Contract Documents and Specifications

for the

2016-01 - City of Leon Valley Municipal Water Well Project

for

City of Leon Valley
6502 Bandera Road, Suite 112
Leon Valley, Texas 78238

(PWS #: 0150178)
SWE Project No. 0617-001-15

Bexar County, Texas
November 2015
Revised January 27, 2016
Revised February 10, 2016

The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

STATE OF TEXAS
CLARENCE LITTLEFIELD
30994
REGISTERED PROFESSIONAL ENGINEER

2-11-16

Wet Rock Groundwater Services, L.L.C.
Groundwater Specialists
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734 • Phone: 512-773-3226
www.wetrockgs.com
TBPG Firm No: 50038

Southwest Engineers
Civil · Environmental · Planning
307 Saint Lawrence Street
Gonzales, Texas 78629
Phone (830) 672-7546
Fax (830) 672-2034
www.swengineers.com
TBPE No. F-1909

(This Page Intentionally Left Blank)

Contract Documents and Specifications

for the

2016-01 - City of Leon Valley Municipal Water Well Project

SWE Project No. 0617-001-15
Revised February 10, 2016

City Council

Mayor	**Chris Riley**
Mayor Pro Tem/Council Place 2	**Carmen Sanchez**
Council Place 1	**David Edwards**
Council Place 3	**Monica Alcocer**
Council Place 4	**Benny Martinez**
Council Place 5	**David Jordan**
City Manager	**Kelly Kuenstler**
City Secretary	**Saundra Passailaigue**
Director of Public Works	**Melinda Moritz**

This page intentionally left blank.

TABLE OF CONTENTS

Table of Contents

Well Location Map

Advertisement for Bids

Instruction to Bidders

Bid Bond

Bid Schedule

Contractor Information

Davis Bacon Wage Decision

Contractor Agreement

Payment Bond

Performance Bond

Standard General Conditions

Special Conditions

Hazard Communications Contractor Acknowledgement

Conflict of Interest Questionnaire

Certificate of Interested Parties (Form 1295)

Technical Specifications:

Division 01 – General Requirements
Division 02 – Site Work
Division 03 – Concrete
Division 09 – Painting and Finishing
Division 11 – Equipment
Division 15 – Mechanical

Drawings

Sheet No.	Drawing No.	Description
-	-	Cover Sheet
1.	SP-1	Grass Hill Site Plan
2.	SP-2	Huebner Site Plan
3.	W-1	Well #3 Profile: Grass Hill Well No. 2
4.	W-2	Well #4 Profile: Huebner Well No. 2
5.	W-3	Well #1 Plugging Profile: Grass Hill Well No. 1
6.	W-4	Well #2 Plugging Profile: Huebner Well No. 1
7.	W-5	Wells #3 & #4 Details: Grass Hill Well No. 2 & Huebner Well No. 2

ADVERTISEMENT FOR BIDS

Separate sealed Bids for the **2016-01 - City of Leon Valley Municipal Water Well Project**, SWE Project No. 0617-001-15 will be received by and at the office of Rhonda Hewitt, Purchasing Agent, 6400 El Verde, Leon Valley, Texas 78238 until **2:00 P.M., Tuesday, March 22, 2016** where they will be publicly opened and read aloud. Bids must be clearly marked on the outside of the envelope or package with the words "**2016-01 – City of Leon Valley Municipal Water Well Project"**. Bids received after this time will be rejected and returned unopened.

Project consists of, but is not limited to the following: Option 1 – Drilling and developing the Grass Hill Well (No. 3) and the Huebner Well (No. 4) including the plugging and abandonment of the Grass Hill Well (No. 1) and the Huebner Well (No. 2); and Alternate bids for plugging the Huebner Well (No. 2), reusing the existing pumps, motors and column pipe from the existing Grass Hill Well (No. 1) and Huebner Well (No. 2).

Separate sealed Bids for the **2016-02 - City of Leon Valley Municipal Water Well Project – Yard Piping and Electrical and San Antonio Water System (SAWS) Interconnection for Wells No. 3 and No. 4**, SWE Project No. 0617-001-15 will be received by and at the office of Rhonda Hewitt, Purchasing Agent, 6400 El Verde, Leon Valley, Texas 78238 until **2:00 P.M., Tuesday, March 22, 2016** where they will be publicly opened and read aloud. Bids must be clearly marked on the outside of the envelope or package with the words **"2016-02 City of Leon Valley – Municipal Water Well Project – Yard Piping and Electrical and San Antonio Water System (SAWS) Interconnection for Wells No. 3 and No. 4".** Bids received after this time will be rejected and returned unopened.

Project consists of, but is not limited to the following: Yard Piping and Electrical for Wells No. 3 and No. 4 and SAWS Interconnect.

A **mandatory Pre-Bid Meeting** will be conducted on **Tuesday, March 1, 2016 at 2:00 P.M.** at 6400 El Verde, Leon Valley, Texas 78238.

Each Bidder shall also include the time when he could begin work and the number of days needed to complete the project as part of his bid. This may factor into the award of the project.

The Information for Bidders, Bid, Bid Bond, Contract, Plans, Specifications, Performance and Payment Bonds and the Contract Documents may be examined at the following locations:

SOUTHWEST ENGINEERS, INC., 307 ST. LAWRENCE STREET, GONZALES, TEXAS 78629 (830) 672-7546

Plans and Specifications are available at no charge from the office of Southwest Engineers, Inc. in three different formats:

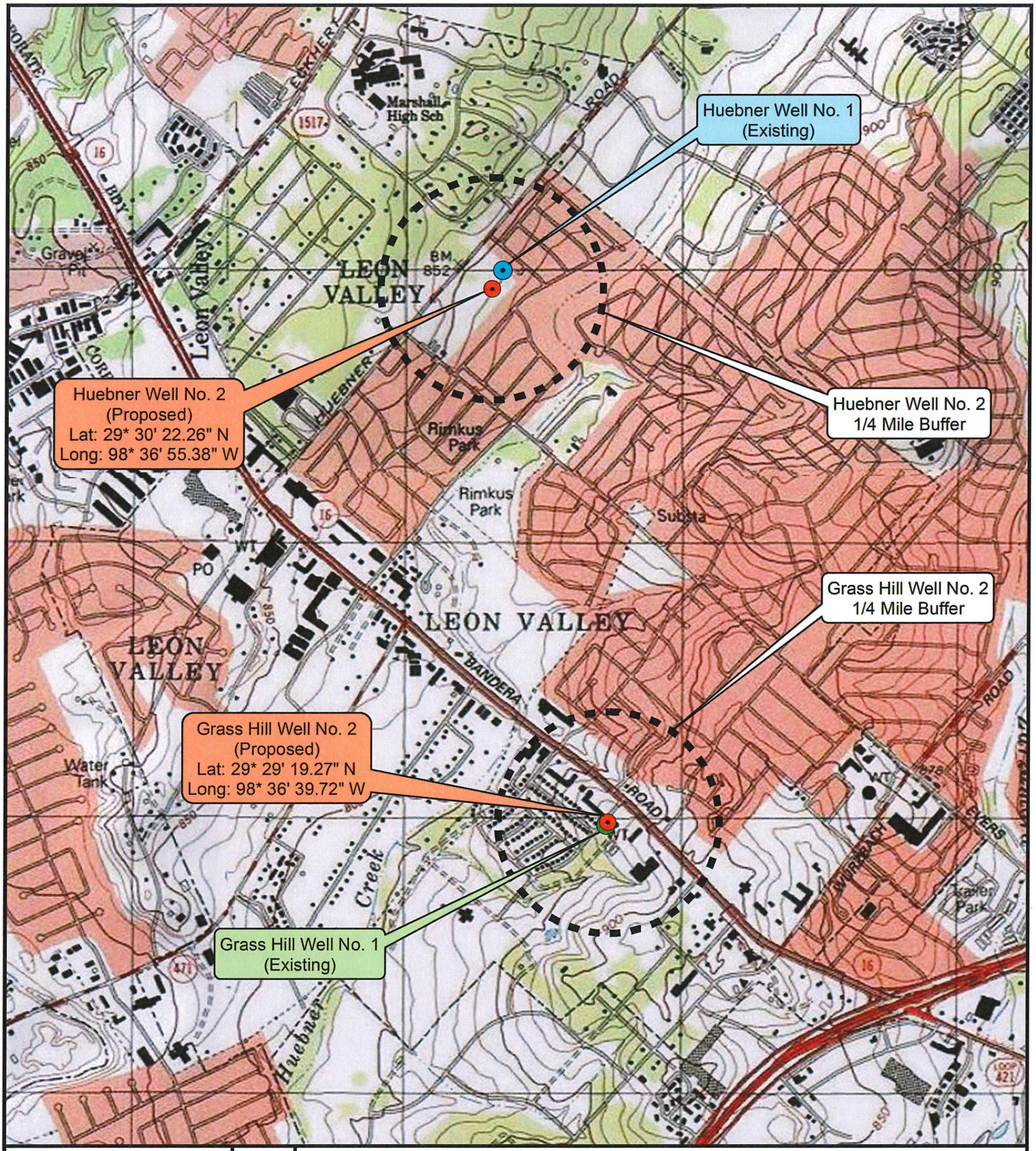
Hard Copy, CD in PDF Format, and Download.

A bid bond in the amount of 5% of the bid issued by an acceptable surety registered with the U.S. Treasury shall be submitted with each bid. A certified check payable to the City of Leon Valley may be submitted in lieu of the Bid Bond.

Attention is called to the fact that not less than the federally determined prevailing (Davis-Bacon and Related Acts) Wage Rate, as issued by the U.S. Department of Labor and contained in the Contract Documents, must be paid on this project.

The City of Leon Valley reserves the right to reject any or all bids and to waive any informalities in the bidding.

The City of Leon Valley fully intends to complete the bid evaluations and submit a recommendation to the City Council for award on April 5, 2016.



Scale: 0 750 1,500 Feet

Drawn By: KK Date: 9-4-15

Quad Name and No:
San Antonio West, TX 29098 D-5

Projection:
UTM NAD 83 Zone 14

City of Leon Valley - Well Location Map

City of Leon Valley

Bexar County, Texas

Wet Rock Groundwater Services, L.L.C.
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Ste. 203
Austin, Texas 78734 Ph: 512.773.3226
www.wetrockgs.com

This page intentionally left blank.

INSTRUCTION TO BIDDERS

1. OPENING OF BIDS

Sealed bids shall be received by Rhonda Hewitt, Purchasing agent at the City of Leon Valley, 6400 El Verde Road, Leon Valley, Texas 78238 until 2:00 P.M., Tuesday, March 22, 2016 where they will be publicly opened and read aloud.

2. USE OF SEPARATE BID FORMS

These contract documents include a complete set of bid and contract forms which are for the convenience of the bidders and are not to be detached from the contract document, completed or executed.

3. INTERPRETATIONS OF ADDENDA

No oral interpretations will be made to any bidder.

Each request for an interpretation shall be made in writing to:

Southwest Engineers, Inc., 307 St. Lawrence Street, Gonzales, Texas 78629 or email to clarence.littlefield@swengineers.com or fax at 830-672-2034.

To be given consideration, each request must be received at least seven (7) days prior to the date fixed for the opening of bids. Any and all interpretations and any supplemental instruction will be in the form of written addenda to the specification or plans which, if issued, may be transmitted to the bidder by the following means:

A. Mailed by certified mail with return receipt requested to all requesting bidders (at the respective addresses furnished for such purposes), no later than three (3) days prior to the date fixed for the opening of bids.

B. Telephoned and/or facsimiled with confirmation of receipt of message by recipient to all requesting bidders (at the respective phone number furnished for such purposes), with a forward copy by mail, notification will be made no later than three days (3) prior to the date fixed for the opening of bids.

C. All Addenda will be posted online on the City of Leon Valley website as well as on Public Purchase.

Failure of any bidder to receive notification of any such addendum or interpretation shall not relieve such bidder from any obligation under their bid as submitted. All addenda so issued shall become part of the contract documents and shall be acknowledged on the Bid Schedule in the blanks provided for such.

4. INSPECTION OF SITE

Each bidder should visit the site of the proposed work and fully acquaint themself with the existing conditions there and should fully inform themself as to the facilities involved, the difficulties and restrictions attending the performance of the contract. The bidder should thoroughly examine and familiarize themself with the drawings, technical specifications and all other contract documents. The contractor by the execution of the contract shall in no way be relieved of any obligation under it due to their failure to receive or examine any form or legal document or to visit the site or acquaint themself with the conditions there existing. The OWNER shall reject any claim based on information which the Contractor should have informed himself.

5. ALTERNATE BID ITEMS

No alternate bids or bid items will be considered unless they are specifically requested by the technical specifications or bid schedule.

6. BIDS

A. All bids must be submitted on the forms provided and are subject to all requirements of the contract documents, including the Drawings.

B. All bids must be regular in every respect and no interlineations, excisions or special conditions may be made or included by the bidder.

C. Bid documents, including the bid, and the contractor information form shall be sealed in an envelope and clearly labeled with the words "BID DOCUMENTS", the project number, name of bidder and the date and time of bid opening.

D. The OWNER may consider as irregular any bid on which there is an alteration of or departure from the bid form and, at its option, may reject any irregular bid.

E. If a contract is awarded, it will be awarded to a responsible bidder on the basis of the lowest/best bid and the selected alternate bid items, if any.

7. STATEMENT OF BIDDERS QUALIFICATIONS

Each bidder shall submit on the form furnished for that purpose a statement of the bidder's qualifications. This shall include a list of **at least five (5) large public water wells in the Edwards and/or Trinity Limestone Aquifers** that the bidder has successfully completed using AIR rotary drilling completion including details on the work performed within the past ten (10) years. The OWNER shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform their obligations under the contract, and the bidder shall furnish the OWNER all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available data does not satisfy the OWNER that the bidder is qualified to carry out properly the terms of the contract.

8. UNIT PRICE

The unit price for each of the several items in the bid shall include its pro-rata share of overhead so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price bid represents the total bid. Any bid not conforming to this requirement may be rejected as informal. Special attention is drawn to this condition, as the unit prices will be used to determine the amount of any change orders resulting from an increase or decrease in quantities.

9. CORRECTIONS

Erasure or other correction in the bid must be noted over the signature of the bidder.

10. TIME FOR RECEIVING BIDS

Bids received prior to the advertised hour of opening shall be kept securely sealed. The officer appointed to open the bids shall decide when the specified time has arrived and no bids received thereafter shall be considered.

11. WITHDRAWAL OF BIDS

Bids may be withdrawn by written request dispatched for delivery in the normal course of business prior to the bid opening. The bid guaranty of any bidder withdrawing their bid in accordance with the above will be returned promptly.

12. AWARD OF CONTRACT/REJECTION OF BIDS

A. The contract will be awarded to the responsive, responsible Bidder submitting the lowest/best bid. The bidder selected will be notified at the earliest possible date. The OWNER reserves the right to reject any or all bids and to waive any informality in bids received where such rejection or waiver is in its interest.

B. The OWNER reserves the right to consider as unqualified to do the work any bidder who does not habitually perform with his forces the major portions of the work involved in construction of the improvements embraced in the contract.

13. EQUAL EMPLOYMENT OPPORTUNITY

Attention is called to the requirements for ensuring that employees and applicants for employment are not discriminated against because of their race, color, creed, sex, or national origin.

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address)*:

SURETY *(Name and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:

BID
Bid Due Date:
Description *(Project Name and Include Location)*:

BOND
Bond Number:
Date *(Not earlier than Bid due date)*:
Penal sum _____ $ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER	**SURETY**
_____ (Seal)	_____ (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (Attach Power of Attorney)
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
_____	_____
Title	Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2 All Bids are rejected by Owner, or

3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

2016-01 - CITY OF LEON VALLEY MUNICIPAL WATER WELL PROJECT

BID

Proposal of_____ (hereinafter called "Bidder") *a corporation, organized and existing under the laws of the State of _____, *a partnership, or *an individual doing business as _____.

To **CITY OF LEON VALLEY**; hereinafter called **"OWNER".**

The Bidder, in compliance with the Invitation for Bids for the construction of the **2016-01 - CITY OF LEON VALLEY MUNICIPAL WATER WELL PROJECT**, having examined the Plans and Specifications with related documents and the site of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, supplies and to the construct the project in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents to which this proposal is a part.

Bidder hereby agrees to commence work under this Contract on or before_____ (which will be specified in the written "NOTICE TO PROCEED") and to fully complete the project within _____ consecutive calendar days thereafter as stipulated in the Specifications. Bidder further agrees to pay as a penalty the sum of $300.00 for each consecutive calendar day thereafter.

Each Bidder shall fill in the blank spaces above the time when he could begin work and the number of days needed to complete the project as part of his bid. This may factor into the award of the project.

Bidder acknowledges receipt of the following addendum:

NO.	DATE
_____	_____
_____	_____
_____	_____

*Strike out corporation, partnership and/or individual whichever is not applicable.

2016-01 - CITY OF LEON VALLEY MUNICIPAL WATER WELL PROJECT
BID SCHEDULE

This project is exempt from sales taxes. Any work item not specifically called out herein is intended to be included in the other items.

ITEM	QTY.	UNIT	DESCRIPTION
1.	**1**	**L.S.**	**WELL NO. 3 - GRASS HILL WELL No. 2 consisting of:**

a. Mobilization. Contractor shall remove all cuttings from site to spread out evenly at Huebner Well Site;

b. Reaming or drilling 410 feet of 8¾-inch diameter borehole;

c. Set of electric logs consisting of one (1) spontaneous potential, one (1) gamma ray, one (1) caliper, and one (1) 4-point resistivity curve (8-inch, 16-inch, 32-inch and 64-inch). Also include signed and dated EAA Geophysical Well Log Certification Form;

d. Enlarging existing borehole in Item 1.a. to 20-inch diameter borehole (410 feet);

e. 412 feet of 16-inch x 0.375" steel casing with centralizers at 40 foot intervals;

f. Pressure cementing (Class A or B cement) 410 feet of 16-inch x 0.375” steel casing;

g. Reaming or drilling 190 feet of 15-inch diameter borehole (410 feet-600 feet);

h. Set of electric logs consisting of one (1) spontaneous potential, one (1) gamma ray, one (1) caliper, and one (1) 4-point resistivity curve (8-inch, 16-inch, 32-inch and 64-inch);

i. Cleaning and development including 8 hours of development with air lift pumping to remove drilling fines from the water bearing formation;

j. Total depth video survey after well development;

k. 36 hour pump test (test pump provided by contractor) & recovery test including discharge, drawdown & recovery report per the Plans & Specifications (water level measurements shall be taken with a transducer capable of measuring at a time interval of 1 minute);

l. Water quality sample per the Plans and Specifications (TCEQ metals, minerals, radionuclides and bacteriologicals);

m. 2,000 gpm at 417 feet TDH water lubricated vertical turbine lineshaft pump, 399 feet of 12-inch x 0.375-inch steel discharge column, 399 feet of 3/4-inch diameter PVC e-line with cap at base and perforations on the bottom 20 feet & accessories, 300 H.P. 460 volt three phase motor;

n. Well head completion including concrete seal block, top flange on casing, discharge elbow & 2-inch air vent; and

o. All incidentals necessary to complete the work in accordance with the Plans and Specifications.

ALL ITEMS IN BID ITEM NO. 1 FOR LUMP SUM PRICE OF:

_____

_____

_____

_____DOLLARS

&_____CENTS

TOTAL PRICE $_____

ITEM	QTY.	UNIT	DESCRIPTION
2.	**1**	**L.S.**	**WELL NO. 4 - HUEBNER WELL NO. 2 consisting of:**

a. Mobilization. Contractor shall spread cuttings out evenly onsite;

b. Reaming or drilling 405 feet of 8¾-inch diameter borehole;

c. Set of electric logs consisting of one (1) spontaneous potential, one (1) gamma ray, one (1) caliper, and one (1) 4-point resistivity curve (8-inch, 16-inch, 32-inch and 64-inch). Also include signed and dated EAA Geophysical Well Log Certification Form;

d. Enlarging existing borehole in Item 1.a. to 20-inch diameter borehole (405 feet);

e. 407 feet of 16-inch x 0.375” steel casing with centralizers at 40 foot intervals;

f. Pressure cementing (Class A or B cement) 405 feet of 16-inch x 0.375” steel casing;

g. Reaming or drilling 195 feet of 15-inch diameter borehole (405 feet to 600 feet);

h. Set of electric logs consisting of one (1) spontaneous potential, one (1) gamma ray, one (1) caliper, and one (1) 4-point resistivity curve (8-inch, 16-inch, 32-inch and 64-inch);

i. Cleaning and development including 8 hours of development with air lift pumping to remove drilling fines from the water bearing formation;

j. Total depth video survey after well development;

k. 36 hour pump test (test pump and power provided by contractor) & recovery test including discharge, drawdown & recovery report per the Plans & Specifications (water level measurements shall be taken with a transducer capable of measuring at a time interval of 1 minute);

l. Water quality sample per the Plans and Specifications (TCEQ metals, minerals, radionuclides and bacteriologicals);

m. 2,000 gpm at 433 feet TDH water lubricated vertical turbine lineshaft pump, 399 feet of 12-inch x 0.375" steel discharge column, 399 feet of 3/4-inch diameter PVC e-line with cap at base and perforations on the bottom 20 feet & accessories, 300 H.P. 460 volt three phase motor;

n. Well head completion including concrete seal block, top flange on casing, discharge elbow & 2-inch air vent; and

o. All incidentals necessary to complete the work in accordance with the Plans and Specifications.

ALL ITEMS IN BID ITEM NO. 2 FOR LUMP SUM PRICE OF:

_____

_____

_____

_____DOLLARS

&_____CENTS

TOTAL PRICE $_____

ITEM	QTY.	UNIT	DESCRIPTION
3.	**1**	**L.S.**	**PLUGGING AND ABANDONEMENT OF WELL NO. 1 - GRASS HILL WELL NO. 1 consisting of:**

a. Mobilization;

b. Removal of existing pump, column pipe and all other appurtenances. Casing stickup above ground surface shall be removed to 12-inches below ground; demolish and remove existing slab;

c. Set of electric logs consisting of one (1) gamma ray and one (1) caliper. Include signed and dated EAA Geophysical Well Log Certification Form;

d. 124 feet of sand or stone aggregate (diameter shall not be greater than 2-inches) within existing 15-inch borehole (426 feet to 550 feet);

e. Pressure cementing (Class A or B cement) 426 feet of 12-inch steel casing (surface to 426 feet); and

f. All incidentals necessary to complete the work in accordance with the Plans and Specifications and the Edwards Aquifer Authority's rules.

ALL ITEMS IN BID ITEM NO. 3 FOR LUMP SUM PRICE OF:

_____

_____

_____

_____DOLLARS

&_____CENTS

TOTAL PRICE $_____

ITEM	QTY.	UNIT	DESCRIPTION
4.	**1**	**L.S.**	**PLUGGING AND ABANDONEMENT OF WELL NO. 2 - HUEBNER WELL NO. 1 consisting of:**

a. Mobilization;

b. Removal of existing pump, column pipe and all other appurtenances. Casing stickup above ground surface shall be removed to 12-inches below ground; demolish and remove existing slab;

c. Set of electric logs consisting of one (1) gamma ray and one (1) caliper. Include signed and dated EAA Geophysical Well Log Certification Form;

d. 43 feet of sand or stone aggregate (diameter shall not be greater than 2-inches) within existing 16-inch borehole (407 feet to 450 feet);

e. Pressure cementing (Class A or B cement) 407 feet of 12-inch steel casing (surface to 407 feet); and

f. All incidentals necessary to complete the work in accordance with the Plans and Specifications and the Edwards Aquifer Authority's rules.

ALL ITEMS IN BID ITEM NO. 4 FOR LUMP SUM PRICE OF:

_____

_____

_____

_____DOLLARS

&_____CENTS

TOTAL PRICE $_____

TOTAL BASE BID
2016-01 - CITY OF LEON VALLEY MUNICIPAL WATER WELL PROJECT

Well No. 3 - Grass Hill Well No. 2, Well No. 4 - Huebner Well No. 2
Plugging and Abandonment of Well No. 1 - Grass Hill Well No. 1
Plugging and Abandonment of well No. 2 – Huebner Well No. 1
(Items 1, 2, 3 & 4)

_____

_____

_____

_____

_____DOLLARS

&_____CENTS

$_____

2016-01 - CITY OF LEON VALLEY MUNICIPAL WATER WELL PROJECT
ALTERNATE BID SCHEDULE

This project is exempt from sales taxes. Any work item not specifically called out herein is intended to be included in the other items.

5. 1 L.S. WELL NO. 3 - GRASS HILL WELL NO. 2 consisting of:

a. In lieu of installing new 2,000 gpm 300 H.P. pump and 12-inch column pipe, relocate existing Grass Hill Well (No. 1) pump, motor and column pipe complete in place for net deduct from Bid Item #1 for:

ALL ITEMS IN BID ITEM NO. 5 FOR LUMP SUM PRICE OF:

_____

_____

_____

_____DOLLARS

&_____CENTS

TOTAL PRICE $_____

6. 1 L.S. WELL NO. 4 - HUEBNER WELL NO. 2 consisting of:

a. In lieu of installing new 2,000 gpm 300 H.P. pump and 12-inch column pipe, relocate existing Huebner Well (No. 2) pump, motor and column pipe complete in place for net deduct from Bid Item #2 for:

ALL ITEMS IN BID ITEM NO. 6 FOR LUMP SUM PRICE OF:

_____

_____

_____

_____DOLLARS

&_____CENTS

TOTAL PRICE $_____

ADDITIVE/DEDUCTIVE ITEMS
(Not Part of Total Base Bid)

ITEM	UNIT	DESCRIPTION	UNIT PRICE
8.	L.S.	Mobilization in Items 1.a., 2.a, 3.a and 4.a. each for the lump sum price of: _____ _____ _____DOLLARS &_____CENTS	$_____
9.	L.S.	Removal of cutting from Grass Hill site to spread evenly at Huebner site in Item 1.a. for the lump sum price of: _____ _____ _____DOLLARS &_____CENTS	$_____
10.	L.F.	Reaming or drilling 8¾-inch diameter borehole, more or less than 410 feet in Items 1.b. and 2.b. per foot for: _____ _____ _____DOLLARS &_____CENTS	$_____

11.	L.S.	One set of electric logs **per set** consisting of one (1) spontaneous potential, one (1) gamma ray, one (1) caliper, and one (1) 4-point resistivity curve (8-inch, 16-inch, 32-inch and 64-inch) in Items 1.c., 1.h., 2.c., 2.h., 3.c. and 4.c. for the lump sum price of: _____ _____ _____DOLLARS &_____CENTS	$_____
12.	L.F.	Enlarging 8¾-inch borehole to 20-inch diameter borehole, more or less than 410 feet and 405 feet in Items 1.d. and 2.d. per foot for: _____ _____ _____DOLLARS &_____CENTS	$_____
13.	L.F.	Reaming or drilling 15-inch diameter borehole, more or less than 190 feet and 195 feet in Items 1.g. and 2.g. per foot for: _____ _____ _____DOLLARS &_____CENTS	$_____
14.	L.F.	16" x 0.375" steel casing more or less than 412 feet and 407 feet in Items 1.e. and 2.e. per foot for: _____ _____ _____DOLLARS &_____CENTS	$_____

15.	L.F.	Pressure cementing (Class A or B) 16” x 0.375” steel casing more or less than 410 feet and 405 feet in Items 1.f. and 2.f. per foot for: _____ _____ _____DOLLARS &_____CENTS	$_____
16.	L.F.	Pressure cementing (Class A or B) 12-inch steel casing more or less than 426 feet in Items 3.e. and 4.e. per foot for: _____ _____ _____DOLLARS &_____CENTS	$_____
17.	HR.	Cleaning and development with air lift pumping more or less than 8 hours in Items 1.i. and 2.i. per hour for: _____ _____ _____DOLLARS &_____CENTS	$_____
18.	L.S.	Total depth video survey in Items 1.j. and 2.j., per video survey for the lump sum price of: _____ _____ _____DOLLARS &_____CENTS	$_____

19.	HR.	36 hour pump test and recovery test, more or less than 36 hours in Items 1.k. and 2.k. per hour for: _____ _____ _____DOLLARS &_____CENTS	$_____
20.	L.S.	Water sample analysis for TCEQ Public Water System constituents (metals, minerals, radionuclides and bacteriologicals) in Items 1.l. and 2.l. per sample for the lump sum price of: _____ _____ _____DOLLARS &_____CENTS	$_____
21.	L.S.	2,000 gpm @ 417 feet TDH water lubricated vertical turbine lineshaft production pump and 300 HP motor Item 1.l. for the lump sum price of: _____ _____ _____DOLLARS &_____CENTS	$_____
22.	L.S.	2,000 gpm @ 433 feet TDH water lubricated vertical turbine lineshaft production pump and 300 HP motor in Item 2.l. for the lump sum price of: _____ _____ _____DOLLARS &_____CENTS	$_____

23. L.F. 12” x 0.375” steel discharge column more or less than 399 feet in Items 1.m. and 2.m. per foot for:

_____

_____

_____DOLLARS

&_____CENTS $_____

24. L.F. ¾-inch diameter PVC e-line assembly with cap at base and perforations on the bottom 20 feet, more or less than 399 feet in Items 1.l. and 2.l. per foot for:

_____

_____

_____DOLLARS

&_____CENTS $_____

25. L.S. Well head completion including concrete seal block, top flange, discharge elbow and vent in Items 1.n. and 2.n. <u>per well</u> for the lump sum price of:

_____

_____

_____DOLLARS

&_____CENTS $_____

26. L.F. Sand or stone aggregate (diameter not greater than 2-inches) more or less than 124 feet in Items 3.d. and 4.d. per foot for:

_____

_____

_____DOLLARS

&_____CENTS $_____

27.	L.S.	Removal of existing pump, column pipe and all other appurtenances including casing stickup and demolition and removal of slab in Items 3.b. and 4.b. for the lump sum price of: _____ _____ _____DOLLARS &_____CENTS	$_____

WORK TO BEGIN _____ DAYS AFTER NOTICE TO PROCEED AND COMPLETE THE BASE BID (ITEMS 1 THROUGH 4) WITHIN _____ CALENDAR DAYS.

