



**PROJECT MANUAL
FOR
THE CONSTRUCTION OF**

Bid No. 7460

A. U.S. 380 Transmission Mains – PROJECT No. PMO 880010

- *20-inch Transmission Main – 826 Service Area*
- *16-inch Transmission Main – 900 Service Area*

•

B. Scripture Street Transmission Main – PROJECT No. PMO 880011

- *20-inch Transmission Main – 826 Service Area*

~~Chris Watts~~
Mayor

Todd Hileman
City Manager

~~Todd Estes, P.E.~~
City Engineer

Frank Pugsley, P.E.
Deputy Director, Water and Wastewater

Rebecca Diviney, P.E.
~~Deputy~~ City Engineer

The seal appearing on this document is approved
for bidding, permit and construction purposes by
Gary C. Hendricks, P.E. 65226
on September 12, 2020

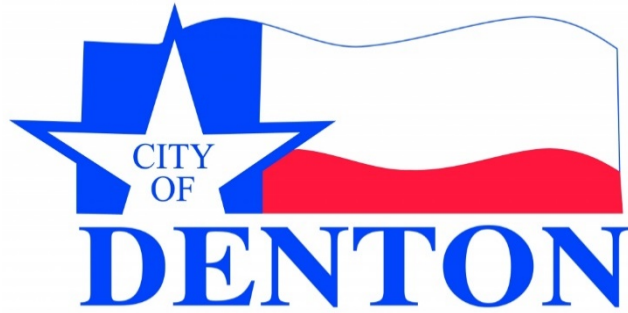
**Prepared for
The City of Denton**

September 2020

Birkhoff, Hendricks & Carter, L.L.P.
Professional Engineers
11910 Greenville Avenue, Suite 600
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Texas Firm 526
TBPLS Firm 100318-00



City of Denton

Standard Construction Specification Documents

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TECHNICAL SPECIFICATIONS

Contractor shall refer to the following documents for Technical Specifications, unless otherwise noted in the contract documents:

North Central Texas Council of Governments Standard Specifications for Public Works Construction – Fourth Edition, Divisions 200-800 (incorporated by reference)

North Central Texas Council of Governments Standard Specifications for Public Works Construction – Fourth Edition, Divisions 200-800 – Amendments

U.S. 380 & Scripture Street Transmission Mains, Bid Item Descriptions

Appendix

- GC-4.01 Availability of Lands
 - Property Strip Map
- GC-4.02 Subsurface and Physical Conditions
 - A. Geotechnical Investigation Report prepared by Henley-Johnston & Associates, Inc. dated May 2, 2019.
 - B. Design Memorandum Report prepared by ELK Engineering Associates, Inc. dated December 11, 2018.
- GC-6.09 Permits and Utilities
 - TxDOT Permits
 - TxDOT FORM 1818 – Material Statement
- GR-01 60 00 Product Requirements
 - Project Material Submittal Checklist

END OF SECTION

DIVISION 00
GENERAL CONDITIONS

SECTION 00 05 10
CONSTRUCTION CONTRACT ORDINANCE

[Assembler: For Contract Document execution, remove this page and replace with the approved Construction Contract Ordinance for the award of the project. Ordinance insert shall be on blue paper.]

END OF SECTION

SECTION 00 05 15
ADDENDA

[Assembler: For Contract Document execution, remove this page and replace with any addenda issued during bidding.]

END OF SECTION

SECTION 00 11 13
INVITATION TO BIDDERS

RECEIPT OF BIDS

Sealed bids for the construction of *U.S. 380 & Scripture Street Transmission Mains* will be received by the City of Denton Purchasing Office as outlined on:

<http://dentontx.ionwave.net/CurrentSourcingEvents.aspx>

GENERAL DESCRIPTION OF WORK

The major work will consist of the (approximate) following:

U.S. 380 Water Lines – PROJECT No. 880010

Installation of 20" and 16" transmissions mains in the vicinity of S.H. 380 and crossing I.H. 35.

- 1,341 L.F. 20" Water Line by Open Cut
- 471 L.F. 20" Water Line in 36" Steel Encasement by Boring
- 150 L.F. 20" Water Line through Existing 36" Steel Encasement
- 517 L.F. 16" Water Line by Open Cut
- 510 L.F. 16" Water Line in 30" Steel Encasement by Boring

Scripture Water Line – PROJECT No. 880011

Installation of a 20" transmission main in the vicinity of Scripture Street and crossing I.H. 35.

- 383 L.F. 20" Water Line by Open Cut
- 409 L.F. 20" Water Line in 36" Steel Encasement by Boring

DOCUMENT EXAMINATION AND PROCUREMENTS

The Bidding and Contract Documents may be examined or obtained on-line by visiting the City of Denton's Purchasing Division website at. at <http://dentontx.ionwave.net>. The Contract Documents may be downloaded, viewed, and printed by interested contractors and/or suppliers. **The contractor is required to fill out the Certificate of Interested Parties Form 1295 and the form must be submitted to the Project Manager before the contract will be presented to the City Council. The form can be obtained at <https://www.ethics.state.tx.us/tcc/1295-Info.htm> .**

VIRTUAL PREBID CONFERENCE

A virtual prebid conference may be held as described in Section 00 21 13 - INSTRUCTIONS TO BIDDERS at the following location, date, and time: <http://dentontx.ionwave.net>.

CITY'S RIGHT TO ACCEPT OR REJECT BIDS

City reserves the right to waive irregularities and to accept or reject bids.

INQUIRIES

All inquiries relative to this procurement should be addressed to the following:

<http://dentontx.ionwave.net>

END OF SECTION

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

1. Defined Terms

1.1. Terms used in these INSTRUCTIONS TO BIDDERS, which are defined in Section 00 72 00 - GENERAL CONDITIONS.

1.2. Certain additional terms used in these INSTRUCTIONS TO BIDDERS have the meanings indicated below which are applicable to both the singular and plural thereof.

