid-circulating pump, the logging service company shall obtain a sample of the drilling fluid for use in calibrating the logs. The logging company shall be Welenco, Inc. of Bakersfield, California (805) 834-8100 or Newman Geophysical of Salinas, California (831) 722-2388.

E. Information to be Furnished by Contractor

1. The Contractor shall provide in writing the following information obtained from the hole to the Owner's Representative prior to the construction of the production well.
 - a. A description of work.
 - b. A copy of each log run.
 - c. A copy of driller's log and description of soil samples.

F. Method of Drilling Production Well

The production well shall be drilled using the reverse circulation method of drilling.

G. Hours of Operation

Drilling operation may proceed continuously. However, the Contractor's employees must be paid for overtime work as outlined in the General Provisions.

H. Installing Blank and Louvered Well Casings

1. The completed well depth will be approximately 700 feet and approximately 450 feet of louvered casing will be required.
2. Following completion of the caliper log, casing installation shall be by methods that will ensure no damage to casing, louvered casing, or hole. The casing or louvered casing shall be suspended above the bottom of the hole at a sufficient distance to ensure that neither will be supported from the bottom. Blank casing shall be installed instead of screen adjacent to zones from which it is not desired to produce water if requested by the Owner's Representative.

3. Centralizers shall be welded to the casing at intervals not to exceed 60 feet to center the casing in the hole. The centralizers shall be welded at both points which contact the casing. Centralizers shall be constructed of 3/8-inch-thick steel strips at least 2 inches wide so shaped as to form a guide approximately 5.5 inches from the casing well. Each strip shall provide at least 1-foot length of bearing surface at the bore interface. At least three strips shall be provided at each centralizer location. Centralizer strips shall be placed on the same vertical alignment so as to minimize interference with placing of gravel or sealing material.
4. Twenty (20) feet of blank casing shall be installed at the bottom of the well. The bottom of the casing shall be a rounded, smooth cap equal to the thickness of the casing.
5. The welder required for final assembly of well casings shall be qualified in accordance with the latest revision of the section titled "WELDING PROCEDURES" of the ASME Boiler Construction Code or by the AWS Standard Qualification Procedure. Sections shall be joined by a continuous weld with not less than a 5/16-inch full fillet.

I. Installing Gravel Envelope

1. The gravel shall be placed using double hopper and tremie pipe equipment. The rate at which gravel is allowed to drop from the upper hopper into the lower hopper, where water is added, shall result in a free-flowing water/gravel mix. Only clean water (i.e. not from the mud pit) shall be added during gravel packing. The tremie pipe shall be withdrawn from the well at such a rate that the bottom of the tremie pipe is within a few feet of the top of the gravel pack. From time to time during the gravel packing operation, the flow of gravel shall be interrupted, the tremie pipe allowed to empty of gravel, and the top of the gravel located by "sounding" with the tremie pipe or other device.
2. At the time of gravel placement, a granular hypochlorite or similar disinfectant shall be added to the gravel at the rate of at least 1 pound per cubic yard of gravel, based on 70% chlorine content. If a lower strength hypochlorite, or other chlorine product is used, the quantity shall be adjusted accordingly.
3. The quantity of gravel placed in the annulus of the well shall not be less than the computed volume of the annulus. A quantity less than the computed value will be judged as an indication of voids, and measures shall be taken by the Contractor to eliminate the apparent voids.
4. Settling of the gravel pack shall be aided by continuously swabbing the interior of the perforated casing.
5. Significant differences between the estimated and final volume of gravel installed may be grounds for the rejection of the well.