(Unit price amounts are to be shown in both words and figures. In case of discrepancy, the unit price amount shown in words will govern).

Each unit price shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that if his bid is within the lowest three (3) bids, that this bid shall be good and may not be withdrawn for a period of thirty (30) calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, bidder will execute a formal contract, provided herein.

The following documents are attached to and made a condition of the Bid:

- **Contractor Information Sheet**
- **Statement of Bidder's Qualifications**

BY:_____ DATE:_____

BY:_____ SEAL
(Person signing typed or printed) (If bid by a Corporation)

TITLE:_____

_____ _____
Complete Business Name County & State of Business

_____ _____
Street Address Mailing Address (if different)

_____ _____
City/State/Zip City/State/Zip (if different)

(_____)_____ (_____)_____
Business Phone Business FAX Number (if applicable)

Illegible and/or incomplete information on this page can cause delays in processing and/or contacting successful bidder.

CONTRACTOR INFORMATION

COMPANY NAME: _____

ADDRESS, MAILING: _____

_____

ADDRESS, STREET:_____
(if different)

_____

PHONE NUMBER: (_____) _____

EMAIL ADDRESS: _____

This Company is: _____ a corporation; _____ partnership;

_____ an individual; doing business as _____

_____

County: _____State: _____

PRINCIPALS (information is required for each as follows).

Title and Name, Home Address, including City, State and Zip Code

_____

_____

_____

_____

_____

Illegible and/or incomplete information on this can cause delays in processing and/or contacting successful bidder.

This page intentionally left blank.

BIDDER QUALIFICATIONS

List at least five (5) large commercial public water supply projects that bidder has successfully completed water wells within the Edwards or Trinity Aquifer with a steel casing 14-inches in diameter or larger (attach a list on a separate page if necessary):

1. _____

_____

_____

2. _____

_____

_____

3. _____

_____

_____

4. _____

_____

_____

5. _____

_____

_____

This page intentionally left blank.

General Decision Number: TX160016 01/08/2016 TX16

Superseded General Decision Number: TX20150016

State: Texas

Construction Types: Heavy and Highway

Counties: Atascosa, Bandera, Bastrop, Bell, Bexar, Brazos, Burleson, Caldwell, Comal, Coryell, Guadalupe, Hays, Kendall, Lampasas, McLennan, Medina, Robertson, Travis, Williamson and Wilson Counties in Texas.

HEAVY (excluding tunnels and dams, not to be used for work on Sewage or Water Treatment Plants or Lift / Pump Stations in Bell, Coryell, McClennon and Williamson Counties) and HIGHWAY Construction Projects

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016

* SUTX2011-006 08/03/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving and Structures)	$ 12.56	
ELECTRICIAN	$ 26.35	
FORM BUILDER/FORM SETTER		
Paving & Curb	$ 12.94	
Structures	$ 12.87	
LABORER		
Asphalt Raker	$ 12.12	
Flagger	$ 9.45	
Laborer, Common	$ 10.50	
Laborer, Utility	$ 12.27	
Pipelayer	$ 12.79	
Work Zone Barricade Servicer	$ 11.85	
PAINTER (Structures)	$ 18.34	

POWER EQUIPMENT OPERATOR:
Agricultural Tractor.....$ 12.69
Asphalt Distributor.....$ 15.55
Asphalt Paving Machine.....$ 14.36
Boom Truck.....$ 18.36
Broom or Sweeper.....$ 11.04
Concrete Pavement
Finishing Machine.....$ 15.48
Crane, Hydraulic 80 tons
or less.....$ 18.36
Crane, Lattice Boom 80
tons or less.....$ 15.87
Crane, Lattice Boom over
80 tons.....$ 19.38
Crawler Tractor.....$ 15.67
Directional Drilling
Locator.....$ 11.67
Directional Drilling
Operator.....$ 17.24
Excavator 50,000 lbs or
Less.....$ 12.88
Excavator over 50,000 lbs...$ 17.71
Foundation Drill, Truck
Mounted.....$ 16.93
Front End Loader, 3 CY or
Less.....$ 13.04
Front End Loader, Over 3 CY.$ 13.21
Loader/Backhoe.....$ 14.12
Mechanic.....$ 17.10
Milling Machine.....$ 14.18
Motor Grader, Fine Grade....$ 18.51
Motor Grader, Rough.....$ 14.63
Pavement Marking Machine....$ 19.17
Reclaimer/Pulverizer.....$ 12.88
Roller, Asphalt.....$ 12.78
Roller, Other.....$ 10.50
Scraper.....$ 12.27
Spreader Box.....$ 14.04
Trenching Machine, Heavy....$ 18.48

Servicer.....$ 14.51

Steel Worker
Reinforcing.....$ 14.00
Structural.....$ 19.29

TRAFFIC SIGNAL INSTALLER
Traffic Signal/Light Pole
Worker.....$ 16.00

TRUCK DRIVER
Lowboy-Float.....$ 15.66
Off Road Hauler.....$ 11.88
Single Axle.....$ 11.79
Single or Tandem Axle Dump
Truck.....$ 11.68
Tandem Axle Tractor w/Semi
Trailer.....$ 12.81

WELDER.....$ 15.97

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

==========

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

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

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007

in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

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

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

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

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator

(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

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

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

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

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

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

This page intentionally left blank.

CONTRACTOR AGREEMENT

THIS AGREEMENT is dated as of the _____ day of _____ in the year _____ by and between _____ (hereinafter called **OWNER**) and _____ (hereinafter called **CONTRACTOR**).

OWNER AND CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Project for which the Work under the Contract Documents may be the whole or only a part is described as follows:

_____

Article 2. ENGINEER.

The Project has been designed by Southwest Engineers, Inc. who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIMES.

3.1. The Work will be completed within _____ calendar days after the date when the Contract Times commence to run as provided in the General Conditions, and completed and ready for final payment in accordance with the General Conditions.

3.2. *Liquidated Damages* OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1. above, plus any extensions thereof allowed in accordance with the General Conditions. They also recognize the delays, expense and difficulties involved in proving the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER _____ dollars ($_____)
for each day that expires after the time specified in paragraph 3.1 for completion and readiness for final payment.

Article 4. CONTRACT PRICE.

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of:

_____ ($_____).

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with the General Conditions. Applications for Payment will be process by ENGINEER as provided in the General Conditions.

5.1. *Progress Payments;* OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, as provided in Paragraphs 5.1.1. below. All such payments will be measured by the schedule of values established in the Bid Schedule.

5.1.1. Prior to completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with the General Conditions.

95% of Work completed (with the balance being retainage.)
95% (with the balance being retainage) of materials not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in the General Conditions.

5.2. *Final Payment*. Upon final completion and acceptance of the Work in accordance with the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER.

Article 6. INTEREST

All moneys not paid when due as provided in the General Conditions shall bear interest at the maximum rate allowed by law at the place of the Project.

Article 7. CONTRACTOR'S REPRESENTATIONS.

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

7.1. CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda, if any) and the other related data identified in the Bidding Documents including "technical data".

7.2. 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, performance or furnishing of the Work.

7.3. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

7.4. CONTRACTOR is aware of the general nature of the work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.

7.5. 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 with the Contract Documents.

7.6. 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, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Article 8. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

8.1. This Agreement (pages 1 to 6 inclusive).

8.2. Exhibits to this Agreement, if any.

8.3. Performance, Payment and other Bonds.

8.4 Notice to Proceed.

8.5. General Conditions.

8.6. Supplementary Conditions.

8.7. Specifications bearing the title_____ and consisting of divisions and pages, as listed in the table of contents thereof.

8.8. Drawings consisting of a cover sheet and sheets numbered _____ through _____, inclusive with each sheet bearing the following general title:_____.

8.9. Addenda numbers _____ to _____, inclusive.

8.10. CONTRACTOR's Bid (pages _____ to _____, inclusive).

8.11. Documentation submitted by CONTRACTOR prior to Notice of Award.

8.12. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to the General Conditions.

The documents listed in paragraphs 8.2 et. seq. above are considered a part to this Agreement (except as expressly noted otherwise above).

Article 9. MISCELLANEOUS.

9.1. No assignment by a party hereto of any rights under or interest in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.2. OWNER and CONTRACTOR each binds itself, 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.

9.3. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in (_____) copies. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Agreement).

OWNER:

_____

BY_____

Name_____

Title_____ (SEAL)

ATTEST:

BY_____

Name_____

Title_____

CONTRACTOR:

_____

BY_____

Name_____

Title_____

Address_____ (Seal)

_____ (If a Corporation)

ATTEST:

BY_____

Name_____

Title_____

Payment Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Principal Place of Business):

OWNER (Name and Address):

CONSTRUCTION CONTRACT
Date:
Amount:
Description (Name and Location):

BOND
Date (Not earlier than Construction Contract Date):
Amount:
Modifications to this Bond Form:

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature:_____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature:_____
Name and Title:

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature:_____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature:_____
Name and Title:

EJCDC No. 1910-28A (1984 Edition)
Prepared through the joint efforts of The Surety Association of America, Engineers' Joint Contract Documents Committee, The Associated General Contractors of America, the American Institute of Architects, American Subcontractors Association, and the Associated Specialty Contractors

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.

2. With respect to the Owner, this obligation shall be null and void if the Contractor:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.

4. The Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with the Contractor:

1. Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and

2. Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and

3. Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosed a copy of the previous written notice furnished to the Contractor.

5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.

6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:

6.1. Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and that basis for challenging any amounts that are disputed.

6.2. Pay or arrange for payment of any undisputed amounts.

7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

8. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

9. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. The Surety hereby waives notice of any change, including changes of time to the Construction Contract or to related subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located of after the expiration of one year from the date (1.) on which the Claimant gave the notice required by Subparagraph 4.1. or Clause 4.2. (iii.), or (2.) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1.) or (2.) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in the Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is, that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

15.1. Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

15.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY – Name, Address and Telephone)

AGENT OR BROKER: OWNER'S REPRESENTATIVE: (Architect, Engineer or other party):

Southwest Engineers, Inc., 307 St. Lawrence Street, Gonzales, Texas 78629 830-672-7546

Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Principal Place of Business):

OWNER (Name and Address):

CONSTRUCTION CONTRACT
Date:
Amount:
Description (Name and Location):

BOND
Date (Not earlier than Construction Contract Date):
Amount:
Modifications to this Bond Form:

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature:_____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature:_____
Name and Title:

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature:_____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature:_____
Name and Title:

EJCDC No. 1910-28A (1984 Edition)
Prepared through the joint efforts of The Surety Association of America, Engineers' Joint Contract Documents Committee, The Association General Contractors of America, and the American Institute of Architects.

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.
3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:

3.1. The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and

3.2. The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete to the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and Surety have received notice as provided in Subparagraph 3.1.; and

3.3. The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

4.1. Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or

4.2. Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

1. After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or

2. Deny liability in whole or in part and notify the Owner citing reasons therefor.

5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4., and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6. After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1,4.2,or 4.3. above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the balance of the contract price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

6.1. The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

6.2. Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.
8. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligation under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.

12.1. Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

12.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3. Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

12.4. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY – Name, Address and Telephone)
AGENT OR BROKER: OWNER'S REPRESENTATIVE: (Architect, Engineer or other party):
Southwest Engineers, Inc., 307 St. Lawrence Street, Gonzales, Texas 78629 830-672-7546

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by

CONSTRUCTION SPECIFICATIONS INSTITUTE

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

Copyright © 2007 National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
(202) 347-7474
www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
www.asce.org

Associated General Contractors of America
2300 Wilson Boulevard, Suite 400, Arlington, VA 22201-3308
(703) 548-3118
www.agc.org

The copyright for this EJCDC document is owned jointly by the four
EJCDC sponsoring organizations and held in trust for their benefit by NSPE.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

Page

Article 1 – Definitions and Terminology 1
1.01 Defined Terms 1
1.02 Terminology 5

Article 2 – Preliminary Matters 6
2.01 Delivery of Bonds and Evidence of Insurance 6
2.02 Copies of Documents 6
2.03 Commencement of Contract Times; Notice to Proceed 6
2.04 Starting the Work 7
2.05 Before Starting Construction 7
2.06 Preconstruction Conference; Designation of Authorized Representatives 7
2.07 Initial Acceptance of Schedules 7

Article 3 – Contract Documents: Intent, Amending, Reuse 8
3.01 Intent 8
3.02 Reference Standards 8
3.03 Reporting and Resolving Discrepancies 9
3.04 Amending and Supplementing Contract Documents 9
3.05 Reuse of Documents 10
3.06 Electronic Data 10

Article 4 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions; Reference Points 11
4.01 Availability of Lands 11
4.02 Subsurface and Physical Conditions 11
4.03 Differing Subsurface or Physical Conditions 12
4.04 Underground Facilities 13
4.05 Reference Points 14
4.06 Hazardous Environmental Condition at Site 14

Article 5 – Bonds and Insurance 16
5.01 Performance, Payment, and Other Bonds 16
5.02 Licensed Sureties and Insurers 16
5.03 Certificates of Insurance 17
5.04 Contractor's Insurance 17
5.05 Owner's Liability Insurance 19
5.06 Property Insurance 19
5.07 Waiver of Rights 20
5.08 Receipt and Application of Insurance Proceeds 21

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

5.09 Acceptance of Bonds and Insurance; Option to Replace 21
5.10 Partial Utilization, Acknowledgment of Property Insurer 22

Article 6 – Contractor's Responsibilities 22
6.01 Supervision and Superintendence 22
6.02 Labor; Working Hours 22
6.03 Services, Materials, and Equipment 22
6.04 Progress Schedule 23
6.05 Substitutes and "Or-Equals" 23
6.06 Concerning Subcontractors, Suppliers, and Others 25
6.07 Patent Fees and Royalties 27
6.08 Permits 27
6.09 Laws and Regulations 28
6.10 Taxes 28
6.11 Use of Site and Other Areas 28
6.12 Record Documents 29
6.13 Safety and Protection 29
6.14 Safety Representative 30
6.15 Hazard Communication Programs 30
6.16 Emergencies 30
6.17 Shop Drawings and Samples 31
6.18 Continuing the Work 32
6.19 Contractor's General Warranty and Guarantee 33
6.20 Indemnification 33
6.21 Delegation of Professional Design Services 34

Article 7 – Other Work at the Site 35
7.01 Related Work at Site 35
7.02 Coordination 35
7.03 Legal Relationships 36

Article 8 – Owner's Responsibilities 36
8.01 Communications to Contractor 36
8.02 Replacement of Engineer 36
8.03 Furnish Data 36
8.04 Pay When Due 36
8.05 Lands and Easements; Reports and Tests 36
8.06 Insurance 36
8.07 Change Orders 37
8.08 Inspections, Tests, and Approvals 37
8.09 Limitations on Owner's Responsibilities 37
8.10 Undisclosed Hazardous Environmental Condition 37
8.11 Evidence of Financial Arrangements 37
8.12 Compliance with Safety Program 37

Article 9 – Engineer's Status During Construction 37
9.01 Owner's Representative 37

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

9.02 Visits to Site 37
9.03 Project Representative 38
9.04 Authorized Variations in Work 38
9.05 Rejecting Defective Work 38
9.06 Shop Drawings, Change Orders and Payments 39
9.07 Determinations for Unit Price Work 39
9.08 Decisions on Requirements of Contract Documents and Acceptability of Work 39
9.09 Limitations on Engineer's Authority and Responsibilities 39
9.10 Compliance with Safety Program 40

Article 10 – Changes in the Work; Claims 40
10.01 Authorized Changes in the Work 40
10.02 Unauthorized Changes in the Work 41
10.03 Execution of Change Orders 41
10.04 Notification to Surety 41
10.05 Claims 41

Article 11 – Cost of the Work; Allowances; Unit Price Work 42
11.01 Cost of the Work 42
11.02 Allowances 45
11.03 Unit Price Work 45

Article 12 – Change of Contract Price; Change of Contract Times 46
12.01 Change of Contract Price 46
12.02 Change of Contract Times 47
12.03 Delays 47

Article 13 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work 48
13.01 Notice of Defects 48
13.02 Access to Work 48
13.03 Tests and Inspections 49
13.04 Uncovering Work 49
13.05 Owner May Stop the Work 50
13.06 Correction or Removal of Defective Work 50
13.07 Correction Period 50
13.08 Acceptance of Defective Work 51
13.09 Owner May Correct Defective Work 52

Article 14 – Payments to Contractor and Completion 52
14.01 Schedule of Values 52
14.02 Progress Payments 52
14.03 Contractor's Warranty of Title 55
14.04 Substantial Completion 55
14.05 Partial Utilization 56
14.06 Final Inspection 57
14.07 Final Payment 57
14.08 Final Completion Delayed 58

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

14.09 Waiver of Claims 58

Article 15 – Suspension of Work and Termination 59
15.01 Owner May Suspend Work 59
15.02 Owner May Terminate for Cause 59
15.03 Owner May Terminate For Convenience 60
15.04 Contractor May Stop Work or Terminate 60

Article 16 – Dispute Resolution 61
16.01 Methods and Procedures 61

Article 17 – Miscellaneous 61
17.01 Giving Notice 61
17.02 Computation of Times 62
17.03 Cumulative Remedies 62
17.04 Survival of Obligations 62
17.05 Controlling Law 62
17.06 Headings 62

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*—The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*—See Paragraph 11.01 for definition.

17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*—The individual or entity named as such in the Agreement.

20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*—Sections of Division 1 of the Specifications.

22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*—Polychlorinated biphenyls.

31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

E. *Furnish, Install, Perform, Provide:*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data;

b. locating all Underground Facilities shown or indicated in the Contract Documents;

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

a. Such insurance shall remain in effect for two years after final payment.

b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, 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. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to 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, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to 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, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to 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 but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

   a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

   b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

   c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

   d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

   e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

   f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

   a. to supervise, direct, or control the Work, or

   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

   c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

   d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

   e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

   a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

   b. the Contract Price has been reduced by Change Orders;

   c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

   d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

   a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

   b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

   c. there are other items entitling Owner to a set-off against the amount recommended; or

   d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

   d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or

3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

SPECIAL CONDITIONS
TABLE OF CONTENTS

1. GENERAL
2. DEFINITION OF TERMS
3. SPECIAL HAZARDS
4. FUNDING
5. NOTICE TO PROCEED
6. SALES TAX
7. INCREASED OR DECREASED QUANTITIES OF WORK
8. MEASUREMENT AND PAYMENT
9. RESPONSIBILITIES OF CONTRACTOR
10. GUARANTEE AGAINST DEFECTIVE WORK
11. CONTRACTOR'S AND SUBCONTRACTOR'S PUBLIC LIABILITY, VEHICLE LIABILITY AND PROPERTY DAMAGE INSURANCE
12. BUILDER'S RISK INSURANCE
13. PROTECTION AGAINST ACCIDENT TO EMPLOYEES & THE PUBLIC
14. PROJECT COORDINATION
15. PROJECT MAINTENANCE
16. PRESERVATION OF STAKES
17. WORKING HOURS
18. WORKING DAYS
19. LOCATION OF THE PROJECT
20. CONSTRUCTION OBSERVATION
21. CLEAN-UP
22. SITE CONDITIONS
23. UNDERGROUND UTILITY CROSSINGS
24. SUBCONTRACTING
25. MATERIAL SUPPLIERS
26. RECORD DRAWINGS
27. VENUE
28. CONSTRUCTION QUALITY
29. CONSTRUCTION DRAWINGS
30. WATER FOR CONSTRUCTION
31. POWER SERVICE
32. SHORING
33. HANDLING AND INSTALLATION OF MATERIALS AND EQUIPMENT
34. ON-SITE INSPECTON
35. NSF STANDARD 61
36. SANITARY FACILITIES
37. TERMS AND CONDITIONS

(This Page Intentionally Left Blank)

SPECIAL CONDITIONS

1. GENERAL

The provisions of these Special Conditions shall govern in the event of conflict between them and the Plans or Technical Specifications and/or General Conditions.

2. DEFINITION OF TERMS

A. The word "OWNER" in these Specifications refers to the City of Leon Valley.

B. The word “CONSULTANT” or “HYDROGEOLOGIST” in these Specifications refers to Wet Rock Groundwater Services, LLC, 317 RR 620 South, Ste. 203, Austin, Texas 78734.

C. The word "ENGINEER" in these Specifications refers to Southwest Engineers, Inc., 307 St. Lawrence Street, Gonzales, Texas 78629.

D. The word "INSPECTOR" in these Specifications refers to the OWNER designated representatives delegated with this responsibility.

E. The word "MATERIAL TESTING FIRM" in these Specifications refers to the CONSULTANT retained material testing firm.

F. The word "CONTRACTOR" in these Specifications shall, where applicable, apply to any or all "Subcontractors" as defined in the General Conditions.

3. SPECIAL HAZARDS

The Contractor’s Public Liability and Property Damage Insurance shall provide adequate protection against the following special hazards:

A. Damage to adjoining and parallel utilities.
B. Owner and private property and improvements.

4. FUNDING

The project is being funded privately.

5. NOTICE TO PROCEED

The Contractor shall have 12 calendar days after the date of the Notice to Proceed to commence work efforts. The 12th day after the date of the Notice will be the construction starting date for project completion.

6. SALES TAX

The unit bid prices shall **not** include sales tax on material, supplies, equipment used or consumed in the performance of the Contract.

7. INCREASED OR DECREASED QUANTITIES OF WORK

The Owner reserves the right to alter the quantities of the work to be performed or to extend or shorten the improvements at any time when and as found necessary, and the Contractor shall perform the work as altered, increased or decreased, at the contract unit prices. Such increased or decreased quantity shall be made in accordance with the General Conditions of the Agreement. No allowance will be made for any change in anticipated profits nor shall such changes be considered as waiving or invalidating any condition or provisions of the Contract and Bond.

8. MEASUREMENT AND PAYMENT

Quantities shown in the tabular summary of these Specifications shall be used as a basis for payment to the Contractor, unless said quantities are shown to the satisfaction of the Consultant to be in error. Payment will be made on a final basis for work completed.

9. RESPONSIBILITIES OF CONTRACTOR

Except as otherwise specifically stated in the Contract Documents and Technical Specifications, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fees or other expenses and all other services and facilities of every nature whatsoever necessary for the performance of the Contractor and to deliver all improvements embraced in this Contract complete in every respect within the specified time.

10. GUARANTEE AGAINST DEFECTIVE WORK

The Contractor shall deliver to the Consultant upon completion of all work provided herein, a written guarantee, made out to the Owner and in a form satisfactory to

the Owner and Consultant, guaranteeing (and the Contractor does hereby guarantee) all work performed under this Contract is new and free from faulty materials in every particular, and free from faulty workmanship, and agreeing (and the Contractor does hereby agree) to replace or re-execute without additional cost to the Owner such work as may be found to be unsatisfactory, and to make good all damage to his, or work by others, as a result of improper workmanship and materials or due to such required replacement or re-execution.

This guarantee shall be made to cover (and does cover) a period of one (1) year from the date of acceptance of all work performed under this contract. Upon completion of the project for final acceptance, the Contractor shall submit a written guarantee as indicated above with the final estimate of payment to the Consultant for approval and acceptance. The guarantee and final estimate will be approved when the construction is completed as indicated and to the Owner's satisfaction. A "FINAL CERTIFICATE" will be issued by the Consultant as evidence. Neither the "FINAL CERTIFICATE", nor payment, nor any provisions in the Contract Documents shall relieve the Contractor of the guarantee's provisions, or his responsibility for neglect of the replacement of faulty materials, or workmanship, or any other items of defect during the period of time covered by the guarantee.

11. CONTRACTOR'S AND SUBCONTRACTOR'S PUBLIC LIABILITY, VEHICLE LIABILITY, AND PROPERTY DAMAGE INSURANCE

See item 37 – Terms and Conditions.

12. BUILDER'S RISK INSURANCE

As provided in the General Conditions, the Contractor **will not** be required to maintain Builder's Risk Insurance (fire and extended coverage) on a 100 percent completed value basis on the insurable portions of the project for the benefit of the Owner, the Contractor as their interests may appear.

13. PROTECTION AGAINST ACCIDENT TO EMPLOYEES AND THE PUBLIC

The General Conditions of Agreement is hereby modified adding thereto as follows: "THE CONTRACTOR AND HIS SURETIES SHALL INDEMNIFY AND SAVE HARMLESS THE OWNER, THE CONSULTANT, AND ALL THEIR OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS OR CLAIMS OF ANY CHARACTER, NAME AND DESCRIPTION BROUGHT FOR USE OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OR FAULT OF THE CONTRACTOR, HIS AGENTS, OR

EMPLOYEES, IN THE EXECUTION OF SAID CONTRACT; OR ON ACCOUNT OF THE FAILURE OF THE CONTRACTOR TO PROVIDE NECESSARY BARRICADES, WARNING LIGHTS OR SIGNS; AND WILL BE REQUIRED TO PAY ANY JUDGMENT, WITH COST, WHICH MAY BE OBTAINED AGAINST THE OWNER AND/OR CONSULTANT GROWING OUT OF SUCH INJURY OR DAMAGE. All other sentences and paragraphs of said GENERAL CONDITIONS shall remain as stipulated.

14. PROJECT COORDINATION

A. The Contractor shall work closely with Water System personnel, other Utilities and adjoining landowner to minimize disturbance to existing facilities, to maintain entrances, minimize disruption to traffic flow and water services, etc., during construction.

B. In the event other Contractors, Utilities and/or Governmental Agencies are doing work in the same area simultaneously with this project, the Contractor shall coordinate his proposed construction with that of the other party.

15. PROJECT MAINTENANCE

The Contractor shall maintain and keep in good repair the improvements covered by these Plans and Specifications during the life of his contract. All holes or failures in any of the backfill shall be repaired by use of additional material(s) as deemed necessary by the Owner and/or Consultant.

The Contractor shall respond to all requests for repair immediately and shall have personnel available to respond to emergency during off-hour period.

16. PRESERVATION OF STAKES

It shall be the Contractor's responsibility to save and preserve any Consultant provided survey point (iron pins, construction stakes, reference points, etc.). The Contractor shall bear the cost of the replacement of said survey points lost due to his, his employee's or subcontractor's negligence, misdirection or other causes. It is hereby expressly agreed, as a part of other considerations of the Contract, that the Owner shall <u>deduct</u> from the final payment otherwise payable to the Contractor, a sum equal to twenty-five dollars per survey point, as being the agreed cost of replacing such survey points lost by the Contractor. Survey points lost due to construction being located on easements or otherwise being so located that their loss is unavoidable for the construction of improvements are designed shall not be charged to the Contractor.

The Consultant shall decide which survey points are to be classified as an unavoidable loss. The Consultant will, at the request of the Contractor prior to the time

of construction is begun determine if any survey points are missing for which the Contractor should not be charged for replacing. Otherwise, all others shall have $ 25.00 per survey point missing upon completion of the work deducted from the final estimate.

17. WORKING HOURS

No work will be allowed during the hours of darkness. Work will normally be done on Monday through Friday excluding Owner recognized holidays. Extended work hours and/or days may be negotiated under the following provisions.

A. Specific times and dates will be submitted in writing to the OWNER no later than one week prior to the first day requested on each request.

B. The granting of requests will be solely at the discretion of the OWNER and may be altered at any time he deems necessary or personnel are unavailable.

18. WORKING DAYS

This paragraph shall be considered additional to the GENERAL CONDITIONS contained herein.

A work day is defined as consecutive calendar days.

Additional work days will be granted to the Contractor, at the discretion of the Consultant, upon submission of a written request documenting each requested day to the Consultant for the following situations:

A. Bad Weather, day(s) in which temperature and/or weather are such or site conditions due to weather are such that no construction activity can be conducted.

B. Situations that halt all possible construction activity, beyond the control of the Contractor. Situations caused by Contractor's lack of timely coordination will not be acceptable.

C. Acts of others, beyond the control of the Contractor.

D. Owner-recognized holidays that the Contractor elects not to work on.

The Consultant's decision shall be final in determining which days shall be allowed for granting additional work days.

19. LOCATION OF THE PROJECT

This project is located on property owned or controlled by easement or permit by the City of Leon Valley.

20. CONSTRUCTION OBSERVATION

The Consultant and Engineer or his representative shall make periodic observations of all materials and construction operations for this project as deemed necessary. Officials of the Texas Commission on Environmental Quality, Owner and other regulatory agencies having jurisdiction of the facilities shall also be permitted to make observations of the work. The Contractor shall assist with all such authorized observations.

The site shall be accessible for inspection by the Owner, the Agent, the Consultant, the Engineer, the testing laboratory and by representatives from Federal and State regulatory agencies.

The Contractor shall assist with such inspections by scheduling his work to permit required tests, making areas accessible and making other necessary and reasonable accommodations.

21. CLEAN-UP

A. During Construction. The Contractor shall, at all times, keep the job site free from all materials, debris and rubbish as is practical and shall remove same from any portion of the job site, when it becomes objectionable or interferes with the progress of the project in the opinion of the Consultant.

B. Final. Upon completion of the work, the Contractor shall remove from the project site, all materials, tools and equipment belonging to him, and leave the site with an appearance acceptable to the Consultant and the Owner.

22. SITE CONDITIONS

A. Accuracy of Drawings. The construction drawings have been prepared from USGS topographic maps, subdivision plats, record drawings of the existing facilities and from field observations. The locations shown for existing facilities are approximate only. There may be some existing facilities which are not shown on the Drawings.

B. Unknown Conditions. Except as may be necessary due to extraordinary unknown conditions, the Contractor shall make adjustments to the proposed work to account for minor unknowns. In the event that an unknown condition exists

which causes a significant change in the scope of the work, the Contractor shall notify the Consultant and the Consultant shall make modifications to the design as necessary.

23. UNDERGROUND UTILITY CROSSINGS

An attempt has been made to show the location of all utility lines on the construction plans. The location of those shown is not guaranteed to be accurate or complete. The Contractor will, at his own expense, locate and protect those lines, and if they are damaged, he will replace them at no cost to the Owner and to the satisfaction of the Consultant.