1.2.1. Bidder: Any person, firm, partnership, company, association, or corporation acting directly through a duly authorized representative, submitting a bid for performing the work contemplated under the Contract Documents.

1.2.2. Nonresident Bidder: Any person, firm, partnership, company, association, or corporation acting directly through a duly authorized representative, submitting a bid for performing the work contemplated under the Contract Documents whose principal place of business is not in the State of Texas.

1.2.3. Successful Bidder: The lowest responsible and responsive Bidder to whom City (on the basis of City's evaluation as hereinafter provided) makes an award.

1.2.4. Purchasing Agent: City designated representative to assist in solicitation of bids from vendors for City contracts.

2. Copies of Bidding Documents

2.1. Neither City nor Engineer shall assume any responsibility for errors or misinterpretations resulting from the Bidders use of incomplete sets of Bidding Documents.

2.2. City and Engineer in making Bidding Documents available do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license or grant for any other use.

3. Minimum Qualifications

3.1. The following minimum requirements must be demonstrated in order for the submission to be considered responsive. The form can be found in Section 00 45 13 – Bidder's Minimum Qualification Statement.

3.1.1. Bidder shall provide documentation demonstrating three (3) years minimum experience providing services similar to those indicated in Section 00 11 13 – Invitation to Bidders.

3.1.2. Bidder shall provide documentation of three (3) references from governmental entities for which Bidder has performed similar services to those indicated in Section 00 11 13 – Invitation to Bidders.

3.1.3. Bidder shall fill out provided safety record questionnaire.

~~4. Prequalification of Bidders (Prime Contractors and Subcontractors)~~

~~4.1. Special qualifications required for this project include the following:~~

5. Examination of Bidding and Contract Documents, Other Related Data, and Site

5.1. Before submitting a Bid, each Bidder shall:

- 5.1.1. Examine and carefully study the Contract Documents and other related data identified in the Bidding Documents (including "technical data" referred to in Paragraph 4.2. below). No information given by City or any representative of the City other than that contained in the Contract Documents and officially promulgated addenda thereto, shall be binding upon the City.
- 5.1.2. Visit the site to become familiar with and satisfy Bidder as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.
- 5.1.3. Consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work.
- 5.1.4. Be advised, City, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration of award.
- 5.1.5. Study all: (i) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in the Contract Documents as containing reliable "technical data" and (ii) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Contract Documents as containing reliable "technical data."
- 5.1.6. Be advised that the Contract Documents on file with the City shall constitute all of the information which the City will furnish. All additional information and data which the City will supply after promulgation of the formal Contract Documents shall be issued in the form of written addenda and shall become part of the Contract Documents just as though such addenda were actually written into the original Contract Documents. No information given by the City other than that contained in the Contract Documents and officially promulgated addenda thereto, shall be binding upon the City.

- 1 5.1.7. Perform independent research, investigations, tests, borings, and such other means
2 as may be necessary to gain a complete knowledge of the conditions which will be
3 encountered during the construction of the project. On request, City may provide
4 each Bidder access to the site to conduct such examinations, investigations,
5 explorations, tests and studies as each Bidder deems necessary for submission of a
6 Bid. Bidder must fill all holes and clean up and restore the site to its former
7 conditions upon completion of such explorations, investigations, tests and studies.
8
- 9 5.1.8. Determine the difficulties of the Work and all attending circumstances affecting the
10 cost of doing the Work, time required for its completion, and obtain all information
11 required to make a proposal. Bidders shall rely exclusively and solely upon their
12 own estimates, investigation, research, tests, explorations, and other data which are
13 necessary for full and complete information upon which the proposal is to be based.
14 It is understood that the submission of a proposal is prima-facie evidence that the
15 Bidder has made the investigation, examinations and tests herein required. Claims
16 for additional compensation due to variations between conditions actually
17 encountered in construction and as indicated in the Contract Documents will not be
18 allowed.
19
- 20 5.1.9. Promptly notify City of all conflicts, errors, ambiguities or discrepancies in or
21 between the Contract Documents and such other related documents. The Contractor
22 shall not take advantage of any gross error or omission in the Contract Documents,
23 and the City shall be permitted to make such corrections or interpretations as may
24 be deemed necessary for fulfillment of the intent of the Contract Documents.
25
- 26 5.2. Reference is made to Section 00 73 00 – Supplementary Conditions for identification of:
27
- 28 5.2.1. those reports of explorations and tests of subsurface conditions at or contiguous to
29 the site which have been utilized by City in preparation of the Contract Documents.
30 The logs of Soil Borings, if any, on the plans are for general information only.
31 Neither the City nor the Engineer guarantee that the data shown is representative of
32 conditions which actually exist.
33
- 34 5.2.2. those drawings of physical conditions in or relating to existing surface and
35 subsurface structures (except Underground Facilities) which are at or contiguous to
36 the site that have been utilized by City in preparation of the Contract Documents.
37
- 38 5.2.3. copies of such reports and drawings will be made available by City to any Bidder
39 on request. Those reports and drawings may not be part of the Contract
40 Documents, but the "technical data" contained therein upon which Bidder is entitled
41 to rely as provided in Paragraph 4.02. of the General Conditions has been identified
42 and established in Paragraph SC 4.02 of the Supplementary Conditions. Bidder is
43 responsible for any interpretation or conclusion drawn from any "technical data" or
44 any other data, interpretations, opinions or information.
45

1 5.3. The submission of a Bid will constitute an incontrovertible representation by Bidder (i)
2 that Bidder has complied with every requirement of this Paragraph 4, (ii) that without
3 exception the Bid is premised upon performing and furnishing the Work required by the
4 Contract Documents and applying the specific means, methods, techniques, sequences or
5 procedures of construction (if any) that may be shown or indicated or expressly required
6 by the Contract Documents, (iii) that Bidder has given City written notice of all
7 conflicts, errors, ambiguities and discrepancies in the Contract Documents and the
8 written resolutions thereof by City are acceptable to Bidder, and when said conflicts,
9 etc., have not been resolved through the interpretations by City as described in
10 Paragraph 6., and (iv) that the Contract Documents are generally sufficient to indicate
11 and convey understanding of all terms and conditions for performing and furnishing the
12 Work.