J. Installing Annular Seal

1. After the gravel pack has been verified, a bentonite seal approximately 5 feet in thickness shall be tremied into the well to fill the annulus. When the bentonite seal is in place, cementing the annulus shall commence.
2. A cement grout seal shall be installed in the annular space above the bentonite seal and gravel pack between the bore hole and the well casing. The cement grout shall be sand-cement as described previously. The well casing shall be maintained full of water during placement of the grout seal.
3. The cement grout shall be placed with the use of a tremie pipe. The cement grout shall be placed through the tremie pipe, and the pipe shall be gradually withdrawn as the cement rises in the annulus. The quantity of cement grout placed in the annulus shall not be less than the computed volume of the annulus. A quantity less than the computed value will be judged as an indication of voids, and measures shall be taken by the Contractor to eliminate the apparent voids.
4. Significant differences between the estimated and final volume of the cement seal may be grounds for rejection of the well.
5. Based on preliminary information it is anticipated that the cement seal, including the bentonite plug, will extend from the ground surface to a depth of approximately 210 feet. The actual depth will be determined by the results of the electric log.
6. Cement seal shall be allowed to set up for at least 24 hours before further work on the well is done.

K. Developing, Airlifting, and Swabbing

1. After placement of the gravel pack and annular grout seal has been completed in the well, the louvered casing, gravel pack, and adjacent water-yielding zones shall be cleaned of all fluids, wall cake, and substances that would impair the flow of water into the well and the quality thereof. Cleaning shall be initially accomplished by airlifting and swabbing in stages opposite the entire perforated section.
2. The swabbing and airlifting shall be done between a double-flanged swab assembly with the closest swab flanges no more than 6 feet apart.
3. Swabbing and airlifting shall take place beginning at the top of the perforations and progressing vertically downward over the entire louver casing in 10-foot sections. The kelly shall be slowly raised and lowered over each section until there is not circulation of sand, silt, or mud to the surface. The procedure shall be repeated from the bottom of the louvered section to the top. This procedure shall be continued for a period of at least 36 hours. The Owner's Representative reserves the right to reduce or lengthen this time period as necessary to accomplish the intention of the development process. The contract amount will be adjusted accordingly per a change order if the time is adjusted.

4. During airlifting-swabbing a continuous stream of clean water shall be added to the gravel pack until all sand, silt, and sediment have been washed from the envelope. Material drawn into the well shall be frequently removed. Any fill accumulating in the well shall be removed before the test pump is installed. The quantity of gravel added during swabbing and airlifting shall be recorded.

L. Development by Pumping and Swabbing

1. Following airlifting-swabbing of the well, the Contractor shall install, operate, and remove a pump for developing the well. The Contractor shall cooperate with the Owner's Representative who will be present periodically during the well development. The pump shall have a capacity in excess of 3,000 gpm against a total head of 250 feet measured at the discharge head with a bowl setting of 220 feet. The prime mover shall be a variable speed type. The Contractor shall install discharge piping from the pumping unit of sufficient size and length to conduct water to the point of disposal together with a totalizing flow meter which will accurately measure the flow rate in gallons per minute. The Contractor shall install a temporary access tube constructed of minimum 3/4-inch-diameter steel pipe to a depth equal to the pump bowls. This access tube shall have a smooth interior to allow the easy insertion of an electrical sounding wire for the purpose of measuring the water level in the well during well development and test pumping.
2. The initial pumping rate shall be restricted (approximately 500 gpm) and as the water clears shall be gradually increased in approximately 100-gpm steps until the maximum rate is reached. Development shall continue at each step rate for a minimum of one hour. A pumping rate of a 3,000 gpm shall be obtained unless otherwise directed by the Owner's Representative. At intervals of approximately 10 to 15 minutes, the pump shall be stopped and the water in the pump column shall be allowed to surge back through the pump bowls and through the perforated area.
3. Development records shall be maintained on at least a 1/2-hour interval showing pumping rate, drawdown, and sand production. Development shall continue for a period of 36 hours or until the following conditions are met. If the development by pumping time is lengthened or reduced as instructed by the Owner's Representative, a change order will be issued to modify the bid price for this work.
 - a. Sand production is less than 5 ppm within 10 minutes after commencement of pumping at this capacity of the well.
 - b. The specific capacity no longer increases with time at the design pumping rate of the well.
4. The Contractor shall be responsible for disposing of all development and test water at the location shown in the plans. Water, including mud, sand, and debris, pumped from the well during developing and testing shall be disposed of by the Contractor on site in such a manner as not to damage or interfere with other work, neighboring properties, or storm drainage systems adjacent to the site. The Contractor shall

perform and maintain all of the operations in accordance with the SWPPP permit for this project. The disposal site shall be approved by the Owner.