24. SUBCONTRACTING

A. The Contractor may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors.

B. The Contractor shall not award any work to any subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Owner may require. The Owner reserves the right to reject any subcontractor for justifiable reason.

C. The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

D. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by terms of the GENERAL CONDITIONS and other Contract Documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under the provision of the Contract Documents.

E. Nothing contained in this contract shall create any contractual relation between any subcontractor and the Owner.

25. MATERIAL SUPPLIERS

The Contractor will supply, when requested to do so by the Owner or Agent, the brand names of major materials and the names and addresses of major material suppliers and subcontractors. All material and equipment supplied shall be new, except that used steel casing in sound condition may be used. All material and equipment supplied shall be domestic. No foreign manufactured products will be acceptable unless prior approved by Owner.

26. RECORD DRAWINGS

The Contractor shall maintain in good condition one set of construction drawings on which he shall note exact locations of all structures, pipe, fittings, valves, etc. The Contractor shall also note any changes in equipment, piping, valves, etc.

On completion of the project the Contractor shall deliver this set of drawings to the Consultant and shall provide interpretation of the notations as the Consultant may require in preparing record drawings.

27. VENUE

Venue from suits arising from this Agreement shall be Bexar County, Texas.

28. CONSTRUCTION QUALITY

It is intended that construction of the project be of the highest quality.

All materials, equipment and components supplied by the Contractor and incorporated into the project shall be new, in good condition and of the quality specified or otherwise indicated. Where the quality is not specified, it is intended that the best quality be used.

All work shall be performed by skilled workmen who are qualified to perform their tasks. Where appropriate, personnel shall be licensed, certified or otherwise authorized to perform such tasks. All work shall be performed in a good and workmanlike manner.

29. CONSTRUCTION DRAWINGS

The construction drawings shall be a part of this contract. The construction drawings are titled:

Grass Hill Site Plan
Huebner Site Plan
Well No. 3 Profile: Grass Hill Well No. 2
Well No. 4 Profile: Huebner Well No. 2
Well No. 1 Profile: Rehabilitation of Huebner Well No. 1
Well No. 1 Plugging Profile: Grass Hill Well No. 1
Well No. 2 Plugging Profile: Huebner Well No. 1
Well Details – Well No. 3 and Well No. 4
Fence Details

30. WATER FOR CONSTRUCTION

Water for drilling operations shall contain a chlorine residual of at least 0.5 mg/L and is available from the Owner at no cost but not delivered. Contractor shall make arrangements for water required for construction. The rate of delivery may be limited requiring on site storage. Water from other sources shall also contain a residual of at least 0.5 mg/L.

31. POWER SERVICE

The Owner will make arrangements for service for the power to the completed well. The Contractor is responsible for power to the test pump.

32. SHORING

A. Any trench greater than five (5) feet of depth shall have sloping sides in accordance with current OSHA regulations or be supported by an adequate shoring system prepared by an experienced Texas Registered Professional Engineer. A soils investigations report will be available for areas in which depths are greater than five (5) feet to assist the Contractor in presenting a shoring design. Payment for pavement cuts shall be limited in width to that shown on the Drawings.

B. Indemnification. The Contractor shall indemnify and hold harmless the Owner, Agent, Consultant and Engineer, its employees and agents, from any and all damages, costs (including, without limitation, legal fees, court costs, and the cost of investigation), judgments or claims by anyone for injury or death of persons resulting from the collapse or failure of trenches constructed under this contract.

33. HANDLING AND INSTALLATION OF MATERIALS AND EQUIPMENT

All materials and equipment shall be packaged, transported, stored, handled and installed in accordance with the Manufacturer's recommendations and warranty conditions.

34. ON-SITE INSPECTION

The Owner may assign a resident on-site inspector to the project. The Contractor shall assist and cooperate fully with the Owner's Inspector. Representatives from the Owner and Consultant may inspect the progress of the work.

35. NATIONAL SANITATION FOUNDATION STANDARD 61

All materials used for construction of the project which will be in direct contact with the water shall be approved for use in potable water systems in accordance with National Sanitation Foundation Standard 61.

36. SANITARY FACILITIES

The Contractor shall furnish, install and maintain ample sanitary facilities for the workmen. As the need arises, a sufficient number of enclosed temporary toilets shall be conveniently placed as required at least 150 feet from the well unless they are of a sealed, leak proof type. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

37. TERMS AND CONDITIONS

The Terms and Conditions document that follows was supplied by the City of Leon Valley and is to be considered as part of the Special Conditions Document.

37. TERMS and CONDITIONS

THE CONTRACTOR SHALL MAINTAIN THE FOLLOWING INSURANCE:

1. Workers' Compensation Insurance Coverage.

The insurance carrier shall be an admitted carrier in the State of Texas.

A. Definitions:

Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project - includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

Person's providing services on the project ("subcontractor" in section 406.096) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project.

"Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

B. The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011 (44) for all employees of the contractor providing services on the project, for the duration of the project.

C. The contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

D. If the coverage period shown on the contractor's current certificate of coverage

ends during the duration of the project, the contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

E. The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

(1) a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage for all persons providing services on the project; and

(2) no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

F. The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

G. The contractor shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

H. The contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

I. The contractor shall contractually require each person with whom it contracts to provide services on a project, to:

(1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011 (44) for all of its employees providing services on the project, for the duration of the project;

(2) provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided services on the project for the duration of the project;

(3) provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage showing extension

of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(4) obtain from each other person with whom it contracts, and provide to the contractor:

(a) a certificate of coverage, prior to the other person beginning work on the project; and

(b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current coverage ends during the duration of the project;

(5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

(6) notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

(7) contractually require each person with whom it contracts, to performs as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.

J. By signing this contract or providing or causing to be a provided a certificate of coverage, the contractor is representing to the governmental entity that all employees of the contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting or classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or civil actions.

K. The contractor's failure to comply with any of these provisions is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten days after receipt of the notice of breach from the governmental entity.

2. Comprehensive General Liability Insurance

This insurance shall:

A. Be in an amount not less than $2,000,000 per occurrence, with a deductible of not more than $2,500;

B. Include coverage for the liability assumed by the Contractor under Item F. (Indemnity);

C. Include completed operation coverage which is to be kept in force by the Contractor for a period of not less than one year after the completion of the work provided for or performed under these specifications;

D. Not be subject to any of the special property damage liability exclusions commonly referred to as the XCU exclusions pertaining to blasting or explosion, collapse, or structural damage and underground property;

E. Not be subject to any exclusion of property used by the insured or property in the case, custody or control of the insured or property as to which the insured for any purpose is exercising physical control;

F. In naming the City of Leon Valley as an additional insured on your comprehensive General Liability Insurance, the following words apply:

"Contractor shall defend, indemnify and hold harmless the City of Leon Valley, its agents and employees from and against any liability, loss, cost and expense ("Liability") claimed by a third party (including reasonable attorney's fees and cost of defense) resulting from Contractor's performance of the Work to the extent that such Liability:

(1) is attributable to bodily injury, sickness, disease or death, or to the injury to or destruction of tangible personal property; and,

(2) is caused or contributed to by any neglect or fault of Contractor, its subcontractors, or their respective employees.

Where liability is attributable to the joint negligence or fault of Contractor and any other person (including Owner), Contractor's duty of indemnification shall be limited to Contractor's allocable share of such joint negligence or fault."

G. The Insurance company must have as a minimum a current A.M. Best rating of A.

3. Comprehensive Automobile Liability in the following amounts:

Bodily Injury	$1,000,000 per person
	$3,000,000 per accident

Property Damage $300,000 per accident

4. General Requirements for Insurance Coverage

A. The Certificate of Insurance furnished by the Contractor shall show by specific reference that each of the foregoing items have been provided for;

B. Certificates of Insurance required for each copy of the agreement which specifically set forth evidence of all required coverage will be filed with the City prior to the City's execution of the contract. Worker's Compensation Insurance coverage must be provided to the City prior to the City's award of the contract.

C. The Certificates of Insurance furnished by the contractor as evidence of the Insurance maintained by the contractor will include a clause obligating the Insurer to give the City of Leon Valley ten (10) days prior written notice of cancellation or any material change in the insurance coverage.

D. Waiver of Subrogation: The City of Leon Valley and the Contractor waive all rights and the rights of their respective insurance companies against each other for damages caused by fire or other perils to the extent such damages are covered by property insurance purchased by either party.

5. Anti-Discrimination in Employment

A. The contractor (successful bidder) and/or any subcontractor(s), if permitted, certifies complete compliance with the Federal Civil Rights Law and the Americans with Disabilities Act, agreeing to non-discrimination based on race, age, color, religion, disability, gender, ancestry, national origin, or place of birth in employment practices, programs and services shall include but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination, rates of pay or other compensation; and selection for training, including apprenticeship.

B. The contractor shall in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, age, color, religion, disability, gender, ancestry, national origin, or place of birth.

C. Upon request by the City of Leon Valley, the contractor shall furnish all information or reports required to investigate his/her payrolls and personnel records which pertain to current contract(s) with the City for purposes of ascertaining compliance with this non-discrimination certification.

6. General Independent Contractor Clause

This agreement does not create an employer relationship between the parties. It is the parties' intention that the contractor will be an independent contractor and not the City of Leon Valley employee for all purposes, including, but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, Texas workers' compensation law and Texas unemployment insurance law. The contractor will retain sole and absolute discretion in the judgment of the manner and means of carrying out the contractor's activities and responsibilities hereunder. The contractor agrees that it is a separate and independent enterprise from the City of Leon Valley, that it has a full opportunity to find other business, that it has made its own investment in its business, and that it will utilize a high level of skill necessary to perform the work. This agreement shall not be construed as creating any joint employment relationship between the contractor and the City of Leon Valley and the City of Leon Valley will not be liable for any obligation incurred by the contractor, including but not limited to unpaid minimum wages and/or overtime premiums.

7. Hot Goods Clause

The bidder hereby agrees that in the execution of the work he or she will comply with all applicable provisions of Sections 6, 7, and 12 of the Fair Labor Standards Act of 1938, as amended, and that there will be no violations of the "hot goods" or "hot cargo" provisions of the Act involving restrictions on the use of underage employees.

8. Fire Safety

The contractor shall comply with all City regulations including those regarding Fire Safety. In this regard he shall comply with all instructions of the City Fire Marshall during the course of the work.

9. Hazard Communications Act

In compliance with Article 5182b, Texas Revised Civil Statutes, all employers are required to train and educate employees on the safe use and handling of hazardous materials that employees may be exposed to in the work place. The City of Leon Valley's Fire Chief is designated as the City's HazComm Officer. Contractors of the City are also required to comply with the requirements of this Act.

Contractors are entitled to a copy of the City's workplace chemical list to which the contractor, its employees and agents may be exposed to in the workplace. Contractors are also entitled to a copy of all MSDS sheets for any hazardous chemicals which the City may have in the work place. Contractors have the obligation to inform its employees and agents of all of these requirements. Contractor shall furnish the City

with the MSDS sheets for any hazardous chemical brought into the City workplace that City employees will have exposure to. Contractors shall sign the Attachment 5, "Hazard Communications Contractor Acknowledgment" certifying receipt of this information.

This page intentionally left blank.

HAZARD COMMUNICATIONS
CONTRACTOR ACKNOWLEDGMENT

IT IS HEREBY UNDERSTOOD AND AGREED THAT _____, a Contractor under Contract to dated the _____ day of _____, 20_____, with the City of Leon Valley has received from the City notice of the Contractor's rights under the Texas Hazards Communications Act, the chemical list and material safety data sheets for hazardous chemicals that will be present in the City work area.

_____, Contractor with the City of Leon Valley, understands our obligation to inform our employees and agents of the information provided. Material safety data sheets have been received for the following chemicals.

_____

_____

_____

_____

_____

CONTRACTOR NAME: _____

NAME OF AUTHORIZED AGENT: _____

TITLE OF AUTHORIZED AGENT: _____

SIGNATURE OF AUTHORIZED AGENT: _____

DATE: _____

This page intentionally left blank.

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

OFFICE USE ONLY

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the goods or services to be provided under the contract.

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

5 Check only if there is NO Interested Party. ☐

6 AFFIDAVIT

I swear, or affirm, under penalty of perjury, that the above disclosure is true and correct.

_____
Signature of authorized agent of contracting business entity

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____ , to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

ADD ADDITIONAL PAGES AS NECESSARY

This page intentionally left blank.

TECHNICAL TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION	TITLE
01001	Summary of Work
01010	Definitions, Standards, and Abbreviations
01100	Submittal Data
01200	Construction Operations
01250	Project Safety and Safety Devices
01300	Measurement and Payment
01400	Inspection
01500	Warranties and Guarantees

DIVISION 02 - SITE WORK

SECTION	TITLE
02000	General
02500	Water Well

DIVISION 03 – CONCRETE

SECTION	TITLE
03000	Cast-In-Place Concrete

DIVISION 09 – PAINTING AND FINISHING

SECTION	TITLE
09000	General

DIVISION 11 - EQUIPMENT

SECTION	TITLE
11000	General
11310	Water Lubricated Vertical Lineshaft Pump
11400	E-Line and Vent

DIVISION 15 - MECHANICAL

SECTION	TITLE
15000	General
15100	Ductile Iron Pipe and Fittings
15150	Steel Pipe – Water
15200	Polyvinyl Chloride Pipe and Fittings – Water
15300	Testing and Disinfection – Water
15400	Gate Valves
15410	Check Valves
15420	Combination Air Release and Valve Valves - Water
15605	Water Meters – Turbine

Section 01001 - Summary of Work

1.0 General

A. Scope

The Work to be performed under the provisions of these Contract Documents consists of furnishing all materials, equipment, tools, transportation, services, labor and supervision necessary for construction of facilities and installation of any and all equipment together with appurtenances for:

The work covered by these specifications shall consist of construction options: BASE BID - drilling and developing the Grass Hill Well (Well No. 3) and the Huebner Well (Well No. 4) including the plugging and abandonment of the Grass Hill Well (Well No. 1) and the plugging and abandonment of the Huebner Well (Well No. 2); and ALTERNATE BIDS for reusing the existing pumps, motors and column pipe from the existing Grass Hill Well (Well No. 1) and Huebner Well (Well No. 2).

All existing electrical panels, controls, starters, switches and yard piping shall be replaced and updated under separate contract.

1. <u>BASE BID</u>

The Grass Hill Well (Well No. 3) shall consist of 412 feet of 16-inch steel casing cemented within a 20-inch borehole and a 15-inch open hole completion from 410 feet to 600 feet. The well shall be equipped, with a 2,000 gpm, 300 H.P. water lubricated vertical lineshaft pump and motor set with 399 feet of 12-inch steel column pipe.

The Huebner Well (Well No. 4) shall consist of 407 feet of 16-inch steel casing cemented within a 20-inch borehole and a 15-inch open hole completion from 405 feet to 600 feet. The well shall be equipped, with a 2,000 gpm, 300 H.P. water lubricated vertical lineshaft pump and motor set with 399 feet of 12-inch steel column pipe.

The Grass Hill Well (Well No. 1) shall be plugged and abandoned according to the Edwards Aquifer Authority's (EAA) rules and regulations which shall consist of placing sand or stone aggregate from a depth of 426 feet to 550 feet and pressure cementing the 12-inch casing from the ground surface to 426 feet. The casing stickup shall be removed to 12-inches below grade with the demolition and removal of the slab.

The Huebner Well No. 1 shall be plugged and abandoned according to the Edwards Aquifer Authority's (EAA) rules and regulations which shall consist of placing sand or stone aggregate from a depth of 407 feet to 450 feet and pressure cementing the 12-inch casing from the ground surface to 407 feet. The casing stickup shall be removed to 12-inches below grade with the demolition and removal of the slab.

2. ALTERNATE BIDS

The Grass Hill Well No. 1 pump, motor and column pipe shall be removed and relocated to the new Grass Hill Well - No. 3.

The Huebner Well No. 1 pump, motor and column pipe shall be removed and relocated to the new Huebner Well - No. 4.

The project includes all site work necessary for well construction including but not necessarily limited to clearing and grubbing and brush disposal; grading; drainage ditching; temporary 4 strand barbed wire fencing necessary for livestock control; etc.

The Owner will be responsible for temporary access to each site.

The well shall be suitable in all regards for use as a public water supply. The well shall conform to all regulatory requirements for such facilities. The well shall be constructed and completed in accordance with the provisions of AWWA A-100 and the specifications included herein.

After completion of drilling and test pumping, the Driller shall remove all equipment and materials and make appropriate adjustments to the height of the surface conduit, casing and liner. The Driller shall pour the seal slab and complete the well head. The seal slab shall extend to the top of the casing cement.

All material and equipment used in the construction of the well shall not contain more than a weighted average of 0.25% lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fixtures and fixtures and meet standards of NSF 61.

The Contractor shall comply with all State, County and Edwards Aquifer Authority rules.

Project name is 2016-01 - City of Leon Valley Municipal Water Well Project.

B. Materials

The Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities that are required to execute, complete, and deliver the work within the specified Contract time, except as otherwise specifically stated in the Contract Documents.

Any work necessary to be performed after regular working hours, on Sundays or legal holidays shall be performed without additional expense to the Owner and subject to approval in advance by the Owner.

Compliance with job safety requirements and health standards as published by the Occupational Safety and Health Administration, United States Department of Labor, shall be provided without additional expense to the Owner.

C. Scope, Nature and Intent of Specifications and Plans

The Specifications and Plans are intended to supplement but not necessarily duplicate one another. Any work exhibited in one and not in the other shall be executed as if it had been set forth in both.

Should the requirements appear to be in conflict or the Contractor has questions on the Work, the Contractor shall secure written instructions from the Owner and Engineer before proceeding with the construction affected thereby. The intent is that the Work shall be performed according to the Contract Documents.

All products specified by manufacturer's name shall be installed in accordance with manufacturer's printed instructions.

When equipment or material furnished by the Contractor cannot be installed as specified or as shown on the Plans, the Contractor shall, without extra cost to the Owner, make all modifications required to properly install the equipment or material. Such modifications shall be subject to the approval of the Owner and the Engineer.

Dimensions and elevations shown on the Plans shall be accurately followed even though they may differ from scaled measurements. Proposed work shown on the Plans, in which the dimensions are not clearly indicated, shall be postponed until necessary dimensions have been obtained from the Engineer.

The general arrangement of the Work shall be as indicated on the Plans. Detail drawings or proposed departures due to actual field condition or other causes shall be submitted to the Engineer for approval.

No attempt has been made in the Contract Documents to segregate work to be performed by any trade or subcontract. Any segregation between the trades or crafts will be solely a matter for agreement between the Contractor and his employees and/or his subcontractors.

The Contract Documents as a whole shall govern the construction of the entire Work. The applicable provisions thereof shall govern work to be performed under each section.

The Contractor shall check all dimensions, elevations, and quantities shown on the Plans and schedules provided by the Engineer and shall notify the Engineer of any discrepancy between the Plans and the conditions on the ground or of any error or omission in Plans or in the layout or instructions which he may discover in the course of the Work. Full instructions shall be furnished by the Engineer should such error or omission be discovered, and the Contractor shall carry out such instructions as if originally specified.

D. Quality of Materials and Equipment

Unless specifically provided otherwise in each case, all materials and equipment furnished for permanent installation in the Work shall conform to applicable standard specifications and shall be new, unused, and undamaged when installed or otherwise incorporated in the Work.

Contractor shall submit for approval a list of makes and types of all equipment and materials he proposes to use prior to placing orders for same. This shall be done promptly upon award of contract to avoid delays in delivery and completion.
Any materials or equipment installed without the Engineer's prior approval shall, if so directed by the Engineer, be removed and replaced with approved material or equipment at the Contractor's expense.

E. Items of Work

All work within the scope of this project shall be completed in accordance with the intent of the Contract Documents. Major items of work are included but are not limited to items listed in the Contract Documents.

2.0 Scheduling

A. Work Activity Schedule in Order of Progress. (Work activity may vary depending on use of Alternate Bid Items).

1. (Plant Contractor will remove old well discharge piping and electrical). Pull pump from Old Grass Hill Well.

2. Plug and abandon Old Grass Hill Well.

3. Drill new Grass Hill Well, develop, test and set pump. (Plant Contractor will finish new electrical and discharge piping.)

4. Drill new Huebner Well, develop, test and set pump. (Plant Contractor will demolish old electrical, construct new electrical and new discharge piping.)

5. Pull pump from Old Huebner Well.

6. Plug and abandon Old Huebner Well.

B. The Contractor shall coordinate all construction activities and scheduling through the Owner as other construction activities may be in progress.

C. All material and pertinent equipment must be on site prior to commencing construction.

D. All required traffic and safety control devices must be in place and inspected prior to the commencing of construction.

E. Location of all underground utility lines shall be made prior to the commencing of construction to insure in-field verification of location.

F. The Contractor shall report to the Engineer any conflict between existing utilities or other structures with the proposed improvements. The Owner and the Engineer shall have sufficient time to resolve any conflict.

G. Down Time for Utility Tie-Ins

1. All tie-ins that require disruption of service shall be completed with less than four (4) hours per tie-in.
2. All tie-ins shall be coordinated with the Owner a minimum of 48 hours in advance. The amount of downtime is very limited, therefore the Contractor shall have all pipe exposed and necessary equipment and supplies on site prior to the actual tie-in.

H. Public Access

1. The Contractor shall make every effort to complete construction and to allow immediate access to all driveway entrances. Adequate barricades shall be used to route traffic (vehicular and pedestrian) during construction, if necessary.

2. The Contractor shall complete each day's work in sufficient detail to allow the public access to their property. Temporary backfill or trench covering, if necessary, shall be required to accomplish this access.

3.0 Services Provided By Others

A. Material Testing

1. The Contractor shall be responsible for reimbursing the Material Testing Firm directly for all testing and re-testing.

2. The Owner shall not be responsible for testing of any construction materials. Testing would only be required to confirm suitability of any construction material, proposed for use on the project, deemed questionable by the Engineer and/or Owner.

3. All testing shall be in accordance with the Specifications herein.

4. The Contractor shall be responsible for the coordination of all testing.

B. Water for Construction

1. Water for flushing and/or testing is available at no charge but not delivered from the Owner. All water used in drilling operations shall contain a chlorine residual of at least 0.5 mg/L.

2. Water for trench backfill, road construction, washing and other associated needs is available from the Owner.

3. Due to the volume of water that may be required, coordination shall be made with the Owner prior to use.

4. The Contractor shall coordinate with the Engineer/Hydrogeologist and Owner prior to discharge of any water used in the construction of the Work to adequately allow for drainage of this water. Drainage provisions must be acceptable to the adjoining property and right-of-way owners. Drainage onto public and/or private roadways is prohibited.

5. The Contractor shall utilize designated fire hydrants and/or flush lines for any water used in the construction of the Work.

C. Electrical

1. The Owner will be responsible for providing electrical service to the property after the well is completed. Contractor will be responsible for providing power for the test pump and construction.

D. Staking

1. The Owner will provide horizontal and vertical location and staking.

E. Bacteriological Testing

The Contractor shall be responsible for any sampling required including chemical analysis and bacteriological.

4.0 Construction

A. Layout and Staking

The District and Engineer shall stake each well site. The Contractor shall lay out the Work according to the lines, grades, elevations, dimensions and general arrangement as shown on the Plans or specified herein.

Except as otherwise required, all buried pipe shall have a minimum cover of 30 inches. All drain pipes shall have a minimum grade of 0.50 percent.

Spoil and Debris Removal

All excavated earth material in excess of material required for the project shall be the property of the Contractor. All demolition debris, trash, rubbish, etc. found at the site shall be the property of the Contractor. The Contractor shall remove from the site and properly dispose all excess spoil, demolition debris, trash, and rubbish.

END OF SECTION

Section 01010 - Definitions, Standards, and Abbreviations

1.0 General

The work covered by this Section includes the Definitions, Standards, and Abbreviations found within these Contract Documents.

2.0 Definitions

General Explanation: Certain terms used in Contract Documents are defined in this article. Definitions and explanations contained in this Section are not necessarily complete, but are general for the work to the extent that they are not stated more explicitly in another element of the Contract Documents.

General Requirements: The provisions or requirements of other Division Sections apply to entire work of the Contract and, where so indicated, to other elements which are included in the Work.

Indicated: The term, “indicated”, is a cross-reference to graphic representations, notes or schedules on the drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as “shown”, “noted”, “scheduled”, and “specified” are used in lieu of “indicated”, it is for the purpose of helping the reader locate the cross-reference, and no limitation of location is intended except as specifically noted.

Directed, Requested, Etc.: Where not otherwise explained, terms such as “directed”, “requested”, “authorized”, “selected”, “approved”, “required”, “accepted”, and “permitted” mean “directed by the Engineer”, “requested by the Engineer”, and similar phrases. However, no such implied meaning will be interpreted to extend the Engineer’s responsibility into the Contractor’s area of construction supervision.

Approve: Where used in conjunction with the Engineer’s response to submittals, requests, applications, inquiries, reports and claims by the Contractor, the meaning of the term "“approved” will be held to limitations of the Engineer’s responsibilities and duties as specified in the General and Supplementary Conditions. In no case shall the Engineer’s approval be interpreted as a release of the Contractor from responsibilities to fulfill requirements of the Contract Documents.

Project Site: The term, "project site", is defined as the space available to the Contractor for performance of the Work, either exclusively or in conjunction with others performing other work as part of the project. The extent of the project site is shown on the drawings, and may or may not be identical with the description of the land upon which the project is to be constructed.

Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations."

Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing protecting, cleaning, installing and similar operations."

Provide: The term "provide" means "to furnish and install, complete and ready for intended use."

Installer: The "installer" is "the entity" (person or firm) engaged by the Contractor, its subcontractor or sub-subcontractor for performance of a particular element of construction at the project site, including installation, erection, application and similar required operations. It is a requirement that installers are experienced in the operations they are engaged to perform.

Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests of the work, either at the project site or elsewhere, and to report, and (if required) interpret results of those inspections or tests.

3.0 Specification Standards

A. General

This article is provided to help the user of these specifications more readily understand the format, language, implied requirements and similar conventions of content. None of the following explanations shall be interpreted to modify the substance of contract requirements.

B. Specification Format

1. These specifications are organized based upon the Construction Specifications Institute's 16 Division format. The organization of these specifications into Division, Sections and/or Trade Headings conforms to generally recognized industry practices.

2. Divisions are grouping of related or similar sections. The divisions are recognized as the construction industry consensus method of uniform specification organization.

3. Sections are considered as the basic units of work. The section title is descriptive only and not intended to limit the meaning or content of a section or to be completely descriptive of requirements specified therein.

4. Section numbering is used to facilitate cross-references in the Contract Documents. Sections are placed in the Specifications in numeric sequence; however, the numeric sequence is not complete and the listing of the sections in the "Table of Contents" at the beginning of the Technical Specifications must be consulted to determine the numbers and names of specification sections in the Contract Documents.

5. Pages are numbered independently for each section, and are recorded in the listing of sections (Table of Contents) at the beginning of the Technical Specifications. The section number is shown together with the page number at the bottom of each page to facilitate the location of text in the Technical Specifications

6. This project specification has been produced employing certain conventions in the use of language as well as conventions regarding the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

   a. In certain circumstances, the language of the Specifications and other Contract Documents is of the abbreviated type. It implies words and meanings that should be appropriately interpreted. Singular words shall be interpreted as plural and plural words should be interpreted as singular where applicable and where the full context of the Contract Documents so indicates.

   b. Imperative language is used generally in the specifications. Requirements expressed imperatively shall be performed by the Contractor. At certain locations in the text, for clarity, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when so noted.

   c. The techniques or methods of specifying requirements varies throughout the text. The method used for specifying on an element of the Work has no bearing on requirements for another element of the Work.

d. In certain circumstances, the specification text requires or implies that specific elements of the Work shall be assigned to specialists who must be engaged to perform that element of the Work. Such assignments are special requirements over which the Contractor shall have no choice or option. Such assignments are intended to establish which party or entity involved in a specific element of the Work is considered as being sufficiently experienced in the indicated construction processes or operations to be recognized as "expert" in those processes or operations. The ultimate responsibility for fulfilling all contract requirements remains with the Contractor.

These requirements should not be interpreted to conflict with the enforcement of building codes and similar regulations governing the work.

e. The use of certain titles such as "carpentry" in the specification text, is not intended to imply that the Work must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter". It also is not intended to imply that the requirements specified apply exclusively to work by tradespersons of that corresponding generic name.

4.0 Industry Standards

A. Applicability of Standards

Except where more explicit or stringent requirements are written into the Contract Documents, applicable construction industry standards have the same force and effect as if bound into or copied directly into the Contract Documents. Such industry standards are made a part of the Contract Documents by reference. Individual specification sections indicate which codes and standards the Contractor must keep available at the project site for reference. Latest revision of each standard, at time of the bid opening, shall prevail.

1. Referenced standards (standards referenced directly in the Contract Documents) take precedence over non-referenced standards that are recognized in the industry for applicability to the Work.

2. Except as otherwise limited by the Contract Documents, non-referenced standards recognized in the construction industry are defined as having direct applicability to the Work and shall be enforced for the performance of the Work. The decision as to whether an industry code or standard is applicable to the Work, or as to which of several standards are applicable, is the sole responsibility of the Engineer.

B. Conflicting Requirements

Where compliance with two (2) or more standards is specified, and where these standards establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents specifically indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Engineer for a decision prior to proceeding.

C. Copies of Standards

The Contract Documents require that each entity performing work be experienced in that part of the Work being performed. Each entity shall also be required to be familiar with industry standards applicable to that part of the Work. Copies of applicable standards are not bound with the Contract Documents.

Where copies of standards are needed for proper performance of the Work, the Contractor is required to obtain such copies directly from the publication source.

Although certain copies of standards needed for enforcement of the requirements may be required submittals, the Engineer reserves the right to require the Contractor to submit additional copies of these standards as necessary for enforcement of requirements.