13
14 5.4. The provisions of this Paragraph 4, inclusive, do not apply to Asbestos, Polychlorinated
15 biphenyls (PCBs), Petroleum, Hazardous Waste or Radioactive Material covered by
16 Paragraph 4.06. of the General Conditions, unless specifically identified in the Contract
17 Documents.

18
19 5.5. The Bidder acknowledges and agrees to comply with the requirements of City Ethics
20 Ordinance No. 18-157.

21
22 **6. Availability of Lands for Work, Etc.**

23
24 6.1. The lands upon which the Work is to be performed, rights-of-way and easements for
25 access thereto and other lands designated for use by Contractor in performing the Work
26 are identified in the Contract Documents. All additional lands and access thereto
27 required for temporary construction facilities, construction equipment or storage of
28 materials and equipment to be incorporated in the Work are to be obtained and paid for
29 by Contractor. Easements for permanent structures or permanent changes in existing
30 facilities are to be obtained and paid for by City unless otherwise provided in the
31 Contract Documents.

32
33 6.2. Outstanding right-of-way, easements, and/or permits to be acquired by the City are listed
34 in Paragraph SC 4.01 of the Supplementary Conditions. In the event the necessary right-
35 of-way, easements, and/or permits are not obtained, the City reserves the right to cancel
36 the award of contract at any time before the Bidder begins any construction work on the
37 project.

38
39 6.3. The Bidder shall be prepared to commence construction without all executed right-of-
40 way, easements, and/or permits, and shall submit a schedule to the City of how
41 construction will proceed in the other areas of the project that do not require permits
42 and/or easements.

43
44 **7. Interpretations and Addenda**

7.1. All questions about the meaning or intent of the Bidding Documents are to be directed to City in writing on or before the deadline advertised on this solicitation's page at <http://dentontx.ionwave.net>. Questions received after this day WILL NOT be answered nor acknowledged. Interpretations or clarifications considered necessary by City in response to such questions will be issued by Addenda delivered to all parties recorded by City as having received the Bidding Documents or by responding to individual questions via this solicitation's page in dentontx.ionwave.net. Only questions answered by formal written Addenda or via ionwave.net will be binding. Oral and other interpretations or clarifications will be without legal effect.

Address questions in this solicitation's IONWAVE page in the 'Questions' tab (dentontx.ionwave.net).

7.2. Addenda may also be issued to modify the Bidding Documents as deemed advisable by City.

7.3. Addenda or clarifications may be posted via the City's online hosting site, which can be located by visiting the City of Denton's Purchasing Division website at <http://dentontx.ionwave.net>

7.4. A prebid conference may be held at the time and place indicated in the Advertisement or INVITATION TO BIDDERS. Representatives of City will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. City will transmit to all prospective Bidders of record such Addenda as City considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

8. Bid Security

8.1. Each Bid for projects over \$100,000, must be accompanied by Bid Bond made payable to City in an amount of five (5) percent of Bidder's maximum Bid price on form attached, issued by a surety meeting the requirements of Paragraphs 5.01 of the General Conditions, and in accordance with Texas Local Government Code 262.032.

8.2. The Bid Bond of all Bidders will be retained until the conditions of the Notice of Award have been satisfied. If the Successful Bidder fails to execute and deliver the complete Agreement within 10 days after the Notice of Award, City may consider Bidder to be in default, rescind the Notice of Award, and the Bid Bond of that Bidder will be forfeited. Such forfeiture shall be City's exclusive remedy if Bidder defaults. The Bid Bond of all other Bidders whom City believes to have a reasonable chance of receiving the award will be retained by City until final contract execution.

9. Contract Times

The number of days within which, or the dates by which, Milestones are to be achieved in accordance with the General Requirements and the Work is to be completed and ready for Final Acceptance is set forth in the Agreement or incorporated therein by reference to the attached Bid Form.

10. Liquidated Damages

Provisions for liquidated damages are set forth in the Agreement.

11. Substitute and "Or-Equal" Items

The Contract, if awarded, will be on the basis of materials and equipment described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is indicated or specified in the Bidding Documents that a "substitute" or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to City, application for such acceptance will not be considered by City until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by City is set forth in Paragraphs 6.05A., 6.05B. and 6.05C. of the General Conditions and is supplemented in Section 01 25 00 of the General Requirements.

12. Subcontractors, Suppliers and Others

12.1. No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

13. Bid Form

13.1. The Bid Form is included with the Bidding Documents; additional copies may be obtained from the City.

13.2. All blanks on the Bid Form must be completed and the Bid Form signed. Erasures or alterations shall be initialed by the person signing the Bid Form. A Bid price shall be indicated for each Bid item, alternative, and unit price item listed therein. In the case of optional alternatives, the words "No Bid," "No Change," or "Not Applicable" may be entered. Bidder shall state the prices, in both words and numerals, for which the Bidder proposes to do the work contemplated or furnish materials required. If handwritten, all prices shall be written legibly. In case of discrepancy between price in written/typed words and the price in written/typed numerals, the price in written/typed words shall govern.

13.3. Bids by corporations shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign, as provided herein, Section 00 45 43 – Corporate Resolution of Authorizing Signatories. The corporate address and state of incorporation shall be shown below the signature.