5. The Contractor may submit alternate development methods in writing for approval by the Owner's Representative. However, the submittal must be prior to commencement of the production well drilling operation.

M. Testing for Yield and Drawdown

1. Following development operations, the Contractor shall perform a pump test of the well, including a step drawdown and constant discharge test. The Contractor shall cooperate with the Owner's Representative who will be present during the test pumping procedure. The actual test pumping rates will be furnished by the Owner's Representative upon completion of well development.
2. The pumping equipment shall be of the variable speed type and shall be the same equipment as used during the well development procedure. Gauges, valves, access tubes, and other equipment required shall be installed prior to beginning the pump test procedure.
3. The pump shall be turned off for at least overnight and the static, or non-pumping, level determined prior to beginning the pump test. The pump shall be operated continuously for a period of 12 hours at the rates selected by the Owner's Representative for the step drawdown test and after a shutdown overnight a 10-hour constant discharge test shall be done the next day. The pumped water shall be disposed of in a manner similar to the development water.
4. During the test, the discharge of the pump shall be measured with an accurate totalizing flow meter reading in gallons per minute, supplied by the Contractor and approved by the Owner's Representative. The pumping rates shall be maintained during the test within plus or minus five (5) percent of the desired pumping rate. Prior to the start of the test, the pump shall be adjusted to each of the prescribed pumping rates in order to determine the appropriate engine speeds (rpm) and discharge valve positions to facilitate rapid adjustment of the pump at the commencement of testing.
5. Upon completion of the pump test, the well shall remain undisturbed for a period of at least 8 hours to allow water recovery to be measured. After the test pump has been removed, all sand and debris shall be removed from the bottom of the well.

N. Water Samples

1. Water quality analyses shall be collected, performed, and shipped by the Hydrogeologist for the well at the conclusion of the test pumping. The Contractor shall cooperate with the Hydrogeologist to have the following tests performed in accordance with the California Department of Public Health's latest water quality monitoring schedule. Payment for laboratory costs shall be made by the City.

- a. General mineral
- b. Inorganic chemical
- c. General physical
- d. Gross alpha, uranium, and radium-228
- e. Organic chemicals (EPA Methods 502.2, 504, 505, 507, 515.1, 525, 531.1, and 547), 1,2,3-trichloropropane, DBCP, and EDB.

2. The samples will be shipped to the following laboratories:

Laboratory for General Mineral, Inorganic, Gross Alpha, and Uranium analyses:	Laboratory for Organic Analyses:
FGL Environmental 2500 Stage Coach Road Stockton, CA 95215 (209) 942-0182 Phone (209) 942-0423 Fax or FGL Laboratories P.O. Box 272 853 Corporation Street Santa Paula, CA 93061-0272 (805) 392-2000 Phone (805) 525-4172 Fax	APPL Laboratories 4203 W. Swift Fresno, CA 93722 (559) 275-2175 Phone (559) 275-4422 Fax

O. Plumbness and Alignment

The well, when completed, shall be sufficiently straight and plumb to permit the free installation and operation of the pump used for the pumping test and set in the casing with bowls at approximately 300 feet in depth. To demonstrate compliance with this requirement, the Contractor shall make a "caging" test to the satisfaction of the Owner. Tests for plumbness and alignment shall be made after the completion of the well construction and before acceptance. The well shall be drilled in such a vertical alignment that a line drawn from the center of the well casing 300 feet below the ground surface shall not deviate from the vertical more than 6 inches in 100 feet for length. The test shall be performed in accordance with AWWA A100, latest edition.