5.0 Abbreviations

A. Trade Associations

Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations as referenced in Contract Documents are defined to mean the associated names. Names are subject to change, and are believed to be, but are not assured to be, accurate and up-to-date as of the date of the Contract Documents.

AAMA	-	American Architectural Manufacturer's Association
AASHTO	-	American Association of State Highway and Transportation Officials
ACI	-	American Concrete Institute
ACPA	-	American Concrete Pipe Association
AGA	-	American Gas Association
AI	-	Asphalt Institute
AIA	-	American Institute of Architects
AISC	-	American Institute of Steel Construction
AISI	-	American Iron and Steel Institute
ANSI	-	American National Standards Institute

API	-	American Petroleum Institute
ASC	-	Adhesive and Sealant Council
ASCE	-	American Society of Civil Engineers
ASHRAE	-	American Society of Heating, Refrigerating, And Air Conditioning Engineers
ASME	-	American Society of Mechanical Engineers
ASPE	-	American Society of Plumbing Engineers
ASSE	-	American Society of Sanitary Engineering
ASTM	-	American Society for Testing and Materials
AWS	-	American Welding Society
AWWA	-	American Water Works Association
BHMA	-	Builders Hardware Manufacturers Association
CRSI	-	Concrete Reinforcing Steel Institute
CSI	-	Construction Specifications Institute
IEEE	-	Institute of Electrical and Electronic Engineers
IES	-	Illuminating Engineering Society of North America
ISA	-	Instrument Society of America
LPI	-	Lightning Protection Institute
MBMA	-	Metal Building Manufacturer's Association
NAAMM	-	National Association of Architectural Metal Manufacturers
NAPF	-	National Association of Plastic Fabricators
NEC	-	National Electric Code
NEMA	-	National Electrical Manufacturers Association
NFPA	-	National Fire Protection Association
NSF	-	National Sanitation Foundation
SDI	-	Steel Deck Institute
UL	-	Underwriters Laboratories
WRI	-	Wire Reinforcement Institute
WSC	-	Water Systems Council

B. Government Agencies and Programs

The names and titles of government agencies and programs are frequently abbreviated. The following acronyms or abbreviations as referenced in the Contract Documents indicate the names of agencies of the government. Names are subject to change but are believed to be, but are not assured to be, accurate and up-to-date as of the date of the Contract Documents.

CE	-	Corps of Engineers
CFR	-	Code of Federal Regulations
DOC	-	Department of Commerce
DOT	-	Department of Transportation
EDAP	-	Economically Disadvantaged Areas Program
EPA	-	Environmental Protection Agency
FAA	-	Federal Aviation Administration
FCC	-	Federal Communications Commission

FS	-	Federal Specification
GSA	-	General Services Administration
MIL	-	Military Standardization Documents
ORCA	-	Office of Rural Community Affairs
OSHA	-	Occupational Safety and Health Administration
REA	-	Rural Electrification Administration
RD	-	Rural Development
RUS	-	Rural Utility Services
RWAF	-	Rural Water Assistance Fund
TCDP	-	Texas Community Development Program
TDHCA	-	Texas Department of Housing and Community Affairs
TWDB	-	Texas Water Development Board
USDA	-	United States Department of Agriculture

6.0 Governing Regulations/Authorities

A. General

The procedure followed by the Engineer has been to contact governing authorities where necessary to obtain information needed for the purpose of preparing Contract Documents; recognizing that such information may or may not be of significance in relation to the Contractor's responsibilities for performing the Work. The Contractor should contact governing authorities directly for necessary information and decisions having a bearing on performance of the Work.

The Contractor shall be responsible for obtaining copies of pertinent regulations, and educating Contractor's employees and sub-contractors of said regulations.

B. Jurisdictional Regulations

The Contractor shall maintain, and shall require prime sub-contractors to maintain, complete current information on jurisdictional matters, regulations, actions and pending actions, as applicable to the Work. The Contractor shall discuss with employees and/or subcontractors any new developments at appropriate project meetings at the earliest feasible dates. The Contractor shall record information of relevance along with the actions agreed upon. The manner in which Contract Documents have been organized and subdivided is not intended to be an indication of jurisdictional agreements. The Contractor shall assign and sub-contract the work, and employ tradesmen and laborers, in a manner which shall not unduly risk jurisdictional disputes of a kind which could result in conflicts, delays, claims and losses in the performance of the Work.

END OF SECTION

(This Page Intentionally Left Blank)

Section 01100 - Submittal Data

1.0 General

A. Scope

This Section specifies administrative and procedural requirements for submittal data required for performance of the Work, including, but not limited to;

1. Contractor's construction schedule.
2. Submittal schedule.
3. Daily construction reports.
4. Shop drawings.
5. Product data.
6. Permits.
7. Materials, equipment and components.
8. Field and/or pre-fabricated items.
9. Operation and maintenance data.
10. List of subcontractors.
11. Well information.

B. Payment

No separate payment shall be made for preparation of information required within this Section. All costs shall be included in the prices provided in the Bid Proposal.

C. Limitations

Review is only for general conformance with design concepts of project and general compliance with the Contract Documents. Contractor is responsible for confirming and correlating dimensions at job site; for information which pertains to fabrication process or construction techniques; and for coordination of work of all trades. Review of shop drawings shall not relieve Contractor, and/or subcontractor, and/or material supplier of responsibility for deviation from requirements of Contract Documents nor for errors or omissions in shop drawings; or the safe and satisfactory performance of the Work.

2.0 Procedures

A. Coordination

Coordinate preparation and processing of submittals with performance of construction activities. Contractor shall transmit each submittal in advance of performance of related construction activities so as to grant Engineer sufficient time for review and approval to avoid delays.

Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.

Coordinate transmittal of different types of submittals for related elements of the Work so processing shall not be delayed by the need to review submittals concurrently for coordination.

The Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Processing

Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.

Allow two (2) weeks for initial review. Allow additional time if processing must be delayed, to permit coordination with subsequent submittals. The Engineer shall promptly advise the Contractor when a submittal being processed must be delayed for coordination.

Allow two (2) weeks for reprocessing each submittal.

No extension of Contract Time shall be authorized because of failure to transmit submittals for the Engineer sufficiently in advance of the Work to permit processing.

C. Submittal Preparation

Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

Provide a space approximately 4” x 5” on the label or beside the title block on Shop Drawings to record the Contractor’s review and approval markings and the action taken.

Include the following information on the label for processing and recording action taken.

a. Project name.
b. Date.
c. Name and address of Engineer.
d. Name and address of Contractor.
e. Name and address of Subcontractor.
f. Name and address of Supplier.
g. Name of Manufacturer.
h. Number and title of appropriate Specification Section.
i. Drawing number and detail references, as appropriate.

D. Submittal Transmittal

Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Engineer using a transmittal form. Submittals received from sources other than the Contractor shall be returned without action.

On the transmittal, record relevant information and requests for data. On the form, or separate sheets, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor’s certification that information complies with Contract Document requirements.

Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Engineer’s procedures necessary for certification of Substantial Completion.

3.0 Contractor's Construction Schedule

A. Schedule

Prepare a fully developed construction schedule. Submit within 15 days of the date established for "Commencement of the Work".

Provide a separate timeline for each significant construction activity. Provide information identifying the first working day of each week. Indicate estimated completion percentage in ten (10) percent increments. As Work progresses, indicate Actual Completion.

Prepare the schedule on a reproducible media, of sufficient width that show data for the entire construction period.

Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Engineer's procedures necessary for certification of Substantial Completion.

B. Distribution

Following response to the initial submittal, print and distribute copies to the Engineer, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the temporary field office as applicable.

When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

C. Updating

Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

4.0 Submittal Schedule

After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within ten (10) days of the date required for establishment of the Contractor's construction schedule.

5.0 Daily Construction Reports

Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Engineer at weekly intervals:

1. List of subcontractors at the site.
2. Approximate count of personnel at the site.
3. High and low temperatures, general weather conditions.
4. Accidents and unusual events.
5. Meetings and significant decisions.
6. Stoppages, delays, shortages, losses.
7. Meter readings and similar recordings.
8. Emergency procedures.
9. Orders and requests of governing authorities.
10. Change Orders received, implemented.
11. Services connected, disconnected.
12. Equipment or system tests and start-ups.
13. Partial Completions, occupancies.
14. Substantial Completions authorized.

6.0 Shop Drawings

A. General

Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:

a. Dimensions.
b. Identification of products and materials included.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.

B. Sheet Size

Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8 ½” x 11” but not larger than 36” x 48”.

C. Initial Submittal

Submit one (1) correctable, reproducible print and one (1) copy for the Engineer’s review. The reproducible print will be returned.

D. Final Submittal

Submit three (3) copies typically, or five (5) copies where required for maintenance manuals. Two (2) copies will be retained typically, with the remainder to be returned.

One (1) of the copies to be returned shall be marked-up and maintained as a “Record Document”.

Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

E. Coordination Drawings

Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.

Preparation of coordination drawings may include components previously shown in detail on Shop Drawings or Product Data.

7.0 Operation and Maintenance Data

The Contractor shall provide the owner with detailed data and related information appropriate to allow the Owner to maintain and operate the equipment to be supplied. The data shall consist of, but not be limited to:

1. Description of equipment and component parts showing the function, normal operating characteristics, limiting conditions, performance curves, engineering data and tests, and complete nomenclature and commercial number of all replaceable parts.

2. Operating procedures for start-up, break-in, routine and normal operating instruction, regulation, control, stopping, shut-downs, emergency instructions, seasonal operating instruction, and special operating instructions.

3. Maintenance procedures for routine operations, guide to "trouble-shooting", disassembly repair and re-assembly, alignment, adjusting and checking.

4. Service and lubrication schedule with list of lubricants required.

5. Manufacturer's printed operating and maintenance instruction.

6. Description of sequence of operation by control manufacturer.

7. Original manufacturer's parts list, bill of materials, illustrations, assembly drawings, and diagrams required for maintenance.

8. As installed control and electrical diagrams by controls manufacturer.

9. Lists of recommended original manufacturer's spare parts, quantities to be maintained in storage and current prices.

10. Additional data as may be helpful to the Owner for instruction of Owner's personnel.

11. Sufficient data to allow a contractor to install equipment.

8.0 Samples

When samples are required of the Contractor, not less than two (2) units shall be furnished. At the Engineer's request, samples for materials may be taken from stockpiles at the job site or other location and furnished directly to the materials laboratory chosen by the Owner.

The Contractor shall provide all equipment and supplies and assistance in securing samples at no additional expense to the Owner.

9.0 Concrete Data

Prior to commencing the construction of any concrete work, the Contractor shall submit a copy of the mix design proposed to be used for each mix showing source of materials, proposed slump and the proportional weights of cement, saturated surface dry aggregates and water. The Contractor shall also submit a certificate showing slump and seven (7) day and 28 day test results made in accordance with ASTM Methods by an approved commercial testing laboratory on the mix proposed to be used. All or part of the mix design and testing may be waived by the Engineer upon submission of a copy of a previously used mix design and test records of concrete made with materials from the proposed source which is of the same quality for each mix to be furnished under the Contract.

10.0 Well Information

Upon Substantial Completion of the well(s), the Contractor shall supply the following information bound in an 8 ½" x 11" manual. The information shall include:

1. State of Texas Well Report.
2. Location Map.
3. Electric Log.
4. Sieve analysis.
5. Material settings including bore size, centralizers, gravel pack, packers, etc.
6. Cementer's report.
7. Pump test data.
8. Chemical analysis reports.
9. Bacteriological analysis reports.
10. Log of drilling, development and completion.
11. Water Quality Analysis.
12. Production pump operation and maintenance data.

11.0 Engineer's Action

Except for submittals for record, information or similar purposes, where action and return is required or requested, the Engineer will review each submittal, mark to indicate action taken, and return promptly.

Compliance with all specified characteristics is the Contractor's responsibility.

END OF SECTION

Section 01200 - Construction Operations

1.0 General

This Section specifies administrative and procedural requirements for operations of the Contractor during the performance of the Work, including, but not limited to:

A. Land for construction purposes.
B. Use of premises and removal of construction related debris.
C. Clean up during construction.
D. Maintenance of improvements related to the Work.
E. Protection of existing facilities, objects, etc.
F. Underground utility crossings.
G. Crossing of roadways, driveways, etc.
H. Maintenance of vegetation.
I. Control of dust.
J. Pollution of water.
K. Excess spoil.
L. Unclassified excavation.
M. Damage to existing property.
N. Post construction clean up.
O. Workmanship.

2.0 Land For Construction Purposes

The Contractor shall be permitted to use available space belonging to the Owner for construction and storage purposes only as designated and shown on the Plans, or as directed in writing by the Owner or Engineer.

The Contractor shall be solely responsible for obtaining and shall pay all costs in connection with any additional storage or work area sites which may be required for proper completion of the Work.

The Contractor shall have the responsibility for the protection and safekeeping of equipment and materials on the site and that no claim shall be made against the Owner by reason of any act of an employee or trespasser. Also, should any occasion arise necessitating access to the sites occupied by these stored materials and equipment, the Contractor owning or responsible for the stored materials or equipment shall immediately move same.

No materials or equipment may be placed upon the property of the Owner until the Owner has approved the location within the designated storage area.

3.0 Use of Premises and Removal of Construction Related Debris

The Contractor shall at his own expense:

A. Take every precaution against injuries to persons or damage to property.

B. Store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the Work as shall not unduly interfere with the progress of the Work or the Work of any other Contractors.

C. Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.

D. Remove all surplus material, false work, temporary structures, including foundations thereof, plant of any description and any other construction related materials from his operations prior to final payment.

E. Effect all cutting, fitting or patching of the Work required to make the same to conform to the Plans and Specifications and, except with the consent of the Engineer, not to cut or otherwise alter the work of any other Contractor.

4.0 Clean Up During Construction

A. The Contractor shall keep all work areas free of litter and unnecessary trash. Trash barrels shall be supplied for eating areas and emptied as necessary at the Contractor's expense.

B. The Contractor shall, at all times, keep the job site free from all materials, debris and rubbish as is practicable and shall remove same from any portion of the job site when it becomes objectionable or interferes with the progress of the project in the opinion of the Engineer.

C. The premises, material, tools, and equipment shall be maintained so as to minimize contamination to the premises, adjacent properties, etc.

D. The Contractor shall maintain at the construction site portable toilet facilities throughout construction.

5.0 Project Maintenance

A. The Contractor shall maintain and keep in good repair the improvements covered by these Contract Documents during the life of the contract.

B. The Contractor shall maintain and keep in good repair all facilities used by the Contractor in the process of performing the Work.

C. The Contractor shall make timely and suitable repairs to the approval of the Owner of any facility which is damaged as a result of the Contractor's activities.

D. Where existing facilities are to be relocated or otherwise modified, the Contractor shall coordinate his activities with the Owner of the existing facility.

6.0 Underground Utility Crossings

A. The Contractor shall use utmost caution in the construction and/or installation of all materials, equipment and components around and/or across any underground utility. An attempt has been made to show the location of all of these foreign utilities in the Construction Plans. The location of those shown is not guaranteed to be accurate or complete. The Contractor shall, at his own expense, locate and protect these lines, and if they are damaged, he shall replace them at no charge to the Utility Owner and to the satisfaction of the Engineer and/or Utility Owner. Should the Utility Owner require that their forces repair any damage, the Contractor shall reimburse the Utility Owner for expenses.

B. An affected Utility shall be given a minimum of 48 hours notice prior to crossing or paralleling any underground utility lines so that an accurate location can be made of the buried utility.

7.0 Roadway Crossings

A. The Contractor shall be responsible for maintaining access to all roadways and private entrances. If such roadway must be crossed and left open overnight, the Contractor shall cover the crossing with a 1-inch minimum thick steel plate.

B. Any crossing temporarily left in this manner must be constructed to safely allow vehicular passage.

8.0 Maintenance of Vegetation

A. The Contractor shall notify the Owner, private landowner and/or governmental jurisdiction in possession of public right-of-way prior to removing vegetation that may be necessary due to construction. Specifications may be required from these entities for the extent and methods to govern in trimming, topping, tree balance, type of cuts, painting cuts and clean-up. These Specifications are intended to reduce damage due to trimming and/or removal of vegetation to the areas of the Work.

9.0 Dust Control

A. The Contractor shall use all means necessary to prevent spread of dust during and between performance of construction. The Contractor shall prevent dust from being a nuisance or hazard to the public and adjoining landowners.

10.0 Water Pollution

A. The Contractor shall conduct operations so as to avoid water pollution and contamination of storm water, surface waters and ground water. All equipment, fuels and lubricants, construction materials and other substances shall be stored so as to avoid or minimize leaks and exposure. The Contractor shall erect and maintain appropriate barriers to prevent, minimize and mitigate erosion and sedimentation resulting from construction.

B. The Contractor shall respond quickly and effectively to any events that may occur so as to halt, control and mitigate any pollution that does occur and restore the affected area as soon as possible. Any instances of pollution shall be reported immediately to the appropriate regulatory agency by the Contractor.

11.0 Excess Spoil

Material from the various excavations shall be temporarily stored on the site at locations approved by the Owner. Excess material to be disposed shall be disposed of in accordance with all applicable federal, state, and local rules and regulations and with approval of the Engineer.

12.0 Unclassified Excavation

All excavation will be unclassified. It shall be the responsibility of the bidder to perform all subsurface investigations the bidder deems necessary to determine the nature and extent of material to be excavated.

13.0 Sanitary Conditions

A. The proposed facilities shall be maintained in a sanitary condition at all times.

B. Water used for the construction operations, that is in contact with existing or proposed potable water facilities, shall be obtained from an approved potable water supply and contain a chlorine residual of at least 0.5 mg/L. All pipe, fittings, tanks, etc. used to transport or handle the water shall be potable. The slush pit shall be constructed and maintained so as to minimize contamination of the drilling mud.

C. In the construction of a public water well, the Contractor shall add sufficient chlorine, chlorine compounds or other disinfectant to the drilling fluid so as to maintain sanitary conditions of the well to the satisfaction of the Engineer. This shall include the adding of a disinfectant at least at the start of drilling each day.

14.0 Protection of and Damage to Existing Property

Where excavation or demolition endangers adjacent structures and utilities, the Contractor shall at his own expense carefully support and protect all such structures and/or utilities so that there will be no failure or settlement. Where it is necessary to move services, poles, guy wires, pipelines, or other obstructions, the Contractor shall notify and cooperate with the utility owner. In case damage to an existing structure or utility occurs, whether failure or settlement, the Contractor shall restore the structure or utility to its original condition and position without compensation from the Owner.

The Contractor shall be responsible for all damage to pipes, conduit, electrical wiring, streets, roads, curbs, sidewalks, highways, shoulders, sprinkle systems, yard landscaping, ditches, embankments, culverts, bridges, or other public or private property which may be caused by the Contractor as it relates to the performance of the Work.

The Contractor shall make satisfactory and acceptable arrangements with the person or agency having ownership or jurisdiction over the damaged property concerning its repair or replacement. The Contractor shall repair or replace damaged property with material and/or workmanship of equal or greater quality than the property that was damaged.

The Contractor shall agree to immediately repair or replace any property that has been damaged when such repair or replacement is determined to be an emergency, or such damaged property provides a financial hardship on the property owner.

15.0 Post Construction Clean Up

A. Prior to final inspection by the Engineer, Owner, and funding agency in some circumstances, the Contractor shall have the entire work area cleaned of all trash and debris resulting from the project construction, and all such trash and debris shall be disposed of at the Contractor's expense.

16.0 Workmanship

The Specifications are intended to be so written that only first class workmanship and finish of the best grade and quality will result. The fact that these Specifications may fail to be so complete as to cover all details will not relieve the Contractor of full responsibility for providing a completed project of high quality, first class finish and appearance and satisfactory operation, all within the apparent intent of the Plans and Specifications.

17.0 Payment

No separate payment will be made for items required by the Specifications or shown on the Plans. Any additional facilities needed for construction operations that become necessary within the process of completing the construction of this Contract shall be furnished or replaced by the Contractor at no additional expense to the Owner.

END OF SECTION

(This Page Intentionally Left Blank)

Section 01300 - Measurement and Payment

1.0 General

This Section specifies the methods of measurement and payment as required for performance of the Work. The determination of quantities of work acceptably completed under the terms of the Contract, or as directed by the Engineer in writing, shall be made by the Engineer, based on measurements made by the Engineer.

2.0 Measurement

Quantities shown in the Bid Schedule of these Contract Documents shall be used as a basis for payment to the Contractor, unless stated quantities are shown to the satisfaction of the Engineer to be in substantial error. Measurements shall be taken according to standard methods used in common practice, and shall be actual length, area, solid contents, numbers, and/or weight.

Methods of measurement of specific materials, equipment, components, etc. are specified within these Specifications.

3.0 Payment

The Contract price shall be the total compensation for all labor, materials, equipment and incidentals used to complete the work and perform any and all subsidiary tasks and operations. Any work not specifically listed in these Contract Documents is intended to be subsidiary to the other items.

END OF SECTION

(This Page Intentionally Left Blank)

Section 01400 - Inspection

1.0 General

A. This Section specifies the rights and intentions of the Engineer, Hydrogeologist, Owner, Regulatory Agency, and/or Funding Agency in relation to the inspection of the construction of the Work.

B. All construction and materials under this contract shall be subject to inspection by the Engineer, Hydrogeologist, Owner, Regulatory Agency, and/or Funding Agency at any time deemed necessary. The Contractor shall provide access to the work, cooperate and assist with such inspections.

C. The Engineer and/or his designated representative shall observe and periodically inspect the construction in sufficient detail to become satisfied that the work is proceeding in general accordance with the Contract Documents, but shall not guarantee the Contractor's performance.

D. All material, equipment, and/or components delivered to the construction site are subject to inspection by the Engineer, or his designated representative, to assure that it meets specifications. Any material found not to meet the required specification must be removed from the site and replaced with material in compliance with the required specifications.

E. The Contractor shall give the Owner and Engineer sufficient advance notice of any and all required testing.

2.0 Concrete

The Contractor shall take concrete cylinders for testing at seven (7) day and 28 day breaks. One (1) set of test cylinders shall be made for each 50 cubic yards of concrete poured.

3.0 Painting

Any and all painting may be checked by the Engineer and/or an independent laboratory at the discretion of the Owner in accordance with AWWA standards.

4.0 Piping

Each load of pipe delivered to the job site shall be checked by the Engineer, or his representative, to assure that it meets specifications. If a load of pipe is found to have inadequate wall thickness or tolerances greater than specified, randomly selected samples of pipe shall be immediately sent to the National Sanitation Foundation of Ann Arbor, Michigan or other approved commercial laboratory. The NSF shall determine whether selected samples meet NSF Specifications, and other specifications for the specific contract. Should the NSF, or other commercial laboratory selected, concur that the pipe does not meet specifications, it is to be understood that all of the pipe delivered to the site shall be immediately removed and replaced by the Contractor at no cost to the Owner. The Engineer and Owner assume no responsibility for the pipe. The Engineer and Owner shall not be responsible for the pipe or its installation.

END OF SECTION

Section 01500 - Warranties and Guarantees

1.0 General

The Contractor shall warranty that the Work is properly constructed in accordance with the design, all applicable state and federal regulations and proper construction techniques.

The warranty period shall be one (1) year from the date of acceptance of the Work for each well. In the event that a defect is discovered during the warranty period, the period shall be extended indefinitely until the defect is corrected.

2.0 Special Warranty

For any specially warranted equipment, the Manufacturer shall jointly warrant the equipment to both the Contractor and the Owner against all defects in materials and workmanship; and shall guarantee that the equipment will meet the requirements of the Specifications, for a period of not less than one (1) year from the date of Final Acceptance of the Work. In addition, the equipment furnished by the Contractor shall be free from defects in design.

Should the equipment not meet the requirements of the Specifications, the Equipment Manufacturer shall correct or service the equipment at no additional cost to meet the specified requirements, where any such deficiencies are the responsibility of the Equipment Manufacturer. In the event the equipment is unable to meet the specified requirements within the warranty period, the Equipment Manufacturer shall refund an amount equal to the purchase price of new equipment which will meet the specified requirements.

The Manufacturer's warranty shall clearly state accuracy, operational limitations, tolerances, etc., which may affect performance of the equipment as well as a description of what performance capabilities can be expected from the equipment. In the event that these statements are ambiguous or are not in conformity with the specified requirements, the equipment shall not be accepted.

The Contractor shall be responsible to insure that the Manufacturer's special equipment warranty is not voided by acceptance of the terms of purchase agreements between Contractor and Manufacturer. In all events, the Contractor shall be held ultimately responsible for enforcement of the requirements of this warranty at his expense.

Within the warranty period and upon notification of the Contractor by the Owner, the Contractor shall promptly make needed adjustments, repairs, or replacements arising out of defects which, in the judgement of the Engineer or the Owner, become necessary during such period.

The cost of all materials, parts, labor, transportation, supervision, special tools, and supplies required for replacement of parts, repair of parts, or correction of abnormalities shall be paid by the Contractor or by his surety under the terms of the Performance Bond.

The Contractor also extends the terms of this guarantee to cover repaired parts and all replacement parts furnished under the guarantee provisions for a period of one (1) year from the date of their installation.

If within ten (10) days after the Owner or Engineer gives the Contractor notice of a defect, failure, or abnormality of the Work the Contractor neglects to make, or undertake with due diligence to make, the necessary repairs or adjustments, the Owner is hereby authorized to make the repairs or adjustments himself or order the work to be done by a third party, and the cost of said Work shall be paid by the Contractor.

In the event of an emergency where, in the judgement of the Owner, delay would cause serious loss or damage, repairs or adjustments may be made by the Owner or a third party chosen by the Owner without giving notice to the Contractor, and the cost of the Work shall be paid by the Contractor or by his surety under the terms of the Performance Bond.

END OF SECTION

Section 01250 - Project Safety and Safety Devices

1.0 General

This Section specifies administrative and procedural requirements for project safety and project safety devices required for performance of the Work.

2.0 Worker and Public Safety

A. The Contractor shall take all necessary precautions for the safety of employees and any other affected parties. The Contractor shall comply with all applicable laws, ordinances, rules, codes, regulations and order of any governing body having jurisdiction for the safety of human life and/or property to protect them from damage, injury or loss.

B. The Contractor shall assure that all safety regulations are adhered to, specifically in regards to the wearing of protective garments and devices required to protect workers from injury.

C. The Contractor shall be fully aware of all safety provisions required in accordance with the OSHA Safety and Health Standards.

3.0 Safety Devices

A. The Contractor shall supply and use ample and proper barricades, lights, handlines, and other equipment designed to protect the workmen and public during the prosecution of the work. The Contractor shall refer to the current "Texas Manual on Uniform Traffic Control Devices" for proper utilization of safety devices. Upon completion of the job, the safety devices shall be removed and each site restored to its original condition.

B. All excavation at depths greater than 5 feet shall be in compliance with Section 13300 - Trench Safety.

C. The construction set-up procedures shall be carefully planned using adequate blocking and leveling of the ground.

D. Construction personnel should wear the appropriate safety equipment including, but not limited to heavy steel-toed work boots, hard hats and gloves. Loose clothing should be avoided.

E. The Contractor shall observe safe operating procedures during equipment start-up, use and shut-down. Proper maintenance and inspection of all equipment and machinery shall be on-going.

4.0 Aerial Utility Safety

The Contractor shall maintain the following minimum safe clearance in all directions between equipment, personnel and/or public and aerial utilities.

A. Power Lines	-	22 feet
B. Communication Lines	-	18 feet

The Contractor, prior to commencing construction, shall coordinate with and adhere to any safe minimum distance as specified by any adjoining Utility if greater than those stated within this Section.

END OF SECTION

Section 02000 – General

1.0 Description

This division shall consist of construction of site work for construction of proposed improvements, including, but not limited to site grading, fencing, and clearing.

2.0 Construction Methods.

A. Clearing. The Contractor shall clear, remove and dispose of brush and debris from the project area.

3.0 Applicable Publications.

The following publications for the issues listed below, but referred to thereafter by basic designation only, form a part of this Specification to the extent indicated by the referred thereto:

A. AWWA STANDARDS, Current Published, American Water Works Association (AWWA).

B. FEDERAL REGISTER, Volume 52, Page 2, Wednesday, April 15, 1987, Proposed Amended Change for OSHA Standards, 29 CFR, Part 1926, Subpart P.

C. EXCAVATION AND TRENCHING OPERATION, OSHA 2226, U.S. Department of Labor, 1985 (Revised) or any current changes or revisions.

D. CONSTRUCTION INDUSTRY, OSHA Safety and Health Standards (24 CFR 1926/1910), OSHA 2207, 1985 with any current changes and revisions.

4.0 Weather Conditions

Construction shall be performed only above the minimum conditions set forth in each item of this division and work shall be halted at any time that in the judgment of the Operator and/or Engineer conditions are such that quality of construction is being or could be compromised by present or impending weather conditions.

5.0 Measurement and Payment

A. Quantities shown in the Bid Schedule for each bid item will be used as a basis for payment to the Contractor, unless said quantities are shown to the satisfaction of the Engineer.

B. Payment will be made on each bid item for work completion. Each bid item shall include all labor, materials, equipment and incidentals used for a complete installation of the project and each bid item.

END OF SECTION

Section 02500 – Water Well

1.0 Drilling

A. General. Except as otherwise provided herein, the method of drilling the well shall be the Contractor's option but shall be subject to the approval of the Owner. The drilling method shall permit the Owner to obtain all of the data specified and shall result in an acceptable facility. The Contractor shall submit to the Engineer the proposed plan for drilling, completion and development including pump sizes. The Contractor shall follow the guidelines as established by the National Water Well Driller's Association.

B. Drilling Fluids. Only clean potable water with a chlorine residual of at least 0.5 mg/L or water produced from the drilling operation shall be used in the drilling fluid. Only products acceptable for construction of public water supply wells shall be used for or added to the drilling fluid. Proper fluid viscosity must be maintained to control penetration of containments into the formation. The fluid shall be tested on an on-going basis to maintain the proper viscosity. The water pH should be maintained between 8.0 and 9.0. Soda ash may be required to adjust the pH.