13.4. Bids by partnerships shall be executed in the partnership name and signed by a partner, whose title must appear under the signature accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.5. Bids by limited liability companies shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

13.6. Bids by individuals shall show the Bidder's name and official address.

13.7. Bids by joint ventures shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

- 1 13.8. All names shall be typed below the signature.
2
3 13.9. The Bid shall contain an acknowledgement of receipt of all Addenda, the numbers of
4 which shall be filled in on the Bid Form.
5
6 13.10. Postal and e-mail addresses and telephone number for communications regarding the
7 Bid shall be shown.
8
9 13.11. Evidence of authority to conduct business as a Nonresident Bidder in the state of
10 Texas shall be provided in accordance with Section 00 43 37 – Vendor Compliance
11 to State Law Non Resident Bidder.
12

13 14. Submission of Bids 14

- 15 14.1. Bids must be submitted electronically. Electronic submittals must be submitted using
16 this solicitation's page in: <http://dentontx.ionwave.net>. Electronic submittals will not
17 be accepted via email.
18
19 14.2. Hard copies of bid bonds shall be submitted. Bonds must be submitted in a sealed
20 envelope before the due date and time as indicated in this solicitation's IONWAVE
21 page.
22
23 14.3. Bids shall be submitted on the prescribed Bid Form, provided with the Bidding
24 Documents, at the time indicated in the Advertisement or INVITATION TO
25 BIDDERS. All bids must be submitted in IONWAVE (no emails or hard copies
26 allowed). All required documents, as indicated in Section 00 41 00 – Bid Form, must
27 be attached and submitted via IONWAVE, with the exception of the Bid Bond. Bid
28 Bond must be submitted by the deadline to the address indicated in this solicitation's
29 IONWAVE page, attributes tab
30

31 15. Modification and Withdrawal of Bids 32

- 33 15.1. Bids addressed to the Purchasing Agent and filed with the Purchasing Division may
34 be withdrawn prior to the time set for bid opening. A request for withdrawal must be
35 made in writing by an appropriate document duly executed in the manner that a Bid
36 must be executed and delivered to the place where Bids are to be submitted at any
37 time prior to the opening of Bids. After all Bids not requested for withdrawal are
38 opened and publicly read aloud, the Bids for which a withdrawal request has been
39 properly filed may, at the option of the City, be returned unopened.
40
41 15.2. Bidders may modify their Bid by electronic communication at any time prior to the
42 time set for the closing of Bid receipt.
43

44 16. Opening of Bids

45 Bids will be opened and read aloud publicly in a virtual meeting as indicated in this
46 solicitation's IONWAVE page.
47

17. Bids to Remain Subject to Acceptance

All Bids will remain subject to acceptance for the time period specified for Notice of Award and execution and delivery of a complete Agreement by Successful Bidder. City may, at City's sole discretion, release any Bid and nullify the Bid security prior to that date.

18. Evaluation of Bids and Award of Contract

18.1. City reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if City believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by City. City also reserves the right to waive informalities not involving price, contract time or changes in the Work with the Successful Bidder. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

18.1.1. Any or all bids will be rejected if City has reason to believe that collusion exists among the Bidders, Bidder is an interested party to any litigation against City, City or Bidder may have a claim against the other or be engaged in litigation, Bidder is in arrears on any existing contract or has defaulted on a previous contract, Bidder has performed a prior contract in an unsatisfactory manner, or Bidder has uncompleted work which in the judgment of the City will prevent or hinder the prompt completion of additional work if awarded.

18.2. City may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Contract Documents or upon the request of the City. City also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

18.3. City may conduct such investigations as City deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to City's satisfaction within the prescribed time.

18.4. Contractor shall perform with his own organization, work of a value not less than 35% of the value embraced on the Contract, unless otherwise approved by the City. Contractor shall complete and submit Section 00 43 36 – Proposed Subcontractors Form.

- 1 18.5. If the Contract is to be awarded, it will be awarded to lowest responsible and
2 responsive Bidder whose evaluation by City indicates that the award will be in the
3 best interests of the City.
4
- 5 18.6. Pursuant to Texas Government Code Chapter 2252.001, the City will not award
6 contract to a Nonresident Bidder unless the Nonresident Bidder's bid is lower than
7 the lowest bid submitted by a responsible Texas Bidder by the same amount that a
8 Texas resident bidder would be required to underbid a Nonresident Bidder to obtain a
9 comparable contract in the state in which the nonresident's principal place of
10 business is located.
11
- 12 18.7. A contract is not awarded until formal City Council authorization. If the Contract is
13 to be awarded, City will award the Contract within 120 days after the day of the Bid
14 opening unless extended in writing. No other act of City or others will constitute
15 acceptance of a Bid. Upon the contractor award a Notice of Award will be issued by
16 the City.
17
- 18 18.8. Failure or refusal to comply with the requirements may result in rejection of Bid.
19
- 20 18.9. Contractor is required to fill out the Certificate of Interested Parties Form 1295 and
21 the form must be submitted to the City Project Manager before the contract will be
22 presented to the City Council. The form can be obtained at
23 <https://www.ethics.state.tx.us/tcc/1295-Info.htm>.
24

25 **19. Signing of Agreement**

26 When City issues a Notice of Award to the Successful Bidder, it will be accompanied by the
27 required number of unsigned counterparts of the Agreement. Within 14 days thereafter
28 Contractor shall sign and deliver the required number of counterparts of the Agreement to
29 City with the required Bonds, Certificates of Insurance, and all other required documentation.
30 City shall thereafter deliver one fully signed counterpart to Contractor.
31