P. Television Well Survey

After completion of all work on the well and before the well is disinfected, the Contractor shall run a color television survey of the entire well, from top of casing to total depth. The survey shall be performed using a downward-looking video camera accompanied by an appropriate light source. The survey shall be recorded on standard VHS-format tape or a CD which shall show a continuous display of the depth of the camera, in feet. Two copies of this tape shall be provided to the Owner's Representative and one copy to the Owner within five working days after completion of the television well survey. Any damage or debris observed in the well shall be repaired or remedied by the Contractor.

Q. Disinfection

The well shall be disinfected in accordance with AWWA Standard C654, latest edition, prior to applying the cap to the casing.

R. Casing Closure

Upon completion of well work, the well shall be capped by welding a 1/4-inch steel plate over the top of the casing.

S. Well Final Written Report

1. The Contractor shall prepare a written report in a form required by the state of California containing, as a minimum, the following information:
 - a. A final well log showing casing diameter and wall thickness, quantities and location of casing and screen installed, type, aperture size, bore hole diameter, cemented conductor casing, gradation of gravel envelope, quantity of gravel initially installed, quantity of gravel added during development operations, development time, location of cement seal, and all other pertinent details.
 - b. Development and test records showing production rate, static water level, pumping level, drawdown, production of sand, and all other pertinent information concerning development by pumping.
 - c. Manufacturer's standard literature and certification that the following materials comply with this specification:
 - (1) Well casing
 - (2) Louvered well casing
 - (3) Gravel
2. The written report shall be submitted to the Owner's Representative prior to acceptance of the well.

T. Cleanup

Material excavated from the mud pit at the start of the drilling operation shall be stockpiled on-site and protected against erosion per the SWPPP prepared for this project. At the completion of work, the cuttings shall be spread on-site as shown on the plans and as directed by the Owner's Representative. The stockpiled excavated material shall be placed back in the mud pit. The mud pit shall be filled and compacted to achieve a relative compaction of 95% per ASTM D-1557. The temporary berm used to retain the development water shall be leveled or removed and the area compacted per above.

END OF SECTION

**Appendix
Work Delay Form**

WELL NO. 14 AT SPORTS PARK

WORK DELAY FORM

This form is to be filed by the prime contractor to request an extension to the Time of Completion on a capital improvement project for unplanned events outside of the control of the contractor. Time extensions will only be granted when the event impacts an activity that is on the critical path, as determined by the City Engineer. Claims must be filed within ten (10) days of event.

Project: _____

Company: _____

Contact Person: _____ **Phone/Fax:** _____

Start Date of Event: _____ **End Date of Event :** _____

Type of Event: _____

Explanation of Project Impacts: _____

Contract Completion Date: _____ **Requested Completion Date:** _____

I, (Name) _____ being the (Title) _____ (must be an officer) of (Company) _____ (General Contractor), declare under penalty of perjury under the laws of the State of California, and do personally certify and attest that: I have thoroughly reviewed the attached claim for extension of time, and know its contents, and said claim is made in good faith; the supporting data is truthful and accurate; that the time requested accurately reflects the contract adjustment for which the Contractor believes the Owner is liable; and, further, that I am familiar with California Penal Code section 72 and California Government Code Section 12560, et seq., pertaining to false claims, and further know and understand that submission of certification of a false claim may lead to fines, imprisonment, and/or other severe legal consequences. I also understand that approval of a time extension will not result in additional payments to me, unless specifically authorized by a contract amendment.

Signature of Officer of General Contractor _____ Date _____

This Section to be Completed by City of Reedley

Approved: _____ **Denied:** _____

Reason for Denial : _____

Revised Completion Date: _____

Project Inspector _____ Date _____

City Engineer _____ Date _____