Only commercial drilling fluid shall be used. Drilling with formation mud shall be prohibited in the production zone. A vibratory screen or multiple pits shall be used to separate formation materials from the drilling fluid. Formation deposits shall be removed from recirculation tanks frequently. The condition of the drilling fluid shall be maintained so as to minimize the losses to the formation. Slush pit(s) shall be constructed and maintained so as to minimize contamination of drilling mud.

C. Bore Size. Except as otherwise specified, the size of the bore hole shall not be less than specified on the drawings.

The Contractor shall drill larger bores where he determines necessary for his operation.

If the Contractor drills a pilot bore for the purpose of collecting formation samples. The bit used for the pilot bore shall be no larger than 8 3/4 inches in diameter.

Where underreaming is required, the Driller shall perform a caliper log in the presence of the Owner and the Engineer to demonstrate that the bore is of the specified size prior to installing the screen.

D. Formation Samples. When drilling the pilot bore through water bearing formations, the Contractor shall collect, record and preserve formation samples for examination by the Owner and for use in design of the well screen, gravel pack, etc. Separate samples shall be collected and analyzed at intervals not exceeding 20 feet.

The Contractor shall conduct his drilling operations and rates so as to insure that good representative samples are obtained at known depths. The Contractor shall provide an acceptable means of diverting and separating the drill cuttings from a sufficient representative portion of the return flow to obtain an adequate sample volume for examination and analysis. Collecting samples from the return ditch shall not be acceptable. At intervals not exceeding twenty feet the progress of the bit shall be interrupted and the bore circulated until the return fluid is free of sand and cuttings. The bit shall then be advanced through the sample interval, or until a different formation character is detected and then stopped. Drill cuttings shall be continuously collected until the returns contain no cuttings. The samples shall be collected, placed in appropriate containers, labeled and stored for subsequent examination and analysis.

Drill cuttings for the Grass Hill Well (Well No. 2) shall be removed from the site and spread evenly at the Huebner Well Site or on other designated City property. Drill cuttings for the Huebner Well (Well No. 1) may be spread evenly on site or on other designated City property.

E. Plumbness and Alignment. The well shall be constructed as straight as possible. The maximum allowable horizontal deviation of the well shall not exceed two thirds of the smallest inside diameter of the casing per 100 feet of depth (AWWA A-100-06 or latest version). The Contractor shall use sufficient drill collars and stabilizers to keep the bore hole straight and shall limit the weight on the bit and control the rate of bit advancement to keep the bore straight.

The well shall be straight and shall pass a test with a 40 foot cylindrical dummy, with an outside diameter not less than 1 inch smaller than the inside diameter of the well casing. The dummy, when lowered into the well, shall pass without obstruction the entire depth of the casing. Failure to meet the maximum allowable horizontal deviation may be cause for rejection. The Driller shall be required to plug the well and to drill a new well at a location designated by the Owner at the Driller's cost.

F. Continuance and Duration of Operations. From the time that drilling or reaming commences into the production sand, until cleaning and development is complete, operations shall be as continuous as possible.

The Contractor shall conduct his operations and schedule his material deliveries and services so as to minimize the time that the drilling fluid stands in the bore hole in the production zone.

2.0 Geophysical Logs

The electric log shall be made by a commercial firm experienced in geophysical logging to verify the depth, thickness and character of the water-bearing sands and salinity of the water. The geophysical logging shall be performed in the presence of the Engineer. The electric log shall be of the continuous trace type as follows:

A standard electric log with one (1) spontaneous potential, one (1) gamma ray log, and one (1) 4-point resistivity curves (8", 16", 32" and 64") shall be run. The scale of the electric log shall be determined as dictated by the condition of the site geology.

Where underreaming is required, the Driller shall perform a caliper log in the presence of the Owner and the Engineer to demonstrate that the bore is of the specified size prior to installing the screen.

If directed by the Engineer, the Contractor shall provide a Spectral Ray Log of the test hole. The Spectral Ray Log would be paid for as an additional item.

The Owner shall be provided with three (3) hard copies and an electronic copy of each geophysical log. In addition, the Contractor shall provide an additional copy of the geophysical log in the format required by the Edwards Aquifer Authority with a Geophysical Well Log Certification Form.

3.0 Cementing

A. General. The space between the casing and drill hole shall be sealed by using enough cement under pressure to completely fill and seal the annular space between the casing and the drill hole. The well casing shall be cemented in this manner from the top of the shallowest formation to be developed to the earth's surface. The driller shall utilize a pressure cementation method in accordance with the AWWA Standard for Water Wells (A100-06), Appendix C: Section C2 (Positive Displacement Exterior Method); Section C.3 (Interior Method Without Plug); Section C.4 (Positive Placement, Interior Method, Drillable Plug), and Section C.5 (Placement Through Float Shoe Attached to Bottom of Casing). A cement bonding log, as well as any other documentation deemed necessary, may be required to assure complete sealing of the annular space as required in §290.41(c)(3)(C) of the rules. The space between the casing and the drill hole shall be a minimum of three inches as required in §4.7.8.3 of AWWA A-100-06 standards.

The casing cement shall completely surround the casing to protect the casing from corrosion due to contact with the formation.

At least 48 hours prior to placing the casing cement, the Driller shall notify the Engineer or Hydrogeologist for notifying the Regional Office of the Texas Commission on Environmental Quality of the estimated time for commencing that operation.

B. Materials. Grouting materials shall conform to AWWA A-100-06 or latest version. Neat cement shall consist of a mixture of API Spec. 10, Class A or Class B and water in the ratio of not more than 6.0 gallons of water per 94 pound sack of cement. A maximum of 6 percent, by weight, bentonite and 2 percent, by weight, calcium chloride may be added.

C. Cement Quantity. The Driller shall determine the quantity of cement to be used, but unless otherwise approved by the Engineer as stipulated herein, the quantity used shall comply with the following provisions. If a caliper log is run on the finished bore, the quantity of cement slurry used shall exceed the computed annular volume by at least thirty percent. If a caliper log is not run on the finished bore, the quantity of cement slurry used shall exceed the computed annular volume by at least fifty percent. With the Engineer’s approval, the Driller may use less cement than stipulated above; however, the

Engineer's approval shall not relieve the Driller of his responsibility to obtain all required results.

D. Pressure Grouting. Prior to cementing, the bore shall be circulated until the return fluid contains no drill cuttings or formation slough.

The casing shall be pressure cemented from bottom of the casing, or other stipulated level, to the surface in accordance with the AWWA Standard for Water Wells (A100-06), Appendix C: Section C.2 (Positive Displacement Exterior Method); Section C.3 (Interior Method Without Plug); Section C.4 (Positive Placement, Interior Method, Drillable Plug); Section C.5 (Placement through Float Shoe Attached to Bottom of Casing) [30 TAC §290.41(c)(3)(C)]. Pumping and displacement of cement shall be continuous without interruption. Cementing shall produce clean cement returns at the surface as determined by the Engineer.

Pressure grouting shall be accomplished by a firm equipped for and experienced in performing such work.

At least 12 hours after the casing is cemented in place and before further drilling is begun, the Contractor shall immediately fill with cement slurry any cavity created by settling of the cement.

E. Cementer's Report. The Cementer shall monitor the cementing operations and shall provide a complete report to the Owner and the Engineer. The report shall provide complete details of the bore and casing size and depths; cement slurry materials and properties; quantities used and a chart and graph of time, pumping rate, surface pressure, density and total volume pumped.

F. Cement Bond Log. In the event that casing cementing is not accomplished according to all specified requirements, the Owner or the Engineer may require the Driller to provide a cement bond log to demonstrate whether or not the casing cement is sound. The bond log shall be a segmented log performed under the maximum pressure at the surface which occurred during the cementing operation, provided that such pressure would not cause the stress of the pipe material to exceed sixty-five percent of its yield stress. The bond log shall be performed by a party acceptable to the Owner and the Engineer. The Driller shall bear the cost of the bond log.

G. Rejection Due to Failure. Failure to obtain clean cement returns to the surface or to otherwise obtain sound casing cement, in the opinion of the Engineer, shall be cause for rejection of the well. The Driller shall be required to plug the well and to drill a new well at a location designated by the Owner and at the Driller's cost.

H. Plugging. At the direction of the Engineer or Hydrogeologist, the Contractor shall form cement slurry plugs to seal saline or other sour water bearing formations. Such plugs shall be for the purposes of preventing contamination of fresh water formations.

Cement slurry plugs shall be constructed in accordance with the requirements of the Texas Railroad Commission, Texas Commission on Environmental Quality and other regulatory agencies having jurisdiction.

4.0 Steel Pipe

A. Scope. This specification shall cover steel pipe used for casing, screen blank, mill slotted screen and column pipe for the pump.

B. Materials. All steel pipe used for this project shall be new pipe in good condition.

All steel pipe shall be free of dents, excessive corrosion, or other damage or defects.

Unless otherwise approved by the Engineer, all steel pipe shall be standard mill pipe manufactured in accordance with ASTM A-53, ASTM A-120, API 5A or API 5L. Steel pipe shall be produced from steel having a yield stress of at least 48,000 psi. The full circumference of all resistance welded steel pipe shall be normalized after welding.

Except where otherwise required, steel pipe shall have beveled ends for welded connections. Where necessary for special connections, steel pipe for screen blank shall have threaded or other suitable ends. Steel pipe used for pump riser columns shall have National Pipe Thread ends for threaded coupling connectors.

The casing material used in the construction of wells for public use shall be new carbon steel, high-strength, low-alloy steel, stainless steel or plastic. The material shall conform to AWWA standards. The casing shall extend a minimum of 18 inches above the elevation of the finished floor of the pump room or natural ground surface and a minimum of one inch above the sealing block or pump motor foundation block when provided. The casing shall extend at least to the depth of the shallowest water formation to be developed and deeper, if necessary, in order to eliminate all undesirable water-bearing strata. Well construction materials containing more than 8.0% lead are prohibited.

C. Pipe Thickness.

STEEL PIPE (O.D.)	MIN. WALL THICKNESS
16” Casing	0.375”
12” Column	0.375”

D. Welding. Welded joints for steel pipe shall be full penetration butt welds. All welds shall be made in accordance with American Welding Society Specifications so that the tensile strength of the joints shall equal or exceed the tensile strength of the pipe. All welds shall be made by qualified welders using suitable equipment, electrodes compatible with the casing materials, full penetration welds, avoidance of slag intrusion, and complete filling of the joint. Each joint shall be carefully aligned prior to welding. All intermediate passes shall be power tool ground to remove slag.

For welds not protected from corrosion by passivation by the casing cement, the welds shall be power tool brushed and capped.

The ends of all casing and liner pipe to be welded shall be square cut and beveled. A suitable bevel torch machine shall be used for all field cuts.

All welds shall be allowed to air cool at least fifteen minutes before being quenched by immersion in the drilling fluid.

E. Flange. Where flanges are required for steel pipe they shall be AWWA Class B flanges.

5.0 Cleaning, Development and Testing

A. General. The Contractor shall clean, disinfect the gravel pack, develop the well, and perform a 36 hour pump test.

Cleaning, disinfection, development and pump testing shall be commenced immediately after installing the screen or drilling out the open hole section, whichever is applicable.

B. Cleaning. Immediately after completing construction of the well, and prior to sealing the screen where applicable, the Driller shall wash through all sections of the screen or open hole section with clean water. Washing shall continue at a sufficient rate until the return stream is clear. The Driller may add up to one-half gallon of suitable polyphosphate, NAPCO 201, per 1,000 gallons to the wash water. The Engineer may require the addition of other cleaning agents or disinfection agents.

During cleaning, the Driller shall add sufficient highly chlorinated water to the gravel pack (if applicable) within and above the production interval for disinfection. The Driller shall use a tremie pipe so as to produce a concentration of at least 100 mg/L of available chlorine. The chlorine shall be applied during cleaning in a manner so as to insure that the chlorine is evenly dispersed.

The Contractor shall employ effective methods of removing all drilling fluids, shavings and fines from the production interval. The method used shall be subject to the Engineer's approval. Several methods of cleaning which shall be considered acceptable but not necessarily effective are: air lift pumping, pumping, over pumping, surging with a surge block, backwashing, scouring with a high velocity air or water nozzle, sonar jetting and treatment with chemicals such as detergents, hexameta-phosphate, acid, carbon dioxide or others. If the method used does not accomplish the necessary result, the Contractor shall employ alternate methods. Cleaning operations shall continue until the well is cleaned to produce less than 5 mg/L and to a sufficient degree to the satisfaction of the Engineer. As directed by the Engineer, the Contractor shall demonstrate that the discharge from the well will be free of drilling fluid, fines, etc. when backwashed or otherwise agitated.

C. Development. The Contractor shall employ effective methods of developing the well subject to the approval of the Engineer and Hydrogeologist. Development shall continue until little or no drilling fluid, fines or sand is evident in the discharge and until the drawdown has stabilized, to the satisfaction of the Engineer and Hydrogeologist. Chlorine disinfection of the well shall continue through development.

The Contractor shall develop the well with air lift pumping at sufficient rates for a sufficient period to demonstrate development. Other methods may be proposed by the Contractor.

For the Grass Hill Well (Well No. 3) and the Huebner Well (Well No. 4), a pump capable of pumping at various rates up to at least 2,500 gpm at 300 feet total dynamic head and 1,750 rpm shall be provided for over pumping. The pump shall be set at a depth of at least 390 feet. The Contractor shall provide a suitable means of measuring the water level during development and the pump test. A ¾" or 1" (if it fits) PVC line shall be used during development and the pump test to allow a water level meter or transducer to be placed within it for measurement of water level.

If the static water level is too high for backwashing to be effective, the Contractor may be required to provide a water tank, piping and valves necessary for effective backwashing.

D. Pump Testing. Once the well has been thoroughly cleaned and developed, the Contractor shall allow the water level to recover fully to static water level and then perform a 36 hour drawdown and recovery test. Recovery shall commence until the water level reaches 90% recovery.

For the Grass Hill Well (Well No. 3) and the Huebner Well (Well No. 4), the Contractor shall pump the well at a continuous rate of 2,000 gpm for 36 hours. The pump rate may be changed depending upon the well's capabilities.

The water level shall be measured with a pressure transducer to the nearest tenth of a foot at one minute intervals throughout the length of the pumping and recovery phase of the test. The Contractor shall be responsible for measurement of water levels and pump rate for the test.

The Contractor shall measure and record the time, and discharge rate with a flow meter or other approved equal method.

At the end of the 36 hour drawdown period, the pump shall be shut off by the Contractor.

During the production period, the Contractor shall note and record the presence of any solid material in the discharge and any changes in color or clarity of the discharge.

During the pumping test, the Contractor shall take a water quality sample and submit it to an approved laboratory for testing.

6.0 Disinfection and Bacteriological Testing

A. Scope. This specification shall cover disinfection of the well after completion of all drilling, cleaning, development and hydraulic testing operations have been completed.

B. General. The Contractor shall disinfect the well, gravel pack (if applicable) and all appurtenant equipment and piping in accordance with AWWA C654-13 or latest version standards and Texas Commission on Environmental Quality requirements. Disinfection shall make possible obtaining three consecutive negative bacteriological test results.

C. General Procedure. The method of disinfection shall be the Contractor's option, provided the method employed conforms to AWWA standards, Texas Commission on Environmental Quality requirements, is acceptable to the Engineer and the Owner and achieves the required result.

The entire liquid volume of the well, including gravel packs and gravel reservoirs, shall be treated with sufficient chlorine so as to produce a concentration of at least 500 mg/L of available chlorine. The chlorine shall be applied in a manner so as to insure that the chlorine is evenly dispersed. All surfaces and equipment above the water level shall be treated with chlorine water with a concentration of at least 500 mg/L of available chlorine. The entire well shall be treated simultaneously, and the disinfectant shall remain in the well for at least twenty-four hours.

If samples collected after disinfection show bacteriological contamination, the Contractor shall evenly apply throughout the well a volume of chlorine solution equal to the entire liquid volume of the well, including gravel packs and gravel reservoirs (if applicable) , with a concentration of at least 1,000 mg/L of available chlorine.

All surfaces and equipment above the water level shall be re-treated with chlorine water with a concentration of at least 1,000 mg/L of available chlorine. The entire well shall be treated simultaneously, and the disinfectant shall remain in the well for at least twenty-four hours.

Disinfection operations shall be repeated until three consecutive negative bacteriological test results are obtained.

D. Disinfection Solution. To account for partial solubility of chlorine substances, chlorine demand of the formation water and impurities in the well structure, the Contractor shall determine the amount of granular chlorine as at least 125 percent of that required for 100 mg/L of available chlorine, 1.6 pounds of calcium hypochlorite per 1,000 gallons of water. Likewise, the Contractor shall determine the amount of chlorine tablets as at least 200 percent of that required for 100 mg/L of available chlorine, 2.6 pounds of calcium hypochlorite per 1,000 gallons of water.

7.0 Water Quality Samples

The method of sample collection shall be subject to approval by the Owner and the Engineer.

A. Interim Water Quality Samples. After completion of the cleaning and development operations and on completion of the pump test, the Contractor shall collect representative water quality samples from the well and have them analyzed for the following constituents in accordance with the Texas Commission on Environmental Quality.

Primary Constituents	Secondary Constituents	Radionuclides	Constituents Other
Nitrate	Aluminum	Gross Alpha	Total Hardness
Nitrite	Copper	Gross Beta	Calcium
Arsenic	Iron	Radium 226/228	Magnesium
Fluoride	Manganese	Combined	Sodium
	Zinc	Uranium	Potassium
	TDS	U234/U235/U238	Bicarbonate
	Sulfate		Total Alkalinity
	Chloride		
	pH		

Samples shall be collected according to the laboratory's directions and in sample containers prepared and provided by the laboratory. All chemical, microbiological and radionuclide analysis shall be performed by a TCEQ accredited laboratory that is approved to run the specific test.

B. Bacteriological Samples. After installation of the production pump and disinfection and flushing the well of chlorine, the Contractor shall collect and have analyzed three consecutive daily bacteriological samples in accordance with the Texas Commission on Environmental Quality samples. The Contractor shall continue sampling and disinfection operations if necessary until three consecutive passing bacteriological samples are obtained.

END OF SECTION

Section 03000 – General

1.0 Cast-In-Place Concrete. This specification shall cover cast in place concrete where shown on the drawings or specified herein.

2.0 Applicable Standards. All concrete used in the course of this work shall conform to the requirements of ASTM C-94, latest version, "STANDARD SPECIFICATIONS FOR READY-MIXED CONCRETE."

All reinforced concrete structures shall be constructed in accordance with BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE STRUCTURES, ACI-318.

3.0 Materials. Cement used shall be Type I Portland Cement and shall conform to the requirements of the current specifications for Portland Cement, ASTM Designation C-150.

All concrete aggregates shall be clean, hard, siliceous material conforming to the requirements of ASTM C-33.

Fly ash used to substitute for cement shall conform to ASTM C-618.

All water used for concrete and for curing shall be potable water.

All reinforcing steel shall be deformed steel bars conforming to the request of ASTM A-615, Grade 60. Reinforcing steel shall be free from excessive rust scale, loose mill scale, other objectionable matter that could inhibit the bonding or cutting of concrete to the steel.

Admixtures shall be in a liquid state and conform to the following requirements:

Chemical Admixtures	ASTM C-494
Air Entraining Admixtures	STM C-260

Waterstops shall be six-inch heavy duty polyvinyl waterstop as manufactured by Water Seals, Inc. of Chicago, Illinois, six-inch x 18 gauge sheet steel or approved equal.

Expansion joint filler shall conform to ASTM D-544 and joint sealing material shall be of the hot-poured type conforming to Federal Specification SS-S-164, unless a specified type of filler or sealing material is called for on the Drawings.

4.0 Mix Design. Except where otherwise required or permitted, all concrete used for the project shall have the characteristics specified herein. The Contractor shall submit proof tests of the mix design which substantiate compliance with this specification.

The concrete shall have a 28-day compressive strength of 3,600 psi. The minimum cement content shall be 6 sacks per cubic yard and the water/cement ratio shall not exceed 6 gallons per sack. Fly ash may be substituted for not more than 20 percent of the required cement. The slump shall be between 3 and 4 inches.

The coarse aggregate size shall be sufficiently small to avoid screening, honeycombing or voids in the concrete.

Except as otherwise required, the maximum aggregate size shall not exceed 1/5 the narrowest dimension between the sides of forms or ¾ of the clear spacing between reinforcing bars. The maximum nominal aggregate size shall not exceed 1 ½-inches.

The concrete shall have an entrained air content of 4 ½ to 5 percent.

A water reducing agent, with set retarder may be used at a rate recommended by the supplier for concrete poured in the summer, or when the high temperature exceeds 85 degrees F. The admixture shall be similar to “POZZOLITH 300R” or approved equal.

A water reducing agent may be used at a rate recommended by the supplier for all concrete poured in the winter, or when the low temperature drops below 50 degrees F. The admixture shall be similar to “POZZOLITH 300N” or approved equal.

Neither calcium chloride nor admixtures containing calcium chloride shall be added to the concrete.

5.0 Mixing. Except where otherwise required or permitted, all concrete shall be ready-mixed concrete manufactured and delivered in accordance with the requirements of ASTM Specification C-94, “Standard Specifications for Ready-Mixed Concrete.”

Water shall not be added to the concrete mix more than 60 minutes before placing. When the air or concrete temperature is 90 degrees F. or higher, water shall not be added to the concrete mix more than 45 minutes before pouring. Water shall not be added to extend the life of the concrete.

6.0 Form Work. Forms may be of wood or metal, and shall have sufficient rigidity and structural integrity to assure that the finished structure will be true to line, grade, shape, and finish as shown on the drawings. All forms, at the time of placing of concrete, shall be free of dirt, excessive oil, and any other foreign material which may be injurious to the finish or strength of the concrete. Form release agents may be applied to the forms.

All forms shall be braced, blocked and otherwise supported to prevent movement, slippage, or distortion during placement and curing of the concrete. All concrete placed in forms which move, slip or distort during placement shall be considered unacceptable. The Contractor shall remove and replace all unacceptable concrete.

Side forms for foundations placed below the existing grade and at least 6 inches below finish grade may be deleted. Where side forms are deleted, the foundation shall be extended to the edge of the excavation.

All embedded items, such as piping, sleeves, electrical conduit and similar items, shall be securely positioned, tied and insulated where required so that no movement will occur while the concrete is being placed.

Except as otherwise required or permitted, forms shall remain in place for at least thirty hours after the concrete has set. Where concrete is supported by false work, forms shall not be removed for at least seven days after the concrete has set. All forms shall be removed prior to backfilling around structures.

7.0 Reinforcing Steel. The Contractor shall place reinforcing steel to the dimensions and arrangements shown on the drawings. The tolerance on placing reinforcing steel shall be ¼ inch from the required position.

Reinforcing steel shall be cut, bent and otherwise fabricated in accordance with ACI-318. Reinforcing steel shall be placed in the forms and securely tied to remain rigid without movement or deformation during concrete pouring.

Except as otherwise required, reinforcing for flexural members shall have the minimum concrete cover required by ACI-318. Reinforcing of concrete exposed to wastewater, wastewater sludges or otherwise

corrosive materials or the off gases from such materials shall have 3 inches of concrete cover.

Except as otherwise required or permitted, splices shall not be less that thirty bar diameters in length.

8.0 Placing Concrete. Prior to pouring concrete, the Contractor shall check the construction drawings, specifications, submittals, etc. to insure that all pipes, conduits, anchor bolts and other items to be embedded in the concrete are in place at the proper position and thoroughly secured. Prior to pouring concrete, the Contractor shall check to insure that all reinforcements have been properly placed. At least forty-eight hours prior to pouring, the Contractor shall give notice so that the Engineer may observe the work prior to pouring.

Concrete shall not be poured when the air temperature is 35 degrees F. or lower or when the air temperature is 40 degrees F. and falling. Concrete shall not be poured when rain is falling, and the surface of fresh concrete shall be protected from rain damage.

The concrete is to be placed as near as possible to its final position, and the use of a vibrator to make the concrete flow will not be permitted.

The Contractor shall provide runways, ramps and other facilities required for properly placing the concrete without traveling over the reinforcements with buggies or other conveyances. Chutes, tremies, hoppers or other placing devices are to be used to prevent the concrete from free-falling more than three (3) feet.

Once placed in the forms, concrete shall be thoroughly consolidated by tamping, rodding, vibrating or other suitable manner so as to prevent voids or honeycombing of the finished structure. Use of vibrators shall be limited to prevent segregation of the mix components.

All concrete shall be placed continuous between construction joints. The Contractor shall perform adequate planning, coordination with the concrete supplier, and have sufficient labor, equipment and tools at the site to prevent cold joints in the concrete structures.

Construction joints shall be made at locations shown on the Drawings or specified herein. Except for small slabs or structures, the Contractor may make additional construction joints with the approval of the Engineer.

Finished edges and corners of all structures shall have a ¾ inch chamfer. The finished edges of all slabs shall be chamfered.

9.0 Finishing and Curing. After placement of concrete, all wooden forms are to be kept moist to prevent adsorption of water from the concrete.

Unless otherwise noted on the Drawing, exterior surfaces shall be given a wooden flat finish after the concrete has been brought to the proper level and struck off with a straightedge. Exterior formed surfaces which will be exposed are to be given a rubbed finish by wetting the concrete surface after forms are removed and rubbing the surface with a carborundum stone until a smooth and uniform texture is achieved.

All finishing and repair work shall be done before any curing material, except water, is applied to the surface of the concrete. Curing shall begin immediately upon completion of finishing operation, and shall continue for a minimum of 4 days.

The Contractor shall employ one of the following methods of curing. Forms may be left in place and kept moist for the required period. Wet mats may be used. Slabs may be cured by ponding.

10.0 Testing, Defects and Remedies. All concrete work shall be performed so as to produce a finished structure having the intended shape, strength and water tightness indicated on the Drawings and specified herein. One concrete test cylinder is required per each 50 cubic yards poured.

Where required by the Engineer, the Contractor shall remove and replace concrete which does not meet the specified compressive strength.

Where moderate amounts of honeycombing are evident and such honeycombing will not affect the integrity of the structure, the Contractor shall repair the concrete. A rich cement mortar grout shall be used to fill the cavities. Where water-tight structures are to be repaired, a non-shrink grout shall be used. Where the Engineer determines the honeycombing will affect the integrity of the structure, the Contractor shall remove and replace the concrete.

Water-tight structures shall be completely water-tight. The Contractor shall test all such structures by filling with clean water prior to backfilling and observing for leaks. The Contractor shall repair all leaks at honeycombing, cold joint, water stops, insets and all other leaks to the satisfaction of the Engineer. Repairs shall be made in a manner acceptable to the Engineer. Pressure injection of epoxy, special grouts or other seals shall be considered by the Engineer on a case by case basis. If necessary, the Contractor shall remove and replace defective concrete.

11.0 Non-Shrink Grout. Where specified, the grout shall be non-metallic, non-shrink grout containing specially selected silica sands, cement shrinkage compensating agents, and plasticizing and water reducing agents. Grout shall conform to the requirements of THE CORPS OF ENGINEER'S CRD-C-588. Grout shall be installed per manufacturer's recommendation.

END OF SECTION

Section 09000 - General

1.0 Description

The work to be performed under this item of the Specifications shall include the furnishing of all labor, materials, tools and equipment for preparing and painting the exterior exposed surfaces listed on the Painting Schedule, per ANSI/NSF, STD. 61, latest version, as specified herein, and as needed for a complete and proper installation.

2.0 Scope

This division shall consist of surface preparation and protective coating of the following:

A. Surface preparation and painting all proposed steel structures and appurtenances including all surface interior and exterior.

B. Surface preparation and painting of all exposed ductile iron and steel piping, valves, and fittings.

C. Surface preparation of all new equipment.

3.0 Applicable Publications

A. RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS, Texas Commission on Environmental Quality Standards with current revisions.

B. CONSTRUCTION INDUSTRY, OSHA Safety and Health Standards (29 CFR 1926/1910), with any current changes or revisions.

C. GOOD PAINTING PRACTICE, Steel Structure Painting Council's Painting (SSPC) Manual, Volume l.

D. STEEL STRUCTURES PAINTING MANUAL, Volume 2 Systems and Specifications, Steel Structures Painting Council (SSPC).

E. SURFACE PREPARATION SPECIFICATIONS, endorsed by National Association of Corrosion Engineers (NACE). Current requirements of the Texas Air Quality Control Board shall be followed.

F. AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS as follows:

1. C652 – Latest Version, Disinfection of Water Storage Facilities.

2. D101 – Latest Version, Inspecting and Repairing Steel Water Tanks, Standpipes, Reservoirs, and Elevated Tanks for Water Storage.

3. ANSI/NSF Standard 61 for coatings in contact with water.

4.0 Coating

A. NON-FERROUS METAL (DUCTILE IRON) SURFACES – SURFACE PREPARED (Ductile Iron Piping, Valves, Equipment, etc.)

Paint Manufacturer	TNEMEC Company, Inc.
Paint System	Epoxy/Polyurethane
<u>Prime Coat</u>	
Number	Series 66
Name	Hi-Build Epoxoline
Description	Epoxy
Color	Beige (44BR)
Mils dft	3 to 5
Application	1 EA.
<u>Intermediate Coat</u>	
Number	Series 66
Name	Hi-Build Epoxoline
Description	Epoxy
Color	Beige or as selected by Owner
Finish	Semi-Gloss
Mils dft	2 to 2.5
Application	1 EA.
<u>Finish Coat</u>	
Number	Series 750
Name	UVX
Description	Modified Polyurethane
Color	Blue or as selected by Owner

Finish	Semi-Gloss
Mils dft	3 to 5
Application	1 EA.

Total Minimum Mils DFT for the system 7.0

Surface Preparation	Abrasive blast as per NAPF 500-03-04 after cleaning as per NAPF 500-03-01.
Profile mils	2 to 3

B. NON-FERROUS (GALVANIZED) SURFACES – SURFACE PREPARED GALVANIZED STEEL

Paint Manufacturer	TNEMEC Company, Inc.
Paint System	Epoxy-Polyurethane

First Coat

Number	Series 66
Name	Hi-Build Epoxoline
Description	Polyamide Epoxy
Color	Tank White (15 BL)
Mils dft	3 to 5
Application	1 EA.