32 **END OF SECTION**

1
2

SECTION 00 35 13
CONFLICT OF INTEREST AFFIDAVIT

CONFLICT OF INTEREST QUESTIONNAIRE -		FORM CIQ
For vendor or other person 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 government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. <i>See</i> 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.		
1	Name of vendor who has a business relationship with local governmental entity.	
2	<div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;"><input type="checkbox"/></div><div>Check this box if you are filing an update to a previously filed questionnaire.</div></div> <p style="margin-top: 10px; font-size: small;">(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.)</p>	
3	Name of local government officer about whom the information in this section is being disclosed. <div style="text-align: center; margin: 10px 0;"><hr style="width: 30%; border: 0.5px solid black;"/> Name of Officer</div> <p style="font-size: small;">This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.</p> <p>A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?</p> <div style="display: flex; justify-content: space-around; width: 100%;"><div><input type="checkbox"/> Yes</div><div><input type="checkbox"/> No</div></div> <p>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 named in this section AND the taxable income is not received from the local governmental entity?</p> <div style="display: flex; justify-content: space-around; width: 100%;"><div><input type="checkbox"/> Yes</div><div><input type="checkbox"/> No</div></div> <p>C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?</p> <div style="display: flex; justify-content: space-around; width: 100%;"><div><input type="checkbox"/> Yes</div><div><input type="checkbox"/> No</div></div> <p>D. Describe each employment or business and family relationship with the local government officer named in this section.</p>	
4	<div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;"><input type="checkbox"/></div><div>I have no Conflict of Interest to disclose.</div></div>	
5	<div style="display: flex; justify-content: space-between; margin-top: 20px;"><div style="width: 45%;"><hr style="border: 0.5px solid black;"/> Signature of vendor doing business with the governmental entity</div><div style="width: 45%;"><hr style="border: 0.5px solid black;"/> Date</div></div>	

3

END OF SECTION

SECTION 00 41 00

BID FORM

TO: Laura Hermosillo
c/o: Purchasing Division
901-B Texas Street
Denton, Texas 76209

FOR: U.S. 380 & Scripture Street Transmission Mains

1 Enter Into Agreement

The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with City in the form included in the Bidding Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2 BIDDER Acknowledgements and Certification

- 2.1 In submitting this Bid, Bidder accepts all of the terms and conditions of the INVITATION TO BIDDERS and INSTRUCTIONS TO BIDDERS, including without limitation those dealing with the disposition of Bid Bond.
- 2.2 Bidder is aware of all costs to provide the required insurance, will do so pending contract award, and will provide a valid insurance certificate meeting all requirements within 14 days of notification of award.
- 2.3 Bidder certifies that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
- 2.4 Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
- 2.5 Bidder has not solicited or induced any individual or entity to refrain from bidding.
- 2.6 Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph:
- a. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process.
 - b. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of City (b) to establish Bid prices at artificial non-competitive levels, or (c) to deprive City of the benefits of free and open competition.
 - c. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of City, a purpose of which is to establish Bid prices at artificial, non-competitive levels.
 - d. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

2.7 The Bidder acknowledges and agrees to comply with the requirements of City Ethics Ordinance No. 18-757.

3 Time of Completion

- 3.1 The Work will be complete for Final Acceptance within **180** days after the date when the Contract Time commences to run as provided in Paragraph 2.03 of the General Conditions.
- 3.2 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work {and/or achievement of Milestones} within the times specified in the Agreement.

4 Attached to this Bid

The following documents are attached to and made a part of this Bid:

- a. This Bid Form
- b. Required Bid Bond, Section 00 43 13 issued by a surety meeting the requirements of Paragraph 5.01 of the General Conditions. Hard copy bid bond must be submitted prior to bid opening.
- c. **Proposal Form Section – Electronic Copy (submitted prior to bid opening via <http://dentontx.ionwave.net>)**
- d. Vendor Compliance to State Law Non-Resident Bidder, Section 00 43 37
- e. Conflict of Interest Affidavit, Section 00 35 13
- f. Proposed Subcontractors Form, Section 00 43 36
- g. Bidders Minimum Qualification Statement, Section 00 45 13
- h. Corporate Resolution of Authorized Signatories, Section 00 45 43
- i. Any additional documents that may be required by Section 12 of the Instructions to Bidders

5 Total Bid Amount

- 5.1 Bidder will complete the Work in accordance with the Contract Documents for the following bid amount. In the space provided below, please enter the total bid amount for this project. Only this figure will be read publicly by the City at the bid opening.
- 5.2 It is understood and agreed by the Bidder in signing this proposal that the total bid amount entered below is subject to verification and/or modification by multiplying the unit bid prices for each pay item by the respective estimated quantities shown in this proposal and then totaling all of the extended amounts.

~~5.3 Evaluation of Alternate Bid Items~~

Total Bid Amount: \$ _____

6 Bid Submittal

This Bid is submitted on _____, 20__ by the entity named below.

Respectfully submitted,

By: _____
(Signature)

(Printed Name)

Title: _____

Company: _____

Address: _____

State of Incorporation: _____

Email: _____

Phone: _____

Receipt is acknowledged of the following Addenda:	Initial
Addendum No. 1:	
Addendum No. 2:	
Addendum No. 3:	
Addendum No. 4:	

SECTION 00 42 43 - PROPOSAL FORM

UNIT PRICE BID

Bidder's Application

Project Item Information					Bidder's Proposal	
Bid List Item No.	Description	Specification Section No.	Unit of Measure	Bid Quantity	Unit Price	Extended Price
	U.S. 380 - 20" TRANSMISSION MAIN (826 SERVICE AREA)					
101	Mobilization & Demobilization		L.S.	1		\$ -
102	20-Inch Ductile Iron Pipe AWWA C151, CL52 Water Line with Class 'B-3' Embedment by Open Cut		L.F.	1,341		\$ -
103	20-Inch Ductile Iron Pipe AWWA C151, CL52 Water Line in 36" Dia., 5/8" Thick Steel Encasement Pipe by Boring		L.F.	471		\$ -
104	20-Inch Ductile Iron Pipe AWWA C151, CL52 Water Line through Existing 36" Dia. Steel Encasement Pipe		L.F.	150		\$ -
105	Field Locate Either End of Existing 36-Inch Diameter Steel Encasement Pipe, including Dewatering		Ea.	4		\$ -
106	20-Inch AWWA C500 Gate Valve		Ea.	2		\$ -
107	Furnish & Install 2-Inch Type-2 Air Release Valve with 5-Foot Manhole		Ea.	2		\$ -
108	Remove Plug and Connect to Existing 20-Inch Water Line		Ea.	2		\$ -
109	Furnish & Install Ductile Iron Fittings		Lbs.	6,585		\$ -
110	Sawcut, Remove & Dispose of Concrete Sidewalk & Flume		S.Y.	125		\$ -
111	Furnish & Install 4-Inch Thick Reinforced Concrete Sidewalk		S.Y.	115		\$ -
112	Furnish & Install Reinforced Concrete Flume		S.Y.	10		\$ -
113	Trench Safety System Design		L.S.	1		\$ -
114	Trench Safety System Installation		L.F.	1,341		\$ -
115	Furnish & Install Erosion Control Measures		L.S.	1		\$ -
116	Furnish, Install & Maintain Traffic Control Devices		Mos.	7		\$ -
117	Furnish, Place, Water & Fertilize Hydromulch		S.Y.	1,366		\$ -
118	Furnish, Install & Maintain Solid Block Sod		S.Y.	692		\$ -
119	Remove & Replace Existing Landscape Shrubs (Nellie Stevens Holly, 3-gallon)		Ea.	57		\$ -
120	Bid Allowance for Irrigation System Repairs		L.S.	1	\$ 10,000.00	\$ 10,000.00
121	Furnish, Install, Maintain & Remove Project Sign		Ea.	2		\$ -
AMOUNT BID: S.H. 380 - 20" Transmission Main (Items 101 Thru 121)						

SECTION 00 42 43 - PROPOSAL FORM

UNIT PRICE BID

Bidder's Application

Project Item Information					Bidder's Proposal	
Bid List Item No.	Description	Specification Section No.	Unit of Measure	Bid Quantity	Unit Price	Extended Price
	U.S. 380 - 16" TRANSMISSION MAIN (900 SERVICE AREA)					
The note below and Supplementary Conditions Section SC-17.01 - "Buy America" requirements applies to this "200" series of pay items						
201	Mobilization & Demobilization		L.S.	1		\$ -
202	16-Inch Ductile Iron Pipe AWWA C151, CL52 Water Line with Class 'B-3' Embedment by Open Cut		L.F.	517		\$ -
203	16-Inch Ductile Iron Pipe AWWA C151, CL52 Water Line in 30" Dia., 1/2" Thick Steel Encasement Pipe by Boring		L.F.	510		\$ -
204	16-Inch AWWA C500 Gate Valve		Ea.	1		\$ -
205	Furnish & Install 2-Inch Type-2 Air Release Valve with 5-Foot Manhole		Ea.	1		\$ -
206	Cut & Remove Existing 12-Inch Water Line		L.F.	5		\$ -
207	Remove Plug and Connect to Existing 16-Inch Water Line		Ea.	1		\$ -
208	Remove Plug and Connect to Existing 12-Inch Water Line		Ea.	1		\$ -
209	Furnish & Install Ductile Iron Fittings		Lbs.	3,850		\$ -
210	Sawcut, Remove & Dispose of Concrete Pavement		S.Y.	195		\$ -
211	Furnish & Install 6-Inch Thick Reinforced Concrete Driveway, including Connection to Existing Pavement		S.Y.	195		\$ -
212	Trench Safety System Design		L.S.	1		\$ -
213	Trench Safety System Installation		L.F.	517		\$ -
214	Furnish & Install Erosion Control Measures		L.S.	1		\$ -
215	Furnish, Install & Maintain Traffic Control Devices		Mos.	7		\$ -
216	Furnish, Place, Water & Fertilize Hydromulch		S.Y.	3,015		\$ -
AMOUNT BID: S.H. 380 - 16" Transmission Main (Items 201 Thru 216)						\$ -

BUY AMERICA REQUIREMENTS:

NOTICE TO CONTRACTORS and SUPPLIERS:

THE U.S. 380 16" TRANSMISSION MAIN (900 SERVICE AREA) SECTION OF THIS PROJECT (SERIES 200 PAY ITEMS) REQUIRES CERTIFICATION FROM THE CONTRACTOR'S SUPPLIER THAT ALL MANUFACTURING PROCESSES FOR STEEL AND IRON MATERIALS OR FOR THE APPLICATION OF COATINGS (EPOXY, GALVANIZING, PAINTING OR ANY OTHER COATING THAT PROTECTS OR ENHANCES THE VALUE OF THE STEEL OR IRON METAL) TO THESE MATERIALS OCCURRED IN THE UNITED STATES OF AMERICA. FOR THE PUPOSE OF THE CERTIFICATIONS, MANUFACTURING PROCESS ARE DEFINED AS ALL PROCESSES REQUIRED TO CHANGE THE RAW ORF OR SCOP

THE SUCESSFUL CONTRACTOR WILL BE REQUIRED TO COMPLETE THE TEXAS DEPARTMENT OF TRANSPORATION MATERIAL STATEMENT CERTRIFICATION FORM 1818 WITH EACH APPROPRIATE SHOP DRAWING SUBMITTAL.