Finish Coat

Number	Series 740
Name	UVX
Description	Modified Polyurethane
Color	Desert Sand (04BR) or as selected by Owner
Mils dft	3 to 5
Application	1 EA.

Total Minimum Mils DFT for the system 6

Surface Preparation	Abrasive blast as per ASTM D 6386
Existing Coated Metal	SSPC-SP-7 Brush-Off Blasting Cleaning
Profile mils	2 to 3

The color of each coat shall be varied so as to ease detection of flaws. The finish coat for piping, valves and equipment shall conform to the color code established by the Texas Commission on Environmental Quality (TCEQ) for water treatment plants. The finish coat for all other components shall be selected by the Owner.

END OF SECTION

Section 11000 - General

1.0 Description

This division shall consist of, but is not limited to, furnishing, fabrication and/or installing the following equipment.

A. Water Lubricated Vertical Lineshaft Pump

B. Submersible Pump.

C. E-line and Vent.

END OF SECTION

(This Page Intentionally Left Blank)

Section 11310 – Water Lubricated Vertical Lineshaft Pump

1.0 General.

This specification shall cover furnishing and installing a water lubricated vertical turbine lineshaft pump where shown on the Drawings or specified herein.

The pumping unit shall be designed and furnished in accordance with the latest hydraulic institute and AWWA specifications for line shaft turbine pumps.

The manufacturer of the pump and motor shall have a service shop in the San Antonio, Texas area. The manufacturer shall have been in business for a minimum of five (5) years with similar type and size pumps. The pumps and motors shall be factory assembled and tested. The pump shall be supplied only by a factory authorized dealer who shall comply with all factory requirements and policies. The Engineer may require that submittals be executed by an officer of the manufacturer.

No piece of equipment or components of the pump or motor shall contain more than a weighted average of 0.25% lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fixtures and fixtures and meet standards of NSF 61.

The Owner may elect to defer installation of the pump until other proposed facilities for delivery of the water to the existing distribution system are complete.

The pump shall be designed and constructed to operate satisfactorily with a reasonable service life, when installed in a typical continuous turbine pump application.

2.0 Operating Conditions.

For bid purposes, the pumps shall be designed for pumping water at:

Grass Hill Well (Well No. 3):	
Rated capacity of	2,000 GPM
Total dynamic head of	417 FT.
Minimum bowl efficiency of	75%
Water temperature of	78°F.
Specific Gravity of	1.0
Minimum motor size	300 H.P.
Voltage	460 VOLT
Phase	Three

Huebner Well (Well No. 4):

Rated capacity of	2,000 GPM
Total dynamic head of	433 FT.
Minimum bowl efficiency of	75%
Water temperature of	78°F.
Specific Gravity of	1.0
Minimum motor size	300 H.P.
Voltage	460 VOLT
Phase	Three

Pumps shall not be ordered until the Engineer has confirmed the operating conditions.

3.0 Construction

Unless otherwise stated herein, the pump shall in all respects conform to the AMERICAN NATIONAL STANDARD ANSI-E-101 for "VERTICAL TURBINE PUMP, LINE SHAFT TYPE" and shall comply with all local and state sanitary and safety regulations.

A. Discharge Head. The discharge head shall be of the high profile type and be a suitable base of high grade cast iron, ASTM A48-30 or fabricated steel. It shall be provided for mounting the motor with a discharge elbow having an above ground flanged discharge outlet for 12 inch standard pipe. The design shall have sufficient capacity to carry the combined weight of the column assembly. The design shall allow the top shaft to couple above the tension plate assembly. The head shall have a ½" NPT connection for a pressure gauge.

A tension plate and tension nut assembly shall be installed in the discharge head to allow proper tension to be placed on the shaft enclosing tube. The tension plate and tension nut shall be of cast iron with a bronze bushing included in the assembly to allow for positive alignment and support for the head shaft. A provision must be made for sealing off the threads at the tension nut.

The base flange of the discharge head shall be drilled and tapped to permit installation of a ¾" NPT tube for connection of the 3/4" e-line as indicated on the Drawings. There shall be at least 10 inches clear head space above the top of the ¾" NPT port.

The standard cast iron stuffing box shall be rated for 150# discharge pressure and shall be fitted with graphite asbestos packing and have either a lantern ring or grease chamber below the first packing ring. Throttle bearing shall be of high lead bronze ASTM B505 alloy C932000. The packing gland shall be of bronze B54-84 alloy C83600 with stainless steel bolting and brass adjusting nuts.

The top line shaft (head shaft) shall be of ASTM 582416 stainless steel and shall not exceed 10 feet in length. Impeller adjustment shall be provided at the top of the head shaft by means of a bronze adjusting nut of ASTM B584 alloy C83800 which shall be positively locked in position.

B. Bowl Assembly. The intermediate bowls, suction bowl, and discharge adapter shall be flanged type constructed from close grained cast iron, and shall conform to ASTM designation A48, Class 30. They shall be free from sand holes, blow holes, or other faults and must be accurately machined and fitted to close tolerances. The intermediate bowls shall have vitra glass lined waterways for maximum efficiency and wear protection. All intermediate bowls shall be of identical design for interchangeability. No special top bowl will be allowed. Drain ports are to be provided with sufficient area and shape and angle to permit a non-horizontal escape of water that passes through the throttle bushing.

A discharge adapter shall be used to connect bowls to the discharge column pipe. Threaded intermediate bowls will be allowed on bowl sizes 8” and smaller. To ensure quality and consistency of product, cast iron components must be produced in a foundry owned by the pumps manufacturer.

C. Impellers. The impellers shall be constructed from C83800 bronze and shall be the enclosed type. They shall be free from defects and must be accurately cast, machined, balanced, and filed for optimum performance and minimum vibration. Impellers are to be standard product of the pump manufacturer and not contain special workmanship to temporarily increase efficiency. They shall be securely fastened to the bowl shaft with taper locks of 416SS. The impellers shall be adjustable by means of a top shaft adjusting nut.

The suction bowl shall be provided with non-soluble grease packed bronze bearing, and a bronze sand collar shall be incorporated in the pump design to protect this bearing from abrasives. The bearing housing shall have a sufficient opening at the bottom for easy removal of the bearing.

D. Wear Rings. Pumps 6" and larger shall be fitted with replaceable wear rings of bronze, SAE660, in the suction bowl and intermediate bowls. Wear rings shall have the minimum practical clearance to the mating cylindrical surface of the impeller to provide adequate sealing independent of vertical positioning of the impellers.

The bowl shaft shall be constructed from ASTM A582 Type 416 stainless steel. It shall be precision turned, ground and polished and shall be supported by water lubricated SAE660 bronze bearings.

E. Electric Motor. The motor shall be a heavy duty squirrel cage induction type, NEMA Design B, 1,750 RPM vertical hollow shaft motor, with a non-reverse ratchet to prevent reverse rotation of the rotating elements. A suitable thrust bearing shall be incorporated in an upper end of the motor adequate to receive the entire hydraulic thrust load of the pump unit plus the weight of the rotating parts under all conditions of operation. The motor shall be premium efficiency with a WP-1 enclosure, 1.15 service factor, and suitable for use on a 460 volt, three phase, 60 cycle electric service.

The motor rating shall be such that it will not be loaded beyond nameplate rating at any place on the pump curve.

4.0 Manufacturer

The pump shall be manufactured by Goulds Pumps, Inc., American Turbine or approved equal. The motor shall be General Electric, U.S. Motors or approved equal.

5.0 Column Assembly

A. Column pipe. The column pipe shall be 12" Grade A steel pipe with the ends machined with 8 threads per inch with 3/16" taper and faced parallel to butt against subsequent column pipes. Inside diameter of the pipe shall be such that the head losses shall not be over 5 feet per 100 feet of pipe, and shall weight not less than 40.48 lbs./ft. Pipe shall be connected with threaded sleeve type steel couplings.

B. The enclosing tube shall be ASTM A120 extra heavy weight, continuous weld prime line pipe. Both ends of each tube length shall be bored, faced, and inside threaded with left hand threads. The ends of the tube shall be square with the axis and shall butt to ensure accurate alignment.

The lengths shall be interchangeable with the exception of the top section which shall be designed for applying proper tension to the tube. The tube shall be of such overall assembled length to properly match the length of the discharge column. The enclosing tube shall be stabilized in the column pipe by rubber centering spiders spaced 10 feet from the top and bottom, and 40 feet intervals throughout the balance of the column length.

C. The line shaft bearing which serves as a coupling for the shaft tubing shall be spaced at each tube length, to maintain alignment of pump shafting and prevent excessive vibration. They shall be of steel, machined, threaded and grooved for proper lubrication.

D. Line shaft shall be of ample size to operate the pump without distortion or vibration. Diameter of the shaft shall be such that it does not exceed the horsepower limitations indicated in the engineering section of the Goulds catalog. Shaft shall be furnished in interchangeable lengths to properly match the length of the shaft enclosing tube and discharge column and shall be coupled with extra-strong threaded steel couplings machined from solid bar steel. Line shaft shall be 416 stainless steel.

6.0 Miscellaneous

A. The manufacturer shall guarantee the maximum amplitude vibration shall not exceed the HYDRAULIC INSTITUTE recommendations.

B. The pumps shall be field tested by the Owner after installation to determine that guarantees have been met.

C. The pump manufacturer shall be responsible for satisfying himself that the motors proposed will operate as specified and will mate properly with the pumping units.

7.0 Control Panel

Each pump shall be provided with a control panel to be **furnished and installed by others** and shall have the following features:

- NEMA 3R enclosure.
- Fused main disconnect with panel door interlock to prevent door opening when breakers are energized. The breakers shall be lockable in the “OFF” position.
- HAND-or-AUTO selector switch and green pilot light.
- Elapsed run timer meter.

- 3 leg overload protection, high/low voltage, loss-of-leg, heater and overload reset.
- Electric soft starter.
- 3 KVA, dry-type, step-down transformer for lights and for controls.
- Elapsed time meter.
- Phase failure/recycle relay.

END OF SECTION

Section 11400 –E-Line and Vent

1.0 E-Line Assembly. Each well shall be equipped with a 3/4-inch PVC pipe for checking water levels (E-Line). The PVC pipe shall include a water-tight cover that can be readily opened and closed. The line shall be 3/4-inch PVC extending down to the pump and strapped to the column pipe with stainless steel straps. A cap shall be placed at the base and perforations on the bottom 20 feet.

2.0 Vent. The well head shall be fitted with a 2” galvanized steel breather vent turned down and screened with 16 mesh stainless steel screen wire.

END OF SECTION

(This Page Intentionally Left Blank)

Section 15000 - General

1.0 Description

This division shall consist of, but is not limited to furnishing, fabrication and/or installation of the following:

A. Ductile Iron Pipe and Fittings.
B. Steel Pipe – Water.
C. Polyvinyl Chloride (PVC) Pipe and Fittings – Water.
D. Gate Valves.
E. Silent Check Valves.
F. Water Meters – Turbine.
G. Air/Vacuum Valve.

2.0 Applicable Publications

The most recent issue of the following standard specifications, references or publications shall be a part of these specifications. The Contractor shall construct the project in general conformance with these standards with the additions, exceptions or other modifications indicated on the Drawings or specified herein.

A. AWWA STANDARDS, Current Published, American Water Works Association (AWWA) and/or American National Standards.

B. Chapter 290 Subchapter D RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS, Current Texas Commission on Environmental Quality Standards.

END OF SECTION

(This Page Intentionally Left Blank)

Section 15100 – Ductile Iron Pipe and Fittings

1.0 General

A. SCOPE.

This specification shall cover furnishing and installation of ductile iron pipe and fittings where shown on the Plans.

B. APPLICABLE PUBLICATIONS.

The most recent issue of the following standard specifications or publication shall be a part of this specification.

AWWA STANDARDS, Current Published, American Water Works Association (AWWA) and/or American National Standards as follows:

1. C104/A21.4 Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water.
2. C105/A21.5 Polyethylene Encasement for Ductile Iron Piping for Water.
3. C110/A21.10 Ductile Iron and Gray Iron Fittings 3 inches through 48 inches.
4. C111/A21.11 Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings.
5. C115/A21.15 Flanged Ductile Iron Pipe with Threaded Flanges.
6. C150/A21.50 Thickness Design of Ductile Iron Pipe.
7. C151/A21.51 Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds for Water.
8. C153/A21.53 Ductile Iron Compact Fittings 3 inches through 16 inches for Water.
9. C600 Installation of Ductile Iron Water Mains and their Appurtenances.
10. C800 Underground Service Valves and Fittings.

2.0 Materials

A. Ductile iron pipe shall be manufactured in accordance with ANSI A21.51.

B. Except where otherwise required, all ductile iron pipe shall be Pressure Class 350. Where ductile iron pipe is to be fabricated to accept threaded flanges, the pipe shall be Thickness Class 53.

C. All ductile iron pipe shall have a centrifugally applied cement-mortar interior lining conforming to ANSI A21.4.

D. Except where otherwise required, the exterior of all ductile iron pipe shall have an asphaltic coating. Where ductile iron pipe is to be painted, the asphaltic coating shall be eliminated and the pipe shall be shop primed, or the asphaltic coating shall be completely removed by blast cleaning or other suitable means and a prime coat shall be applied.

3.0 Fittings

A. Shall be ductile iron fittings which meet the requirements of ANSI A21.10 or shall be compact ductile fittings conforming to ANSI A2l.53.

B. Pipe fittings shall have a minimum internal working pressure of 350 psi.

C. Except where otherwise specified all ductile iron fittings shall have an interior and exterior asphaltic coating. Where ductile iron fittings are to be painted, the asphaltic coating shall be eliminated and the fittings shall be shop primed, or the asphaltic coating shall be completely removed by blast cleaning or other suitable means and a prime coat shall be applied.

4.0 Joints

A. GENERAL.

Joints for ductile iron pipe and fittings shall be of the type shown on the Drawings or as specified herein. All buried joints shall be bell and spigot or mechanical with restrained type gaskets. All ductile iron fittings shall be blocked, supported or otherwise restrained to resist the internal pressures which will be applied.

B. BELL AND SPIGOT JOINTS AND MECHANICAL JOINTS.

Shall be in accordance with ANSI A21.11. Glands for mechanical joints shall be manufactured restrained type from ductile iron. Gaskets shall be manufactured from new synthetic rubber materials.

C. FLANGES.

1. Except as otherwise provided, shall conform to the requirements ANSI A21.15 and ANSI B16.1, 125 pound. Gaskets shall be manufactured from new synthetic rubber materials.

2. Except where otherwise stipulated, flanged pipe shall be fabricated with threaded flanges conforming to AWWA C115. Unless otherwise required, threaded flanges may be manufactured from grey iron or ductile iron.

D. RESTRAINED JOINTS.

1. All restrained joints shall be of a type acceptable to the Engineer. Restrained joints shall resist tension along the pipe equal to the force created by the internal pressure acting on the area of a circle with a diameter equal to the outside diameter of the pipe. For l6-inch and smaller pipe, the internal pressure shall be 350 psi and for 18-inch and larger pipe, the pressure shall be at least 250 psi. Where joints which score or bite into the barrel of the pipe are used, the Engineer may require Pressure Class 350 pipe. All fittings shall be restrained with EBAA IRON, Inc. Series 1100 Mechanical Joint Restraints, or approved equal.

5.0 Installation

A. All ductile iron pipe, fittings and appurtenances shall be installed in strict accordance with the Manufacturer's recommendations, recommendations of American Water Works Association and the and the requirements shown on the Drawings and specified herein.

B. All ductile iron pipe shall be blocked, supported and otherwise restrained to carry the weight of the piping, prevent movement and prevent joint separation.

C. All buried ductile iron pipe and fittings shall be wrapped with 8-mil polyethylene and sealed in accordance with AWWA C105. The polyethylene wrap shall be secured with suitable tape.

6.0 Painting

A. All exposed ductile iron pipe and fittings shall be painted in accordance with the Plans and/or Division 09 of these Specifications, whichever is applicable.

B. All surfaces that are to be painted shall be prepared and coated in accordance with the stipulations given in Division 09 of these Specifications and with the Paint Manufacturer's recommendations.

C. Material. All paint shall be manufactured by TNEMEC or unless otherwise approved by the Engineer.

END OF SECTION

Section 15150 - Steel Pipe - Water

1.0 Scope

This Section covers water lines constructed as shown on the Plans. Steel pipe used for the water lines shall conform to the standards set forth herein.

2.0 Applicable Publications

The most recent issue of the following standard specifications, references or publications shall be a part of these specifications. The Contractor shall construct the project in general accordance with these standards with the additions, exceptions or other modifications indicated on the Drawings or specified herein.

AWWA Standards, Current published (AWWA and/or ASTM) as follows:

1. ASTM A-53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. API 5A Sharp Thread Casing and Tubing.
3. API 5L Specification for Line Pipe.
4. NSF Standard 61 Drinking Water System Components – Health Effects.

3.0 Materials

A. Raw Materials.

1. All steel pipe used for this project shall be new pipe in good condition. Pipe shall be free of dents, excessive corrosion, or other damage or defects.

2. Unless otherwise approved by the Engineer, all steel pipe shall be standard mill pipe manufactured in accordance with ASTM A-53, Type E, Grade B.

3. Steel pipe shall be produced from steel having a yield stress of at least 48,000 psi. The full circumference of all resistance welded steel pipe shall be normalized after welding.

4. Except where otherwise required, steel pipe shall have beveled ends for welded connections. Where necessary for special connections, steel pipe shall have threaded or other suitable ends.

5. The materials used for manufacture of the pipe and fittings shall meet the NSF Standard No. 61 for potable water use.

6. Welding. Welded joints for steel pipe shall be full penetration butt welds. All welds shall be made in accordance with American Welding Society Specifications so that the tensile strength of the joints shall equal or exceed the tensile strength of the pipe. All welds shall be made by qualified welders using suitable equipment, electrodes compatible with the materials, full penetration welds, avoidance of slag intrusion, and complete filling of the joint. Each joint shall be carefully aligned prior to welding. All intermediate passes shall be power tool ground to remove slag.

   The ends of all steel pipe to be welded shall be square cut and beveled. A suitable bevel torch machine shall be used for all field cuts.

   All welds shall be allowed to air cool at least fifteen minutes.

7. Where flanges are required for steel pipe, they shall be AWWA Class B flanges.

4.0 Storage and Installation

The storage and installation of the steel pipe shall be in strict accordance with AWWA M11 specifications and manufacturer's procedures and recommendations. Installation shall also conform to all local plumbing, building, and fire code requirements

END OF SECTION

Section 15200 - Polyvinyl Chloride Pipe and Fittings – Water

1.0 Scope

This Section covers polyvinyl chloride (PVC) pipe and fittings where shown on the drawings or specified herein.

Polyvinyl chloride pipe used for the proposed yard piping shall conform to ASTM D2241, SDR 21, Pressure Class 200 psi.

2.0 Applicable Publications

The most recent issue of the following standard specifications, references or publications shall be a part of these specifications. The Contractor shall construct the project in general accordance with these standards with the additions, exceptions or other modifications indicated on the Drawings or specified herein.

AWWA Standards, Current published (AWWA and/or ASTM) as follows:

1. AWWA C-900 PVC Pipe, 4 inches through 12 inches.
2. AWWA C-905 PVC Pipe, Nominal Diameters 14 inches through 48 inches.
3. AWWA C-909 PVC Pipe, 6 inches through 16 inches.
4. ASTM D-1784 Standard Specification for PVC Compounds and Chlorinated PVC Compounds.
5. ASTM D-3139 Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
6. ASTM F-477 Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
7. ASTM F-1483 Standard Specification for Oriented PVC Pressure Pipe.
8. ASTM D-2241 Performance Requirements – Standard Specification for PVC Pressure Rated Pipe (SDR Series), 2 inches through 12 inches.
9. ASTM D-2274 Standard Practice for Underground Installation of Thermoplastic Pressure Piping.
10. ASTM D-2855 Standard Practice for Making Solvent Cemented Joints with PVC Pipe and Fittings.
11. ASTM D-1785 Standard Specification for PVC Pipe, Schedules 40, 80, and 120.
12. NSF Standard 14 Plastic Piping Components and Related Materials.

13. NSF Standard 61 Drinking Water System Components – Health Effects.
14. UNI-B-8 Recommended Practice for the Direct Tapping of PVC Pressure Water Pipe, 6 inches through 12 inches.

3.0 Materials

A. Raw Materials.

1. All PVC pipe shall be made of compounds conforming to ASTM D-1784 with a cell classification of PVC 12454A or PVC 12454B.

2. Pipe for water use shall be blue in color. All pipe and fittings shall be manufactured in the United States.

B. Rework Material.

Not more than 10 percent rework material produced at the same manufacturing plant may be used to produce the pipe and fittings, provided the rework material is clean, or the specified cell classification, and the pipe and fitting produced from this material meet all the requirements of this Specification.

C. Potable Water Use.

The materials used for manufacture of the pipe and fittings shall meet the NSF Standard No. 61 of potable water use and the health effects portion of NSF Standard No. 14.

D. Pipe Quality.

Extrusion quality shall be determined by the reaction of a pipe specimen to immersion in a hydrous acetone for twenty minutes. The specimens shall exhibit no visible surface flaking upon completion of the test. Three (3) specimens of the pipe, 2-inches in length, shall be flattened between two (2) parallel plates until the distance between the plates is forty percent of the O.D. of the pipe specimens. The rate of loading shall be uniform and such that the compression is completed within two (2) to five (5) minutes. There shall be no evidence of splitting, cracking or breaking after removal of the load.

Only new PVC pipe, manufactured not more than six (6) months prior to installation, shall be used for construction of the Work.

E. Workmanship.

The pipe shall be homogenous throughout and free from visible cracks, holes, foreign inclusions or other defects.

F. Pipe Lengths.

Nominal lengths of pipe shall be at least 18-feet.

G. Joints.

Except as otherwise provided, polyvinyl chloride pipe shall have integral bell and spigot joints that seal with an elastomeric gasket. The joints shall conform to ASTM D3139, and the gaskets shall conform to ASTM F477.

Polyethylene pipe used for conduits may have integral bell and spigot joints for solvent welding, conforming to ASTM D2672.

Where required to resist movement of the pipe to thrust, pipe joints shall be restrained with mechanical devices specified herein or other approved devices. Where polyvinyl chloride pipe is connected to mechanical joints for ductile iron pipe and fittings, valves or other fixture, the joint shall be restrained with EBAA IRON, Inc. Series 2000PV mechanical joint restraints, or approved equal.

Where polyvinyl chloride pipe is connected with bell and spigot joints, the joint shall be restrained with EBAA IRON, Inc. Series 1500 or Series 6500 split serrated bell harness restraints, or approved equal. All metal restraint devices shall be protected from corrosion with standard 8-mil polyethylene wrap and suitable tape, per AWWA C105.

H. Fittings.

Except as otherwise provided, cast iron fittings shall be used for changes in line or grade and for connections for polyvinyl chloride pipe. Fittings shall be compact ductile iron fittings conforming to ANSI A21.53 or full body ductile iron fittings conforming to ANSI A21.11.

Unless otherwise required, fittings shall have an interior lining of Portland cement mortar and an exterior bituminous coating.

Unless otherwise required herein or indicated on the Drawings, cast iron fittings shall have mechanical joints.

Buried cast iron fittings shall be protected from corrosion with standard 8-mil polyethylene wrap and suitable tape, per AWWA C105. Such fittings shall be blocked with concrete or otherwise restrained against movement due to thrust.

Fittings for polyvinyl chloride pipe used for conduits shall be polyvinyl chloride fittings with solvent welded bell and spigot joints. All bends for conduit shall be long radius sweep elbows.

I. Pipe Marking.

All pipes shall be marked at intervals of no greater than 5-feet. The marking for pressure pipe shall be:

1. Manufacturer.
2. Nominal pipe size.
3. PVC Specification Number.
4. Water Pipe.
5. SDR/DR Number.
6. Working Pressure (psi).
7. Month, Day, and Year of Manufacture.

A. Affidavit of Compliance.

The Manufacturer shall provide an affidavit that all materials delivered comply with the requirements of this standard and the additional requirements specified herein or call for on the Drawings.

4.0 Storage and Installation

The storage and installation of the PVC pipe shall be in strict accordance with AWWA M23 specifications and manufacturer's procedures and recommendations. Installation shall also conform to all local plumbing, building, and fire code requirements

Pipe shall be bundled in pallets for ease of handling and storage. Pipe bundles (units) shall be packaged to provide structural support to insure that the weight of upper units shall not cause deformation to pipe in lower units. No pipe bundles shall be accepted which show evidence of ultraviolet radiation “sunburn” on exposed pipe as may be caused from extended unprotected storage conditions.

Taps are to be made using saddles that fully support around the circumference of the pipe as recommended in publication UNIBELL 8-90 “Tapping Guide for PVC Pressure Pipe”. Direct threaded taps shall not be allowed.

Unless specifically directed by the Engineer, solvent weld connections are expressly prohibited and shall not be allowed on PVC pressure pipe.

The Work shall be protected from chemical agents, fire stopping materials, thread sealant, plasticized vinyl products, or other aggressive chemical agents not compatible with PVC compounds.

At all times when the work of installing pipe is not in progress, all openings into the pipe and the ends of the pipe in the trenches or structure shall be kept tightly closed to prevent the entrance of animals and foreign materials until its acceptance.

Where closure sections are required by the contractor’s installation operations, the sections shall be installed in accordance with the applicable sections of these specifications.

The pipe sections shall be laid in the trench to true alignment and grade in accordance with the Plans. Where the grade is not shown, pipe shall have a minimum cover as designated in the Plans. Curved alignments shall be achieved only by deflecting the pipe joints; the pipe shall not be bent. Joints deflection shall not exceed the manufacturer's recommendation. Where necessary, the Contractor shall shorten the pipe lengths to achieve shorter curve radii.

The pipe shall not be laid along curves at a radius greater than indicated on the Plans.

Trenching, backfilling, and compacting shall be in accordance with Section 13300 and as specified herein.

Proper care shall be used to prevent damage in handling, moving, and placing the pipe. Tools and equipment satisfactory to the Owner’s representative shall be provided and used by the Contractor.

The Contractor shall take all necessary precautions to prevent the pipe from floating due to water entering the trench from any source; shall assume full responsibility for any damage due to this cause; and shall pay for and perform the work to restore and replace the pipe to its specified condition and grade if any displacement occurs due to floating.

Excavate bell holes at each joint to permit proper assembly and inspection of the entire joint.

Pipe shall be cut by a method recommended in the pipe manufacturer's installation guide, as approved by the Owner's representative. When pipe is cut and is to be joined to a ductile iron fitting or another piece of pipe, the end shall be beveled in the field or place of manufacture to create a beveled end equal in quality to the machined ends of the pipe as furnished by the manufacturer. Such machining shall not result in undercutting the wall thickness and must be approved by the Owner's representative prior to installation.

All connecting parts of pipe, rings, couplings, and castings shall be cleaned prior to assembly. After bearing has been obtained, couplings shall be assembled in a proper manner (as determined by the Owner's representative). The use of excessive lubricant will not be permitted, and the assembly of the couplings and rings shall be in accordance with the manufacturer's recommendations. The pipe manufacturer shall supply lubricant and rubber rings. All fittings and valves shall have joints that match the type of adjoining pipe.

All fittings and valves shall be supported so that the pipe is not subjected to the weight of these appurtenances.

END OF SECTION

Section 15300 - Testing and Disinfection – Water

1.0 Scope

This Section covers the testing and disinfection of water lines and their appurtenances constructed as shown on the Plans. Testing and disinfection used for the tanks and water lines and their appurtenances shall conform to the standards set forth herein.

Prior to connecting the proposed water lines to the existing water lines, the Contractor shall subject the line to a successful hydrostatic pressure test and shall disinfect the lines.

2.0 Applicable Publications

The most recent issue of the following standard specifications, references or publications shall be a part of these specifications. The Contractor shall construct the project in general accordance with these standards with the additions, exceptions or other modifications indicated on the Drawings or specified herein.

TCEQ Standards, Current published, Chapter 290, Subchapter D – Rules and Regulations for Public Water Systems, and AWWA Standards, Current published (AWWA and/or ASTM) as follows:

1. AWWA C651 Disinfecting Water Mains.
2. NSF Standard 14 Plastic Piping Components and Related Materials.
3. NSF Standard 61 Drinking Water System Components – Health Effects.
4. AWWA C605 Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.

3.0 Hydrostatic Testing

All lines and their appurtenances constructed for water service within the Project must be hydrostatically tested as specified herein prior to being accepted by the Owner.

A. The pipeline shall be filled at a rate such that the average velocity of flow is less than 1-fps. At no time shall the maximum velocity of flow exceed 2-fps. The following table has been provided to relate the velocity filling rate to an equivalent volume flow rate, based on 1-fps.

Line Size (inches)	Flow Rate (gpm)
30”	2,203
24”	1,410
20”	979
18”	793
16”	624
14”	480
12”	353
8”	158
6”	88
4”	38

B. The pipeline shall receive the approximate quantities of water per 100-feet of length:

Line Size (inches)	Quantity (gallons)
30”	3,670
24”	2,350
20”	1,630
18”	1,320
16”	1,000
14”	800
12”	590
10”	410
8”	260
6”	150
4”	65
3”	37
2”	17

C. Raise the pressure to hydrostatic test pressure by using a test pump, pumping from a container. The hydrostatic test pressure shall not be less than 1.25 times the maximum anticipated sustaining working pressure at the highest point along the test section, unless the pressure exceeds the design pressure limit for any pipe, thrust restraint, valve fitting, or other appurtenance.

D. All air should be purged from the pipeline before checking for leaks or performing pressure or acceptance tests on the system. To accomplish this, if air valves or hydrants or other outlets are not available, taps shall be made at the high points to expel the air, and these taps shall be tightly plugged afterwards.

E. After the working pressure has been attained in the lines, refill the container and maintain the working pressure for a two (2) hour period.