SECTION 00 42 43 - PROPOSAL FORM

UNIT PRICE BID

Bidder's Application

Project Item Information					Bidder's Proposal	
Bid List Item No.	Description	Specification Section No.	Unit of Measure	Bid Quantity	Unit Price	Extended Price
	SCRIPTURE STREET 20" TRANSMISSION MAIN (826 SERVICE AREA)					
301	Mobilization & Demobilization		L.S.	1		\$ -
302	20-Inch Ductile Iron Pipe AWWA C151, CL52 Water Line with Class 'B-3' Embedment by Open Cut		L.F.	383		\$ -
303	20-Inch Ductile Iron Pipe AWWA C151, CL52 Water Line in 36" Dia., 5/8" Thick Steel Encasement Pipe by Boring		L.F.	378		\$ -
304	20-Inch Ductile Iron Pipe AWWA C151, CL52 Water Line in 36" Dia., 5/8" Thick Steel Encasement Pipe Open Cut		L.F.	31		\$ -
305	12-Inch PVC AWWA C900, DR14 Water Line with Class 'B-3' Embedment by Open Cut		L.F.	59		\$ -
306	8-Inch PVC AWWA C900, DR14 Water Line with Class 'B-3' Embedment by Open Cut		L.F.	40		\$ -
307	20-Inch AWWA C500 Gate Valve		Ea.	2		\$ -
308	12-Inch AWWA C500 Gate Valve		Ea.	1		\$ -
309	8-Inch AWWA C500 Gate Valve		Ea.	2		\$ -
310	Furnish & Install 2-Inch Type-2 Air Release Valve with 5-Foot Manhole		Ea.	1		\$ -
311	Remove Plug and Connect to Existing 20-Inch Water Line		Ea.	1		\$ -
312	Cut & Remove Existing 20-Inch Water Line		L.F.	20		\$ -
313	Connect to Existing 8-Inch Water Line		Ea.	2		\$ -
314	Cut, Plug & Abandon Existing 8-Inch Water Line		Ea.	2		\$ -
315	Furnish & Install 20-Inch M.J. Plug		Ea.	2		\$ -
316	Furnish & Install 12-Inch M.J. Plug		Ea.	1		\$ -
317	Furnish & Install Standard Fire Hydrant Assembly, including 6-Inch Piping and 6-Inch Valve		Ea.	1		\$ -
318	Furnish & Install Ductile Iron Fittings		Lbs.	6,085		\$ -
319	Remove & Replace 20 L.F. of Existing 8-Inch Sanitary Sewer with 8-Inch 150 PSI Pressure Class Pipe (AWWA C900, DR18,		L.S.	1		\$ -
320	Sawcut, Remove & Dispose of Concrete Sidewalk		S.Y.	58		\$ -
321	Furnish & Install 4-Inch Thick Reinforced Concrete Sidewalk		S.Y.	53		\$ -
322	Trench Safety System Design		L.S.	1		\$ -
323	Trench Safety System Installation		L.F.	513		\$ -
324	Furnish & Install Erosion Control Measures		L.S.	1		\$ -
325	Furnish, Install & Maintain Traffic Control Devices		Mos.	4		\$ -
326	Furnish, Place, Water & Fertilize Hydromulch		S.Y.	2,661		\$ -
327	Bid Allowance for Irrigation System Repairs		L.S.	1	\$ 5,000.00	\$ 5,000.00
328	Furnish, Install, Maintain & Remove Project Sign		Ea.	2		\$ -
AMOUNT BID: Scripture Street - 20" Transmission Main (Items 301 Thru 328)						

SECTION 00 43 13

BID BOND

KNOW ALL BY THESE PRESENTS:

That we, (Bidder Name) _____,
known as "Principal" herein, and (Surety Name) _____, a
corporate surety duly authorized to do business in the State of Texas, known as "Surety" herein,
are held and firmly bound unto the City of Denton, a municipal corporation created pursuant to
the laws of Texas, known as "City" herein, in the penal sum of five percent (5%) of Bidder's
maximum bid price, in lawful money of the United States, to be paid in Denton, Denton County,
Texas for the payment of which sum well and truly to be made, we bind ourselves, our heirs,
executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a proposal to perform work for the following
project designated as

U.S. 380 Transmission Mains -PROJECT No. 880010

AND

Scripture Transmission Main.- PROJECT No. 880011

NOW, THEREFORE, the condition of this obligation is such that if the City shall
award the Contract for the foregoing project to the Principal, and the Principal shall satisfy all
requirements and conditions required for the execution of the Contract and shall enter into the
Contract in writing with the City in accordance with the terms of such same, then this obligation
shall be and become null and void. If, however, the Principal fails to execute such Contract in
accordance with the terms of same or fails to satisfy all requirements and conditions required for
the execution of the Contract, this bond shall become the property of the City, without recourse of
the Principal and/or Surety, not to exceed the penalty hereof, and shall be used to compensate
City for the difference between Principal's total bid amount and the next selected bidder's total
bid amount.

PROVIDED FURTHER, that if any legal action be filed on this Bond, venue shall lie in
Denton County, Texas or the United States District Court for the Eastern District of Texas,
Sherman Division.

8
9
10 _____
(Signature and Title of Principal)

14
15
16 _____
(Signature of Attorney-in-Fact)

Impressed
Surety Seal
Only

Bid No. 7460
Project No. PMO 880010
Project No. PMO 880011

SECTION 00 43 36
PROPOSED SUBCONTRACTORS FORM

Each Bidder for a City procurement is required to complete the information below by identifying the proposed subcontractors whom they intend to utilize and the approximate percentage of the overall contract that will be allocated to each entity. Bidder is reminded that a minimum of 35% of the Contract must be performed by Bidder's company.

Company Name	Type of Work to be Performed	Overall Contract Percentage (%)
General Contractor:		
Subcontractors:		

The undersigned hereby certifies that the subcontractors described in the table above will be utilized for this project at the approximate percentage levels indicated above.