F. At the end of the two (2) hour hydrostatic pressure test period, measure the water required to refill the container to the pre-test level. The leakage allowable shall not exceed the calculated quantity of water that must be supplied to the pipe section being tested to maintain a pressure within 5 psi of the hydrostatic test pressure. The allowable quantity of makeup water shall be calculated by the following formula:

$$Q = \frac{LD\,(P^{1/2})}{148{,}000}$$

Q = Quantity of makeup water, in gallons per hour
L = Length of pipe section being tested, in feet
D = Nominal diameter of the pipe, in inches
P = Average test pressure during the hydrostatic test, in psi (gauge)

G. Any noticeable leak shall be stopped and all defective pipes, fittings, valves, and other appurtenances discovered in consequence of the test shall be removed and replaced by the Contractor with sound material, and the test shall be repeated until the total leakage during a test of two (2) hours duration does not exceed the rate specified herein.

H. After successful testing, all lines shall be flushed to remove any foreign matter that may be in the line.

I. All testing shall be supervised by and conducted in the presence of the Owner's representative. The Owner's representative shall furnish a signed certificate stating that the pressure test has been performed in accordance with the Specifications. The certificate shall contain the following:

1. Date tests were performed.
2. Name of people in attendance.
3. Brand name of pipe and pressure rating.
4. Test pressure.
5. Number of leaks found during testing.
6. Comments.

J. Water for initial testing shall be available from the Owner at no charge to the Contractor. The cost of water for subsequent testing shall be set at the Owner's discretion.

4.0 Disinfection

A. Method

1. Liquid Chlorine

Liquid chlorine shall contain 100-percent available chlorine packaged in steel cylinders in net weights of 150-pounds or one (1) ton.

Liquid chlorine shall be used with appropriate gas flow chlorinators, heaters, and injectors to provide a controlled high concentration solution feed. The chlorinators and injectors shall be vacuum operated type.

2. Chlorine Gas

Chlorine gas shall be supplied and converted from its liquid form to a gas as detailed in AWWA C651.

3. Calcium Hypochlorite Tablets

Calcium hypochlorite tablets shall have an average weight of 0.009-pounds each and shall contain not less than 70-percent of available chlorine.

B. All lines shall be thoroughly flushed prior to disinfection. Only the direct chlorine gas fuel method shall be used if contaminating material has entered the lines.

C. Disinfection of completed water lines and their appurtenances shall be in accordance with the requirements of AWWA C651 and the requirements of the TCEQ, Chapter 290, Subchapter D. At the conclusion of the hydrostatic pressure test on the completed water line, potable water shall be introduced into the line slowly. A sufficient quantity of chlorination agent shall be added to the incoming water to produce at least 50-ppm and not more than 100-ppm of chlorine.

D. Treated water shall be retained in the system for a minimum of 24 hours and shall contain a chlorine residual of not less than 25-ppm at the end of the retention period in all sections being disinfected.

E. After chlorination, the water shall be flushed from the line, in accordance with the requirements of AWWA C651, at its extremities until the replacement water tests are equal chemically and bacteriologically to those of the permanent source of supply. The chlorinated water may be used later for testing other lines, or if not so used, shall be disposed of by the Contractor as required by AWWA C651. The Contractor shall be responsible for all costs to de-chlorinate the water before it enters any storm drain or watercourse. The Owner shall not be responsible for loss or damage resulting from such disposal.

F. In order to obtain sufficient scouring and cleaning of the lines, proper water velocity during the flushing operation is necessary. The minimum water velocity during flushing shall be 2 ½-fps to 3-fps.

G. The Owner shall then take samples of the water from the new main at selected points, and submit to the Texas Department of Health (or other approved laboratory) for bacteriological examination. If the results are satisfactory to the Engineer, then the line disinfecting procedure will have been completed and accepted.

If the results of the examination are unsatisfactory, then the disinfection procedure shall be repeated until a satisfactory test is secured.

H. A minimum of one (1) sample for each 1,000-feet of completed main will be required or at the next available sampling point beyond 1,000-feet as directed by the Engineer.

5.0 Measurement and Payment

The Contractor shall furnish all labor, materials (including chlorine) and equipment necessary to complete the proper hydrostatic testing and disinfection of the line and this cost shall be included in the unit bid price for installation of the lines.

END OF SECTION

Section 15400 - Gate Valves

1.0 Scope

A. This Section covers three inch (3”) and larger gate valves where shown on the Drawings.

B. All three inch (3”) and larger gate valves used for construction of this project shall be resilient seated gate valves that conform to the requirements of AWWA C509 and stipulations contained herein.

2.0 Applicable Publications

The most recent issue of the following standard specifications, references or publications shall be a part of these specifications. The Contractor shall construct the project in general accordance with these standards with the additions, exceptions or other modifications indicated on the Drawings or specified herein.

Current published standards of the; AWWA, ASTM, ANSI, and/or NSF.

1. AWWA C509 Resilient Seated Gate Valves for Water and Sewerage Systems.
2. AWWA C550 Protective Interior Coatings for Valves and Hydrants.
3. AWWA C600 Installation of Ductile Iron Water Mains and Their Appurtenances.
4. AWWA C800 Underground Service Line Valves and Fittings.
5. AWWA C110 Standard for Ductile Iron and Gray Iron Fittings, 3-inch – 48-inch, for Water and Other Liquids.
6. AWWA C111 (ANSI C21.11) Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
7. ANSI B16 Standards of Pipes and Fittings.
8. ASTM F593 Stainless Steel Bolts, Hex Cap Screws, and Studs.
9. ASTM D429 Rubber Property Adhesion to Rigid Substrates.
10. ASTM B62 Standard Specification for Composition Bronze or Ounce Metal Castings.
11. ASTM B584 Standard Specification for Copper Alloy Sand Castings for General Applications.
12. NSF Standard 14 Plastic Piping Components and Related Materials.
13. NSF Standard 61 Drinking Water System Components – Health Effects.

3.0 Materials

A. All materials used to manufacture the valves shall be resistant to corrosion and suitable for operation with water containing chemicals normally or frequently contained in potable water supplies. Bronze used for valve components shall contain no lead or zinc.

B. The valve body, bonnet, sealing chamber and wedge may be cast from either grey iron or ductile iron.

C. All internal and external ferrous metal surfaces shall be coated with a fusion bonded powder epoxy with a minimum nominal thickness of 10 mils. The coating shall comply with AWWA C550 standards and shall be certified NSF 61. Coating shall be non-toxic and shall impart no taste to water.

D. The material that fully encapsulates the disc may be Buna N rubber, EPDM or other suitable and acceptable resilient compound.

E. The valve stem and stem nut shall be manufactured from bronze.

F. All O-ring seals and other seals may be Buna N rubber, EPDM or other suitable and acceptable resilient compound.

G. Hardware and fasteners shall be non-galling stainless steel.

4.0 Construction

A. Valves shall open by turning the operator in the counter-clockwise direction. When fully open the valves shall have a smooth and unobstructed waterway resulting in minimal head losses. When fully closed, the valves shall be completely water tight at the rated pressure on either side of the gate and atmospheric pressure on the opposite side.

B. All gate valves shall have non-rising stems. The stems shall be sealed by a suitable arrangement of O-ring seals.

C. Buried valves shall have two inch (2”) operating nuts, and above grade valves shall have hand wheel operators.

D. Gate valves shall have joints as indicated on the Drawings or specified herein. Buried valves shall have mechanical joint ends. Valves installed above grade shall have flanged ends.

E. Valves shall have manufacturer's name, year manufactured, and working pressure cast in raised letters on valve body. The valves must have been manufactured within five years of the date of installation.

F. The best workmanship shall be employed in manufacturing and finishing the valves. The valves must operate freely and easily.

5.0 Installation

A. Gate valves shall be installed according to procedures recommended by the Manufacturer and the American Water Works Association.

B. Unless otherwise indicated on the Drawings or required by clearance restraints, valves shall be installed with operating stems in the vertical position.

C. Buried valves shall be installed with a valve boot, riser and lid. The boot shall not bear on the valve. The boot shall be supported by gravel embedment, a concrete valve base or other suitable support to prevent traffic loads from being transmitted to the valve.

D. Buried valves shall be wrapped in 8-mil polyethylene secured with suitable tape in accordance with AWWA C105.

E. The Owner shall inspect all gate valves before they are installed and shall reject any valves found to be damaged or defective to a degree that would affect the function of the Work. Rejected valves shall be immediately removed from the site of the work.

F. All gate valve locations shall be identified by installing a valve marker post and sign at each location. The markers shall be as shown on the Plans.

5.0 Manufacturer

All gate valves shall be manufactured by MUELLER, CLOW or approved equal.

END OF SECTION

(This Page Intentionally Left Blank)

Section 15410 - Check Valves

1.0 Scope

This Section covers check valves constructed as shown on the Plans. Check valves shown on the Plans shall conform to the standards set forth herein.

2.0 Applicable Publications

The following publications for the issues listed below, but referred to thereafter by basic designation only, form a part of this Specification to the extent indicated by the referenced thereto:

AWWA Standards, Current published (AWWA and/or ASTM)

1. AWWA C550 Protective Interior Coatings for Valves and Hydrants.
2. AWWA C600 Installation of Ductile Iron Water Mains and Their Appurtenances.
3. AWWA C800 Underground Service Line Valves and Fittings.
4. ASTM A128 Standard Specification for Steel Castings, Austenitic Manganese.
5. ASTM A536 Standard Specification for Ductile Iron Castings.
6. ASTM B584 Standard Specification for Copper Alloy Sand Castings for General Applications.
7. ASTM B148 Standard Specification for Aluminum Bronze Sand Castings.
8. ASTM A351 Standard Specification for Castings, Austenitic, Austenitic-Ferritic (Duplex), for Pressure Containing Parts.
9. ASTM A313 Standard Specification for Stainless Steel Spring Wire.
10. ASTM A126 Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
11. ASTM B62 Standard Specification for Composition Bronze or Ounce Metal Castings.
12. ASTM B61 Standard Specification for Steam or Valve Bronze Castings.
13. ASTM A48 Standard Specification for Gray Iron Castings.
14. ASTM D1784 Rigid PVC Compounds and CPVC Compounds.
15. ANSI B16 Standards of Pipes and Fittings.

16. ANSI B1.20 National Pipe Tapered (NPT) Standard for Tapered Threads.
17. NSF Standard 14 Plastic Piping Components and Related Materials.
18. NSF Standard 61 Drinking Water System Components – Health Effects.

3.0 Materials

3.1 General

A. All check valves shall be designed for operation at the discharge of pumps so as to prevent reverse flow and provide drip-tight shut-off at low heads.

B. All check valves shall be iron body, bronze mounted, and single disc.

C. All check valves shall be assembled with stainless steel fasteners and the discs shall be bronze and seat against a resilient surface. The discs shall be supported by a stainless steel hinge pins with O-ring sealed glands.

D. The ferrous metal interior surfaces of the check valves shall be finished with a durable, corrosion resistant, epoxy coating bonded to the metal.

E. All check valves shall typically have flanged joints conforming to ANSI B16.1, 125 pound or tapped for flange bolts and designed for installation between such flanges as required or specified on the Plans.

F. All check valves shall be rated for 150 psi working water pressure and hydrostatically tested at 300 psi.

G. All check valves shall have bronze seat and body rings, extended bronze hinge pins and bronze nuts on the bolts of bolted covers.

H. All check valves shall be of the model indicated on the Plans. Should a model not be indicated on the plans, all check valves shall be manufactured by AMERICAN DARLINE, GOLDEN ANDERSON, M & H, MUELLER, CLOW or approved equal. The manufacturer of any horizontal swing check valves used for the Project shall have a service representative in Texas.

3.2 Silent Check Valves

A. Silent check valves shall be of the silent operating type that begins to close as the forward flow diminishes and is fully closed at zero (0) velocity preventing flow reversal and resultant water hammer or shock.

B. Wafer style valves shall be provided in sizes 2-inch through 10-inch for installation between ANSI B16.1, Class 125 or Class 250 iron flanges or ANSI B16.5, Class 300 steel flanges.

C. The valve design shall incorporate a center guided, spring loaded disc, guided at opposite ends and having a short linear stroke that generates a flow area equal to the pipe size.

D. The operation of the valve shall not be affected by the position of installation. The valve shall be capable of operating in the horizontal or vertical positions with the flow up or down. Heavy duty springs for vertical flow down installation s shall be provided when specified on 14-inch and larger valves.

E. All component parts shall be field replaceable without the need of special tools. A replaceable guide bushing shall be provided and held in position by the spring. The spring shall be designed to withstand 100,000 cycles without failure and provide a cracking pressure 0.5 psi and to fully open at a flow velocity of 4 fps.

F. The valve disc shall be concave to the flow direction providing for disc stabilization, maximum strength, and a minimum flow velocity to open the valve.

G. The valve disc and seat shall have a sealing surface finish of 32 micro-inch or better to ensure positive seating at all pressures. The leakage rate shall not exceed one-half (1/2) of the allowable rate for metal seated valves allowed by AWWA Standard C508 or 0.5 oz. per hour per inch of valve diameter.

H. The valve flow way shall be contoured and unrestricted to provide full flow areas at all locations within the valve. Valve flow coefficients shall be equal to or greater than specified below and verified by an independent testing laboratory.

Valve Size	Wafer Style	Globe Style
2”	66	N/A
2.5”	88	110
3”	130	155
4”	228	278
5”	N/A	435
6”	520	525
8”	900	1,115
10”	1,450	1,770
12”	N/A	2,500

I. The valve body shall be constructed of ASTM A128, Class B cast iron for Class 250 valves. Class 150 and Class 300 steel valves shall be constructed of ASTM A128, Grade WCB cast steel. Optional body materials include ASTM A536, Grade 63-45-12 ductile iron.

J. The seat and disc shall be ASTM B584, Alloy C83600 cast bronze or ASTM B148, Alloy C95200 aluminum bronze. Optional trim materials include ASTM A351, Grade CF8M stainless steel, as specified by the Engineer.

K. The compression spring shall be ASTM A313, Type 302 stainless steel with ground ends.

L. A Buna-N seal shall be provided on the seat when specified to provide zero (0) leakage at both high and low pressures without overloading or damaging the seal. The seal design shall provide both a metal to metal and a metal to Buna-N seal.

M. The valves shall be hydrostatically tested at 1.5 times their rated cold working pressure. Additional tests shall be conducted per AWWA, ANSI, MSS, or API standards when specified. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.

N. All valves shall be of the model indicated on the Plans. Should a model not be indicated on the plans, all valves shall be manufactured by CLOW or approved equal. The manufacturer of any valves used for the Project shall have a service representative in Texas.

4.0 Installation

A. Check valves shall be of the kind, size and number as shown on the Plans. They shall be installed as shown on the Plans and according to the manufacturer's recommendations.

B. The Owner shall inspect all check valves before they are installed and shall reject any that are found to be damaged or defective to a degree that would affect the function of the Work. Rejected horizontal swing check valves shall be immediately removed from the site of the work.

5.0 Measurement and Payment

Check valves shall be measured for payment as a part of the plant bid item. The item shall include labor, materials, and incidentals necessary for a complete installation.

END OF SECTION

(This Page Intentionally Left Blank)

Section 15420 - Combination Air Release and Vacuum Valves - Water

1.0 Scope

This specification covers combination air release and air vacuum valves where called for on the Drawings or specified herein.

2.0 Applicable Publications

The most recent issue of the following standard specifications, references or publications shall be a part of these specifications. The Contractor shall construct the project in general accordance with these standards with the additions, exceptions or other modifications indicated on the Drawings or specified herein.

AWWA Standards, Current published (AWWA and/or ASTM)

1. AWWA C512 Standard for Air Release, Air/Vacuum, and Combination Air Valves for Waterworks Services.
2. AWWA C550 Protective Interior Coatings for Valves and Hydrants.
3. AWWA C600 Installation of Ductile Iron Water Mains and Their Appurtenances.
4. AWWA C800 Underground Service Line Valves and Fittings.
5. NSF Standard 61 Drinking Water System Components – Health Effects.

3.0 Operation

A. Combination air and vacuum release valves shall be of the single housing style that combines the operating features of an air release and air vacuum valve and shall meet all the requirements of AWWA C512.

B. The Air Vacuum portion shall automatically exhaust large quantities of air through a large orifice during the filling of the pipeline and automatically allows air to re-enter the pipeline when the internal pressure of the pipeline approaches a negative value due to column separation, draining of the pipeline, power outage, pipeline break, etc.

C. The Air Release portion shall automatically release small pockets of air from the pipeline while the pipeline is in operation and under pressure.

D. Once the line is filled, a float shall raise a plug to close the large orifice. The large orifice shall remain closed unless the valve body is vacated of water and negative pressure occurs inside the line. When those conditions occur, the plug shall recede to its open position allowing large volumes of air to enter the pipe. When air enters the valve body from the pipe while operating under pressure, the float shall descend and open a small orifice allowing release of that air to the atmosphere.

E. When closed, the valve shall be completely drip-tight.

4.0 Materials

A. Ductile iron body valves shall meet the material requirements as follows:

Item	Material	Specification
Body and Cover	Ductile Iron	ASTM A536, Gr. 65-45-12
Float	Stainless Steel	ASTM A240
Needle and Seat	Rubber	Buna-N (Chlorine Resistant)
Drain Plug	Stainless Steel	ASTM A276
Lever Frame	Delrin	ASTM D4181
Casing bolts/nuts	Stainless Steel	ANSI Type 316

B. Valve exterior to be painted with universal metal primer paint.

C. All valves 2-inch and smaller shall have threaded inlets. All valves 3-inch and larger shall have flanged or mechanical joint inlets.

D. Valve Boxes

1. All valve boxes shall be a minimum of two (2) separate bodies for height adjustment and a minimum height adequate to be level with ground or pavement level.

2. When specified, the lid shall be a “lock type”, if not it shall be standard in design.

E. All valve locations shall be identified by installing a valve marker post and sign at each location. The markers shall be as shown on the Plans.

5.0 Installation

A. Valves shall be of the kind, size and number as shown on the Plans. They shall be installed as shown on the Plans, specified herein and in accordance with the manufacturer's recommendations.

B. The Owner shall inspect all valves prior to installation and shall reject any valves found to be damaged or defective to a degree that would affect the function of the Work. Rejected valves shall be immediately removed from the site of the work.

C. The valve shall be isolated from the pipe with a bronze ball valve and brass nipples and fittings. The outlet shall be fitted with brass nipples and fittings to vent the discharge away from personnel.

D. Valves shall be installed at high points on the main line or as shown on the Plans. If the profile changes during construction from that shown on the drawings, valve assemblies shall be installed at the high points in lines as constructed.

E. The tap for the valves shall be made in a level section of pipe no closer than 18-inch from a bell, coupling, joint, or fitting.

F. Valves shall be hydro-tested in conjunction with the connecting pipelines.

6.0 Manufacturer

Automatic combination air and vacuum release valves shall be APCO Combination Air Valves, Model 143C.

END OF SECTION

This page intentionally left blank.

Section 15605 - Water Meters – Turbine

1.0 Scope

This Section covers turbine water meters to be constructed as shown on the Plans. Turbine water meters shown on the Plans shall conform to the standards set forth herein.

2.0 Applicable Publications

The following publications for the issues listed below, but referred to thereafter by basic designation only, form a part of this Specification to the extent indicated by the referenced thereto:

AWWA Standards, Current published (AWWA and/or ASTM)

1. AWWA C701 Class II Type Meters for Waterworks Applications.
2. AWWA C600 Installation of Ductile Iron Water Mains and Their Appurtenances.
3. AWWA C110 Standard for Ductile Iron and Gray Iron Fittings, 3-inch – 48-inch, for Water and Other Liquids.
4. AWWA C111 (ANSI C21.11) Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
5. ANSI B16 Standards of Pipes and Fittings.
6. ASTM F593 Stainless Steel Bolts, Hex Cap Screws, and Studs.
7. ASTM D429 Rubber Property Adhesion to Rigid Substrates.
8. ASTM B62 Standard Specification for Composition Bronze or Ounce Metal Castings.
9. ASTM B584 Standard Specification for Copper Alloy Sand Castings for General Applications.
10. NSF Standard 14 Plastic Piping Components and Related Materials.
11. NSF Standard 61 Drinking Water System Components – Health Effects.

3.0 Materials

A. All meters to be AWWA Class II Turbines.

B. The maincase and cover shall be cast from NSF/ANSI 61, Annex G and Annex F certified lead free alloy containing a minimum of 85% copper. The size, model, NSF 61 certification and arrows indicating direction of flow shall be cast in raised characters on the maincase or cover.

C. Register shall be straight reading in U.S. gallons. Register boxes and lids shall be bronze.

D. Operating Pressure. All meters shall operate without leakage or malfunction up to a maximum operating pressure of 150 pounds per square inch.

E. Operating Characteristics:

Size	Normal Flow
1½”	4 – 160 GPM
2”	4 – 200 GPM
3”	5 – 450 GPM
4”	10 – 1,200 GPM
6”	20 – 2,500 GPM
8”	35 – 4,000 GPM
10”	50 – 6,500 GPM

F. The maincase cover plate and the adjusting screw for adjusting the vane wheel shall be sealed by the use of a heavy duty plastic sealing cap.

G. Eye hooks for easy installation of the meters shall be furnished on the 6” and 8” meters.

H. All meters shall be of the model indicated on the Plans. Should a model not be indicated on the plans, all meters shall be manufactured by MASTER METER or approved equal. The manufacturer of any meters used for the Project shall have a service representative in Texas.

4.0 Installation

A. Meters shall be of the kind, size and number as shown on the Plans. They shall be installed as shown on the Plans and according to the manufacturer's recommendations.

B. The Owner shall inspect all meters prior to installation and shall reject any meters found to be damaged or defective to a degree that would affect the function of the Work. Rejected meters shall be immediately removed from the site of the work.

5.0 Manufacturer

All meters shall be of the model indicated on the Plans. Should a model not be indicated on the plans, all meters shall be manufactured by Neptune or approved equal. The manufacturer of any meters used for the Project shall have a service representative in Texas.

END OF SECTION

This page intentionally left blank.

DRAWINGS

(This Page Intentionally Left Blank)

CONSTRUCTION DRAWINGS
FOR
2016-01 - CITY OF LEON VALLEY MUNICIPAL WATER WELL PROJECT

CITY OF LEON VALLEY

BEXAR COUNTY, TEXAS

OCTOBER 2015

SEI PROJECT #0617-001-15

PWS #0150178

CITY COUNCIL:

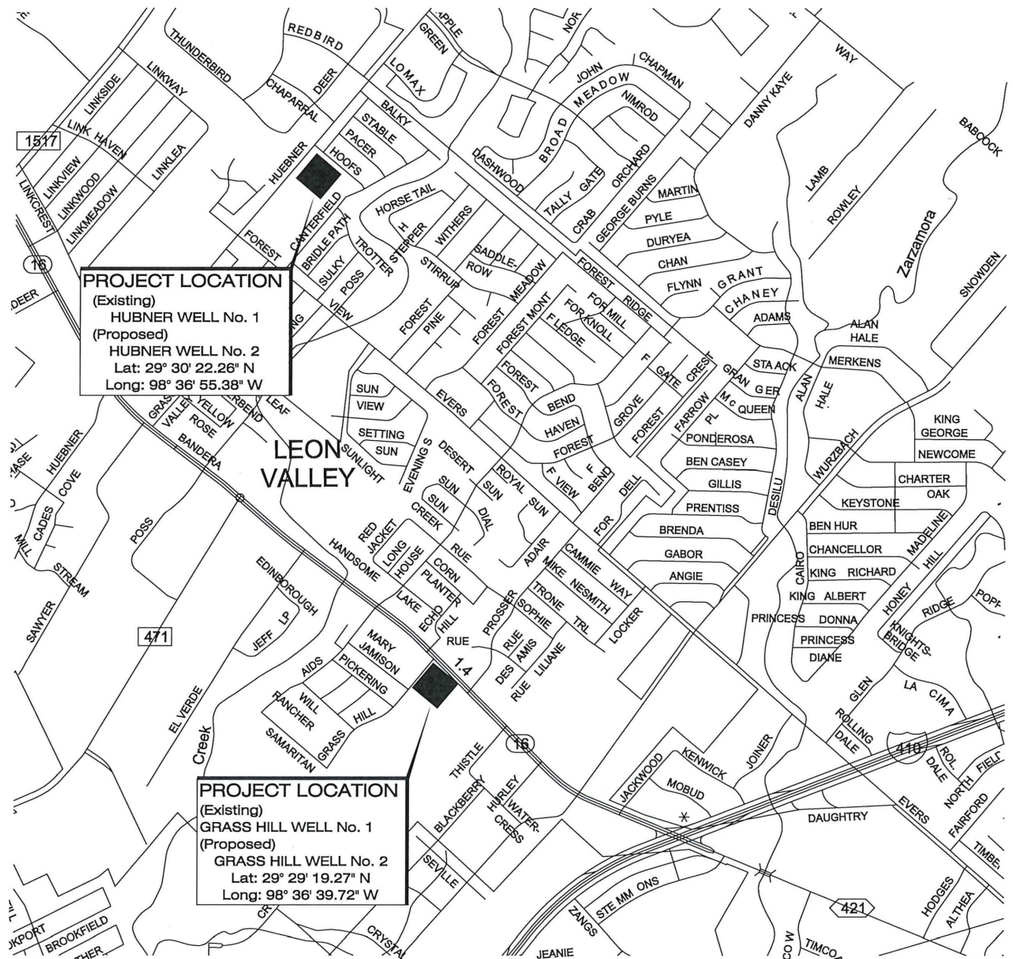
MAYOR	CHRIS RILEY
MAYOR PRO TEM PLACE 2	CARMEN SANCHEZ
COUNCILMAN PLACE 1	DAVID EDWARDS
COUNCILWOMAN PLACE 3	MONICA ALCOCER
COUNCILMAN PLACE 4	BENNY MARTINEZ
COUNCILMAN PLACE 5	DAVID JORDAN
CITY MANAGER	KELLY KUENSTLER
CITY SECRETARY	SAUNDRA PASSAILAIGUE
DIRECTOR OF PUBLIC WORKS	MELINDA MORITZ

NOTES:

1. ALL LOCATIONS SHALL BE FIELD VERIFIED BY CONTRACTOR.
2. CAUTION, OVERHEAD ELECTRIC LINES ARE LOCATED THROUGHOUT THE PROJECT.
3. CONTRACTOR SHALL CALL "ONE CALL SYSTEM OF TEXAS", 1 (800) 545-6005, PRIOR TO CONSTRUCTION FOR LOCATION OF ALL UNDERGROUND UTILITIES.
4. ALL DRIVEWAYS SHALL BE REPAIRED TO MEET OR EXCEED CURRENT CONDITIONS.
5. ALL D.I. FITTINGS REQUIRE MEGALUG RESTRAINTS.
6. ALL BOLTS ON MECHANICAL JOINT FITTINGS AND/OR RESTRAINTS MUST BE WRAPPED IN PLASTIC PRIOR TO CONCRETE BEING POURED.

SURVEY NOTE

TOPOGRAPHIC CONTOURS AS SHOWN HEREIN WERE OBTAINED FROM USGS FOR REFERENCE ONLY. SOUTHWEST ENGINEERS, INC. MAKES NO EXPRESSED OR IMPLIED WARRANTY FOR THE ACCURACY OF THE INFORMATION FOR ANY PURPOSE.



VICINITY MAP

SCALE : 1" = 1000'

INDEX OF DRAWINGS:

SHEET NO.	DWG. NO.	DESCRIPTION
-	-	COVER SHEET
1.	SP-1	GRASS HILL SITE PLAN
2.	SP-2	HUEBNER SITE PLAN
3.	W-1	WELL #3 PROFILE: GRASS HILL WELL No. 2
4.	W-2	WELL #4 PROFILE: HUEBNER WELL No. 2
5.	W-3	WELL #1 PLUGGING PROFILE: GRASS HILL WELL No. 1
6.	W-4	WELL #2 PLUGGING PROFILE: HUEBNER WELL No. 1
7.	W-5	WELLS #3 & #4 DETAILS: GRASS HILL WELL No.2 & HUEBNER WELL No. 2

WARNING

IF THIS BAR DOES NOT MEASURE 1", THE DRAWING IS NOT TO SCALE

NO.	DATE	REVISION	APP. BY

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY Clarence L. Littlefield, P.E. #30994 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

STATE OF TEXAS
CLARENCE LITTLEFIELD
30994
REGISTERED PROFESSIONAL ENGINEER

APPROVED BY: 2-11-16

CLARENECE L. LITTLEFIELD, P.E. DATE

SOUTHWEST ENGINEERS

Civil | Environmental | Land Development

GONZALES
307 St. Lawrence St.
Gonzales, TX 78629
P: 830.672.7546
F: 830.672.2034

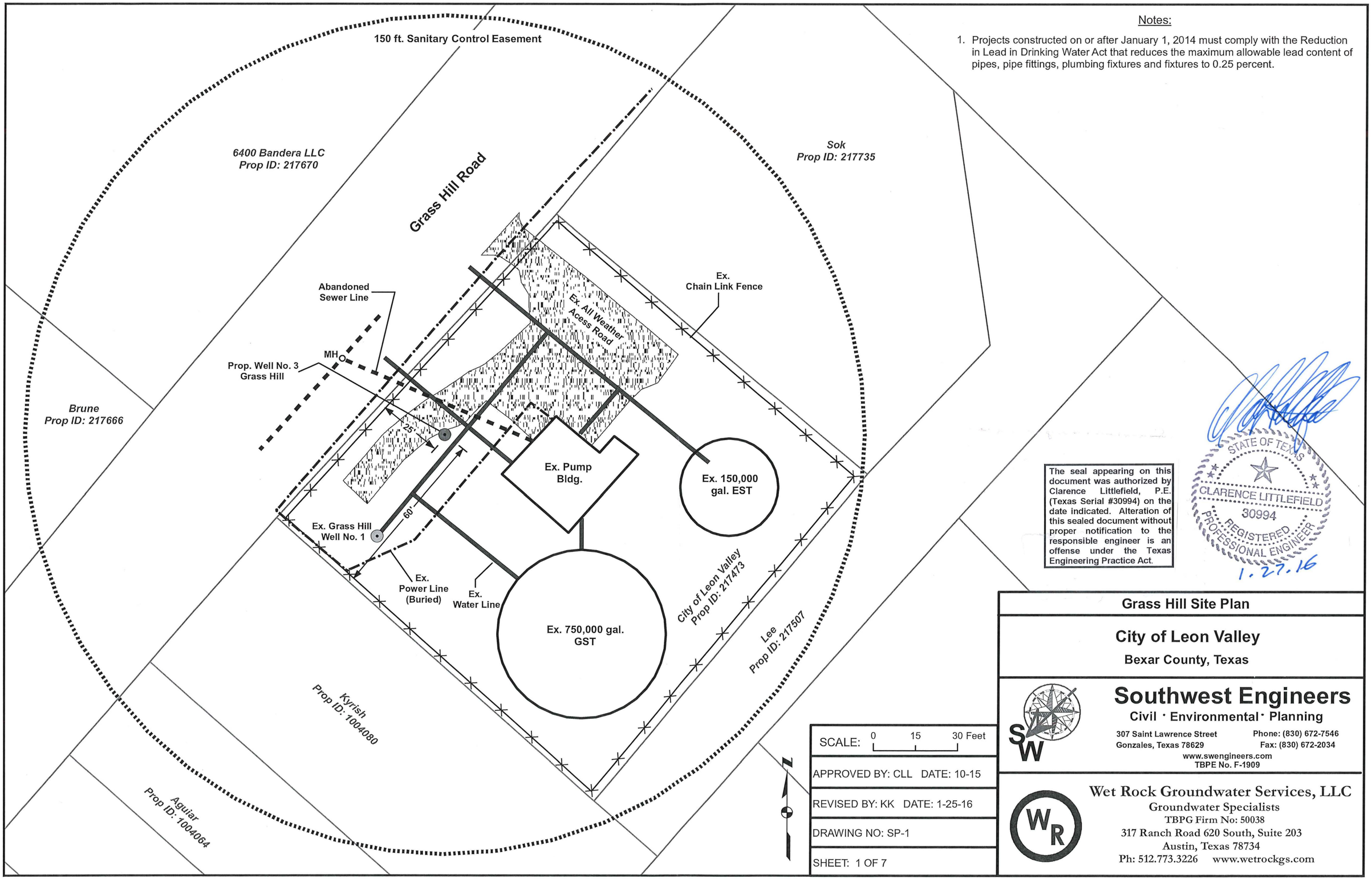
BUDA
142 Cimarron Park Loop
Suite A
Buda, TX 78610
P: 512.312.4336

TBPE NO. F-1909
WWW.SWENGINEERS.COM
SWE@SWENGINEERS.COM

O:\CompanyData\Clients\0617-Leon Valley City of\0617-001-15 - 2015 Water Well Project\Work in Progress\WATER WELL COVER.dwg ~ Layout: "COVER" ~ Thu, Feb 11, 2016, 3:35pm, By: c1038_MaryM

Notes:

1. Projects constructed on or after January 1, 2014 must comply with the Reduction in Lead in Drinking Water Act that reduces the maximum allowable lead content of pipes, pipe fittings, plumbing fixtures and fixtures to 0.25 percent.



The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

SCALE: 0 15 30 Feet

APPROVED BY: CLL DATE: 10-15

REVISED BY: KK DATE: 1-25-16

DRAWING NO: SP-1

SHEET: 1 OF 7

Grass Hill Site Plan

City of Leon Valley

Bexar County, Texas

Southwest Engineers

Civil · Environmental · Planning

307 Saint Lawrence Street
Gonzales, Texas 78629

Phone: (830) 672-7546
Fax: (830) 672-2034

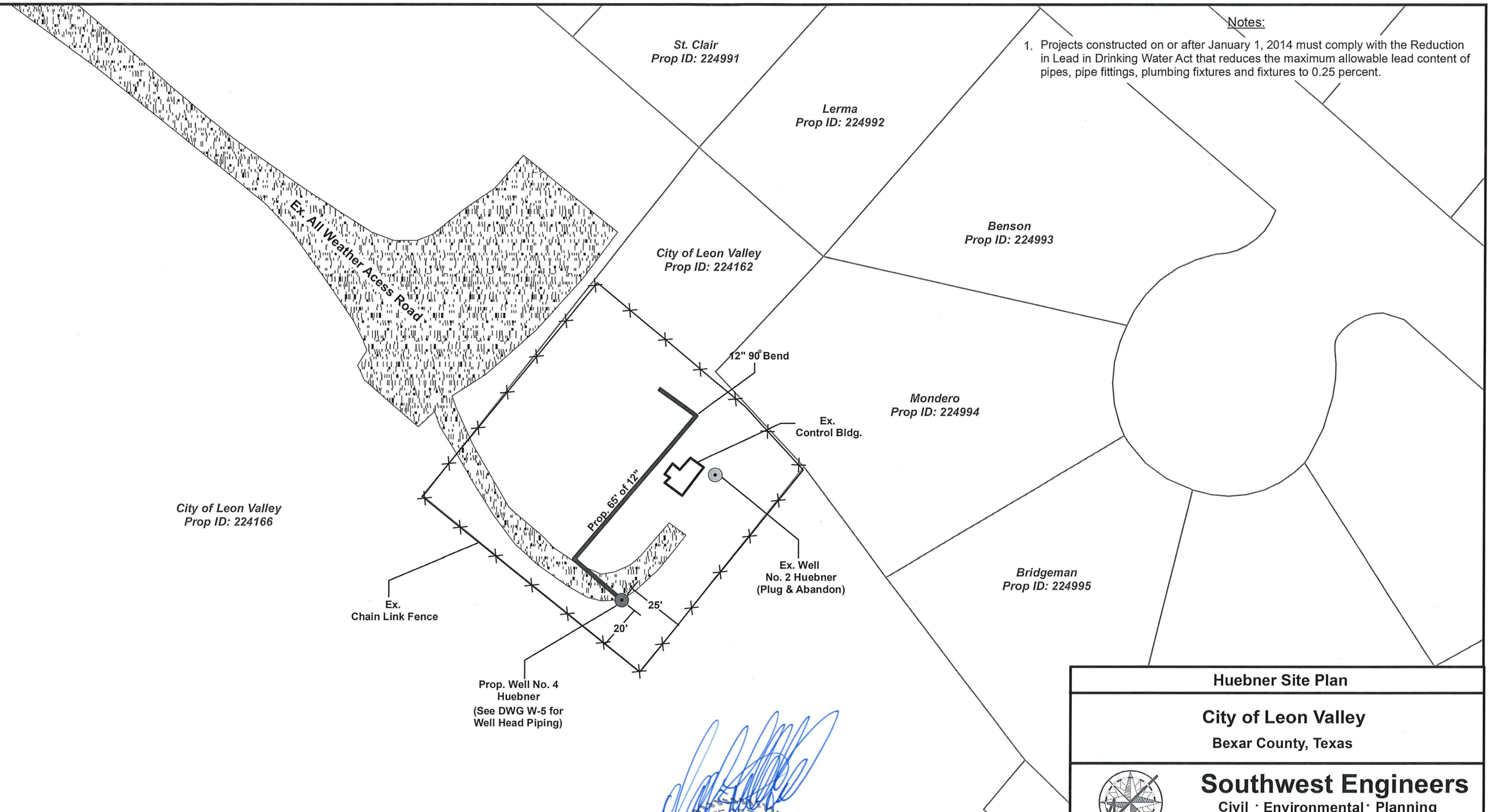
www.swengineers.com
TBPE No. F-1909

Wet Rock Groundwater Services, LLC

Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734
Ph: 512.773.3226 www.wetrockgs.com

Notes:

1. Projects constructed on or after January 1, 2014 must comply with the Reduction in Lead in Drinking Water Act that reduces the maximum allowable lead content of pipes, pipe fittings, plumbing fixtures and fixtures to 0.25 percent.



The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

STATE OF TEXAS
CLARENCE LITTLEFIELD
30994
REGISTERED
PROFESSIONAL ENGINEER
1·27·16

N

SCALE: 0 20 40 Feet

APPROVED BY: CLL DATE: 10-15

REVISED BY: KK DATE: 1-26-16

DRAWING NO: SP-2

SHEET: 2 OF 7

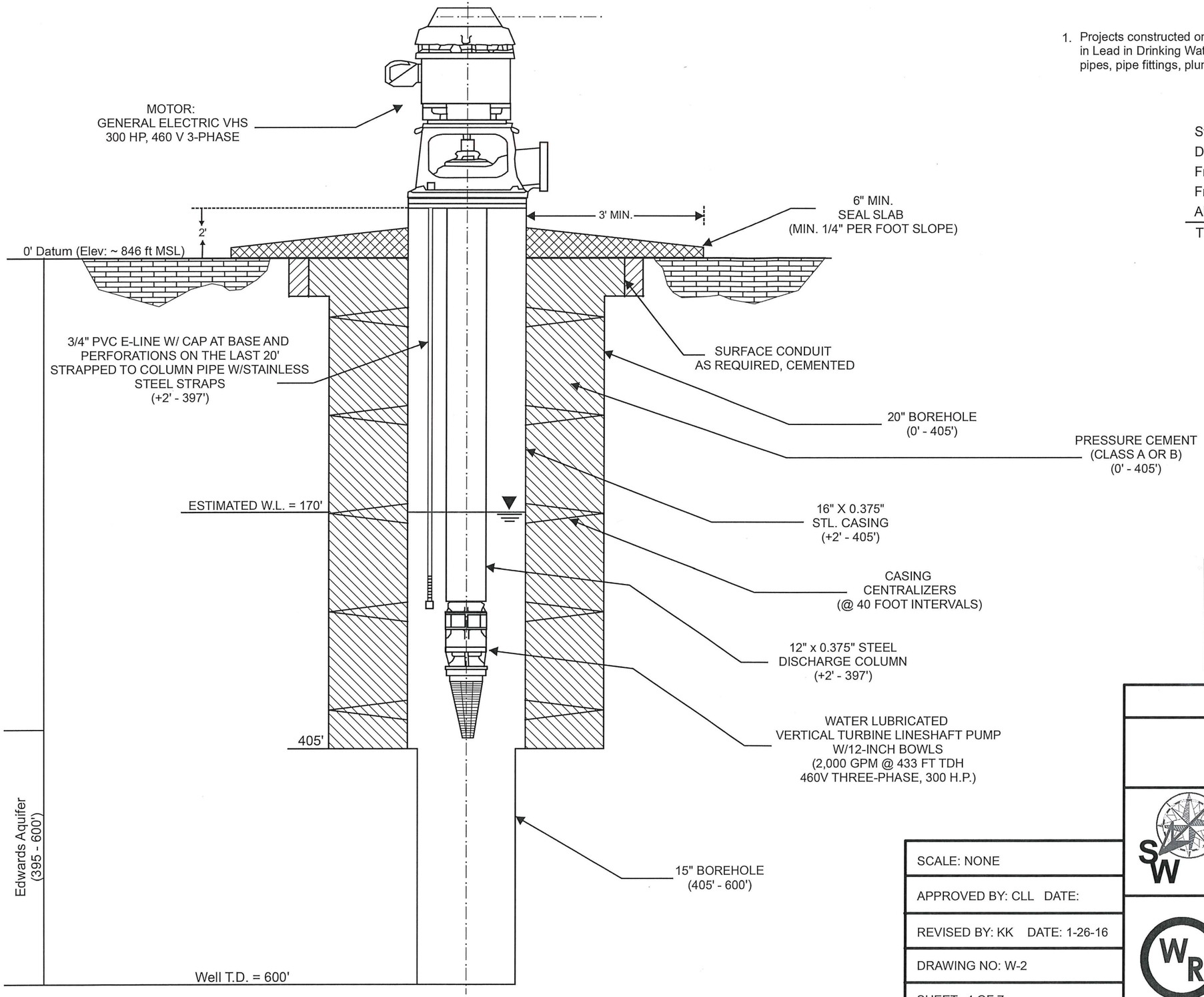
Huebner Site Plan

City of Leon Valley

Bexar County, Texas

Southwest Engineers
Civil · Environmental · Planning
307 Saint Lawrence Street
Gonzales, Texas 78629
Phone: (830) 672-7546
Fax: (830) 672-2034
www.swengineers.com
TBPE No. F-1909

Wet Rock Groundwater Services, LLC
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734
Ph: 512.773.3226 www.wetrockgs.com



Notes:

1. Projects constructed on or after January 1, 2014 must comply with the Reduction in Lead in Drinking Water Act that reduces the maximum allowable lead content of pipes, pipe fittings, plumbing fixtures and fixtures to 0.25 percent.

Pump Head Calculations

Static	170'
Drawdown	70'
Frictional Loss (Column Pipe)	3'
Frictional Loss (Line)	10'
Above Grade	180'
TDH	433'

The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

STATE OF TEXAS
CLARENCE LITTLEFIELD
30994
REGISTERED
PROFESSIONAL ENGINEER

1.27.16

Well No. 4 Profile: Huebner Well

City of Leon Valley

Bexar County, Texas

SCALE: NONE

APPROVED BY: CLL DATE:

REVISED BY: KK DATE: 1-26-16

DRAWING NO: W-2

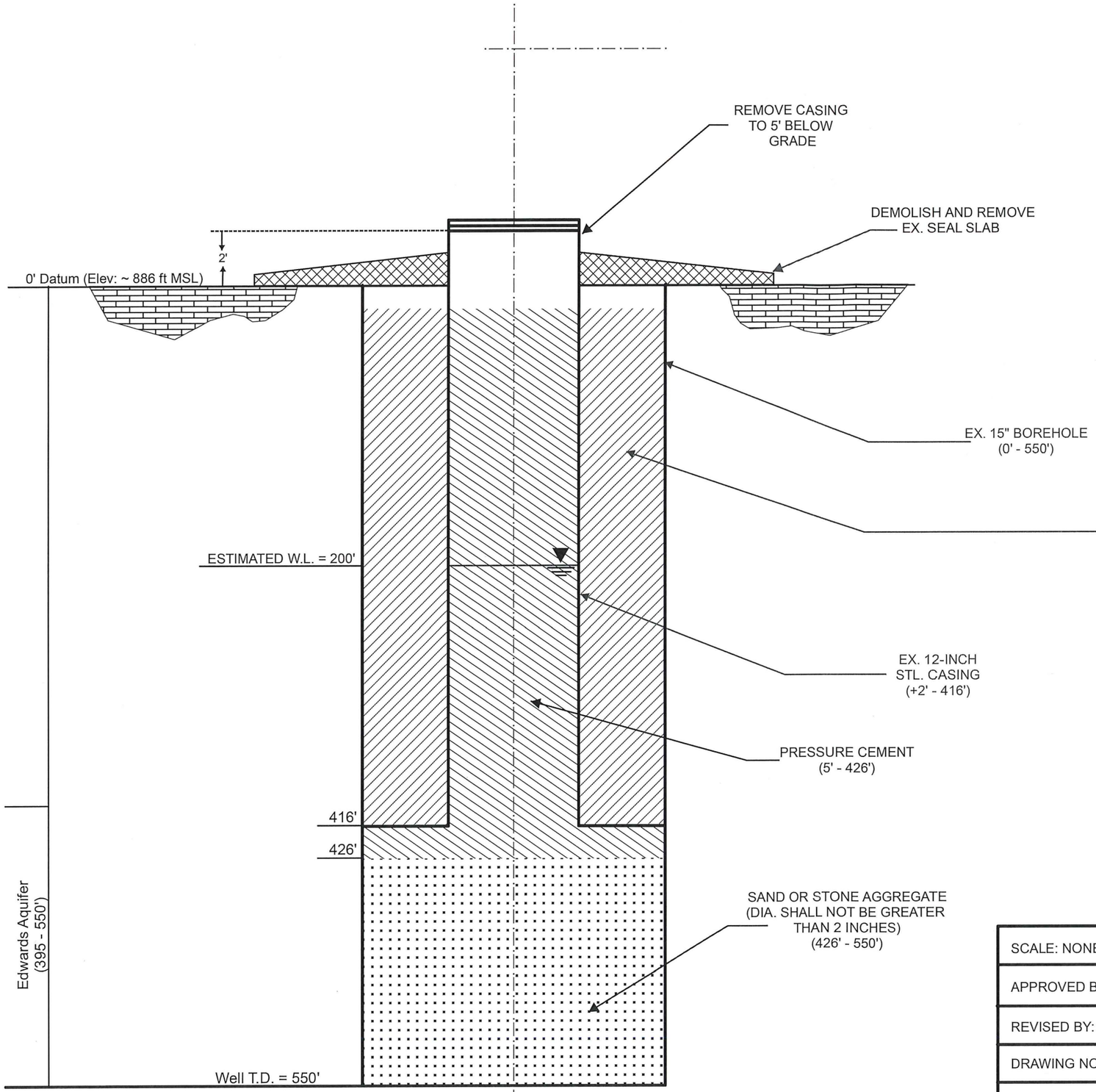
SHEET: 4 OF 7

Southwest Engineers
Civil · Environmental · Planning
307 Saint Lawrence Street
Gonzales, Texas 78629
Phone: (830) 672-7546
Fax: (830) 672-2034
www.swengineers.com
TBPE No. F-1909

Wet Rock Groundwater Services, LLC
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734
Ph: 512.773.3226 www.wetrockgs.com

Notes:

1. REMOVE PUMP, COLUMN PIPE AND ALL OTHER APPURTENANCES FROM THE WELL.
2. PLUG WELL ACCORDING TO EDWARDS AQUIFER AUTHORITY RULES.



The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

STATE OF TEXAS
CLARENCE LITTLEFIELD
30994
REGISTERED PROFESSIONAL ENGINEER

1·27·16

SCALE: NONE
APPROVED BY: CLL DATE:
REVISED BY: KK DATE: 1-26-16
DRAWING NO: W-3
SHEET: 5 OF 7

Well No. 1 Plugging Profile: Grass Hill

City of Leon Valley

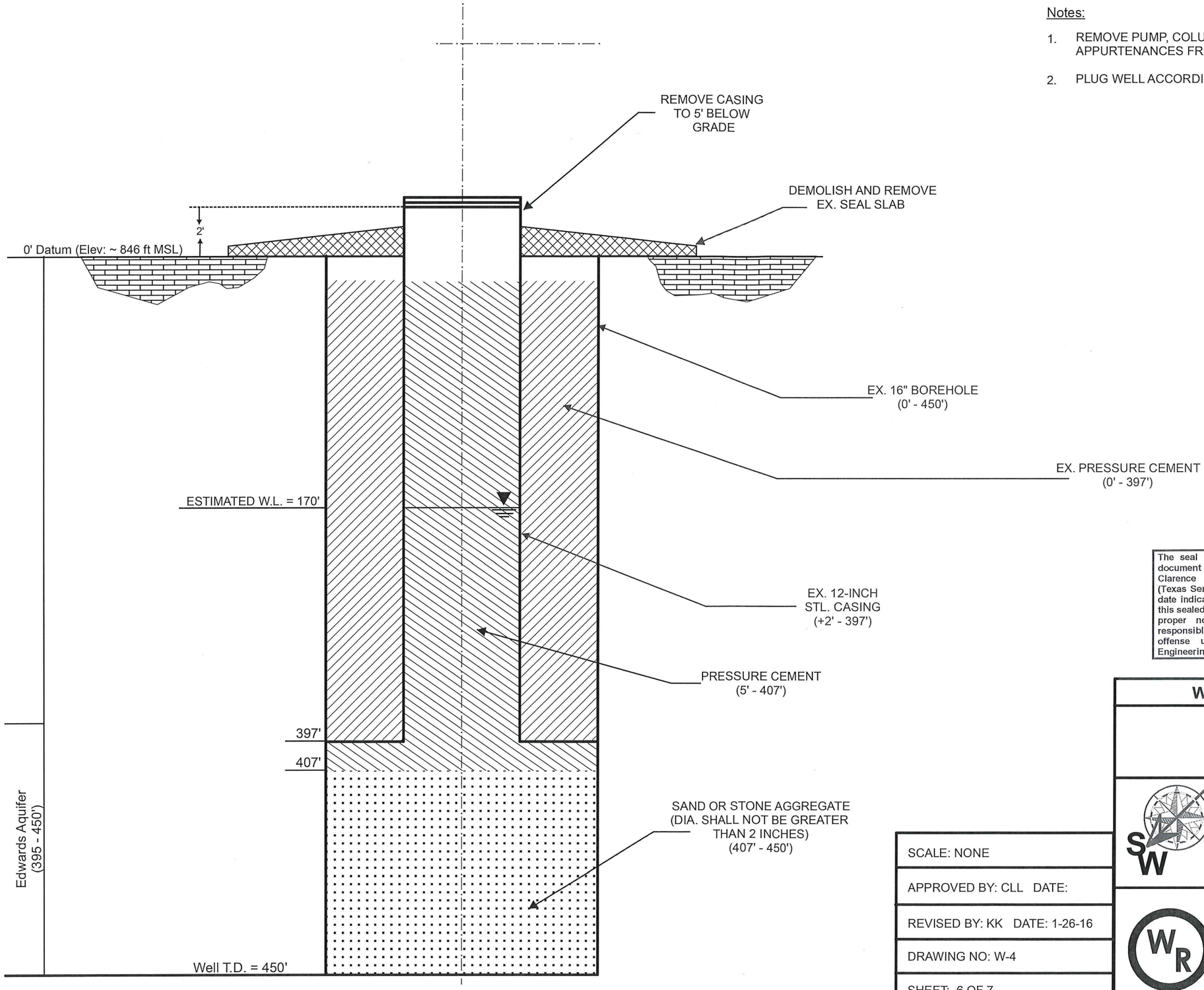
Bexar County, Texas

Southwest Engineers
Civil · Environmental · Planning
307 Saint Lawrence Street
Gonzales, Texas 78629
Phone: (830) 672-7546
Fax: (830) 672-2034
www.swengineers.com
TBPE No. F-1909

Wet Rock Groundwater Services, LLC
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734
Ph: 512.773.3226 www.wetrockgs.com

Notes:

1. REMOVE PUMP, COLUMN PIPE AND ALL OTHER APPURTENANCES FROM THE WELL.
2. PLUG WELL ACCORDING TO EDWARDS AQUIFER AUTHORITY RULES.



The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

STATE OF TEXAS
CLARENCE LITTLEFIELD
30994
REGISTERED PROFESSIONAL ENGINEER

1.27.16

SCALE: NONE
APPROVED BY: CLL DATE:
REVISED BY: KK DATE: 1-26-16
DRAWING NO: W-4
SHEET: 6 OF 7

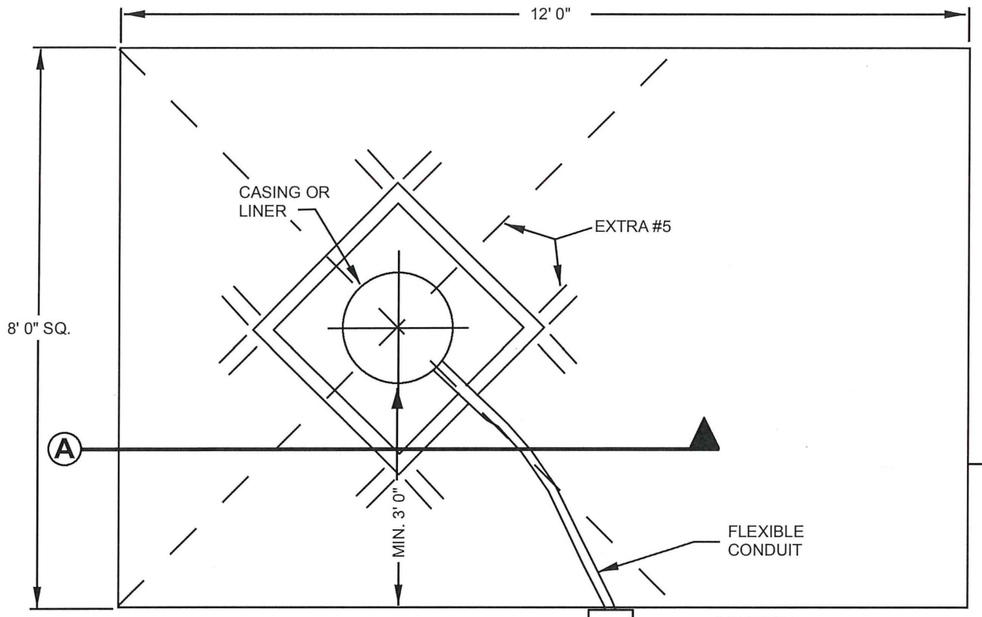
Well No. 2 Plugging Profile: Huebner

City of Leon Valley

Bexar County, Texas

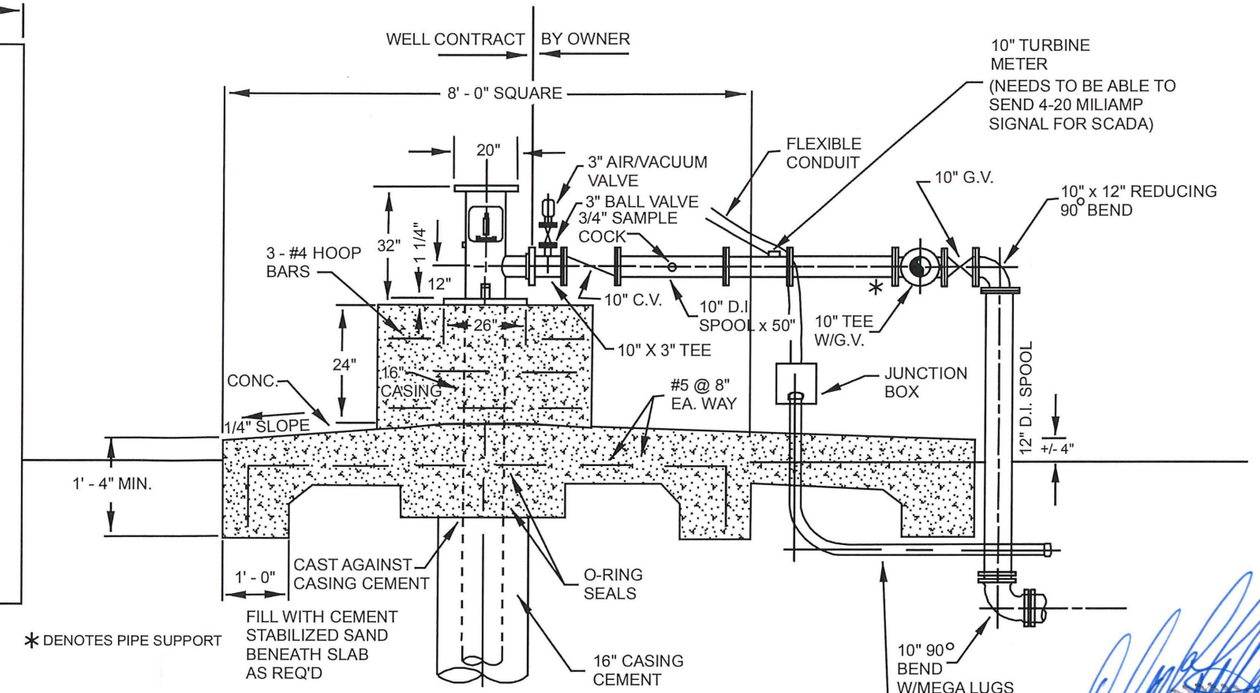
Southwest Engineers
Civil · Environmental · Planning
307 Saint Lawrence Street
Gonzales, Texas 78629
Phone: (830) 672-7546
Fax: (830) 672-2034
www.swengineers.com
TBPE No. F-1909

Wet Rock Groundwater Services, LLC
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734
Ph: 512.773.3226 www.wetrockgs.com



PLAN - TYP. SEAL SLAB

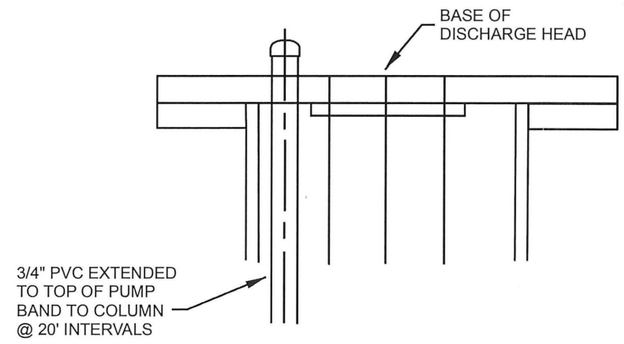
SCALE: NONE



* DENOTES PIPE SUPPORT

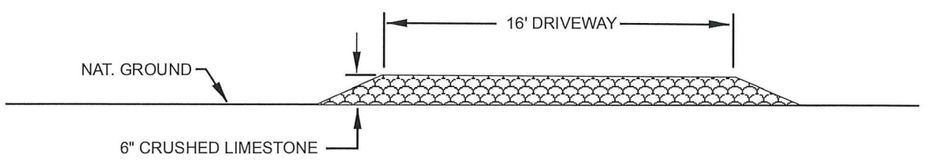
SECTION A & WELL HEAD DETAIL

SCALE: NONE



E-LINE ASSEMBLY

SCALE: NONE



ROADWAY SECTION

SCALE: NONE

CLARENCE LITTLEFIELD
30994
REGISTERED PROFESSIONAL ENGINEER
1-27-16

The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

SCALE: NONE
DRAWN BY: KK DATE: 1-16
CHECKED BY: CLL DATE:
DRAWING NO: W-5
SHEET: 7 OF 7

Wells No. 3 & 4 Details: Grass Hill & Huebner

City of Leon Valley

Bexar County, Texas

Southwest Engineers
Civil · Environmental · Planning
307 Saint Lawrence Street
Gonzales, Texas 78629
Phone: (830) 672-7546
Fax: (830) 672-2034
www.swengineers.com
TBPE No. F-1909

Wet Rock Groundwater Services, LLC
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734
Ph: 512.773.3226 www.wetrockgs.com