BIDDER:

Company By: _____
(Please Print)

Address Signature: _____

City/State/Zip Title: _____
(Please Print)

Date: _____

END OF SECTION

SECTION 00 43 37

VENDOR COMPLIANCE TO STATE LAW NON- RESIDENT BIDDER

Texas Government Code Chapter 2252 was adopted for the award of contracts to nonresident bidders. This law provides that, in order to be awarded a contract as low bidder, nonresident bidders (out-of-state contractors whose corporate offices or principal place of business are outside the State of Texas) bid projects for construction, improvements, supplies or services in Texas at an amount lower than the lowest Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid a nonresident bidder in order to obtain a comparable contract in the State which the nonresident's principal place of business is located.

The appropriate blanks in Section A must be filled out by all nonresident bidders in order for your bid to meet specifications. The failure of nonresident bidders to do so will automatically disqualify that bidder. Resident bidders must check the box in Section B.

A. Nonresident bidders in the State of _____, our principal place of business, are required to be _____ percent lower than resident bidders by State Law. A copy of the statute is attached.

Nonresident bidders in the State of _____, our principal place of business, are not required to underbid resident bidders.

B. The principal place of business of our company or our parent company or majority owner is in the State of Texas. ☐

BIDDER:

Company By: _____
(Please Print)

Address Signature: _____

City/State/Zip Title: _____
(Please Print)

Date: _____

END OF SECTION

SECTION 00 45 13
BIDDER'S MINIMUM QUALIFICATION STATEMENT

List three (3) Government references, **other than the City of Denton**, who can verify the quality of service your company provides. The City prefers customers of similar size and scope of work to this solicitation.

REFERENCE ONE

GOVERNMENT/COMPANY NAME:

LOCATION: _____

CONTACT PERSON AND TITLE: _____

TELEPHONE NUMBER: _____

SCOPE OF WORK: _____

CONTRACT PERIOD: _____

REFERENCE TWO

GOVERNMENT/COMPANY NAME:

LOCATION: _____

CONTACT PERSON AND TITLE: _____

TELEPHONE NUMBER: _____

SCOPE OF WORK: _____

CONTRACT PERIOD: _____

REFERENCE THREE

GOVERNMENT/COMPANY NAME:

LOCATION: _____

CONTACT PERSON AND TITLE: _____

TELEPHONE NUMBER: _____

SCOPE OF WORK: _____

CONTRACT PERIOD: _____

[illegible]

PROJECT INFORMATION FORM

Project #2

Name of Project:

Project Owner Name, Address and Phone Number:

Original Contract Amount:

Final Contract Amount:

Contract Time Allotted (Calendar Days):

Start Date for Project:

Final Completion Date for Project:

Number of Days to complete (calendar days):

Detail the project, including size, length, and materials used. Also describe any known contractual issues, successes, or potential problems and solutions encountered.

[illegible]

PROJECT INFORMATION FORM

Project #3

Name of Project:

Project Owner Name, Address and Phone Number:

Original Contract Amount:

Final Contract Amount:

Contract Time Allotted (Calendar Days):

Start Date for Project:

Final Completion Date for Project:

Number of Days to complete (calendar days):

Detail the project, including size, length, and materials used. Also describe any known contractual issues, successes, or potential problems and solutions encountered.

[illegible]

SAFETY RECORD QUESTIONNAIRE

The City of Denton desires to avail itself of the benefits of Section 252.0435 of the Local Government Code, and consider the safety records of potential contractors prior to award of City contracts. Pursuant to Section 252.0435 of the Local Government Code, the City of Denton has adopted the following written definition and criteria for accurately determining the safety record of a respondent prior to awarding City contracts.

The definition and criteria for determining the safety record of a respondent for this consideration shall be:

The City of Denton shall consider the safety record of the respondent in determining the responsibility thereof. The City may consider any incidence involving worker safety or safety of the citizens of the City of Denton, be it related or caused by environmental, mechanical, operational, supervision or any other cause or factor. Specifically, the City may consider, among other things:

- A. Complaints to, or final orders entered by, the Occupational Safety and Health Review Commission (OSHRC), against the respondent for violations of OSHA regulations within the past three (3) years.
- B. Citations (as defined below) from an Environmental Protection Agency (as defined below) for violations within the past five (5) years. Environmental Protection Agencies include, but are not necessarily limited to, the U.S. Army Corps of Engineers (USACOE), the U.S. Fish and Wildlife Service (USFWS), the Environmental Protection Agency (EPA), the Texas Commission on Environmental Quality (TCEQ), the Texas Natural Resource Conservation Commission (TNRCC) (predecessor to the TCEQ), the Texas Department of Health (TDH), the Texas Parks and Wildlife Department (TPWD), the Structural Pest Control Board (SPCB), agencies of local governments responsible for enforcing environmental protection or worker safety related laws or regulations, and similar regulatory agencies of other states of the United States. Citations include notices of violation, notices of enforcement, suspension/revocations of state or federal licenses or registrations, fines assessed, pending criminal complaints, indictments, or convictions, administrative orders, draft orders, final orders, and judicial final judgments.
- C. Convictions of a criminal offense within the past ten (10) years, which resulted in bodily harm or death.
- D. Any other safety related matter deemed by the City Council to be material in determining the responsibility of the respondent and his or her ability to perform the services or goods required by the solicitation documents in a safe environment, both for the workers and other employees of respondent and the citizens of the City of Denton.

In order to obtain proper information from respondents so that City of Denton may consider the safety records of potential contractors prior to awarding bids on City contracts, City of Denton requires that respondents answer the following three (3) questions and submit them with their submissions:

QUESTION ONE

Has the respondent, or the firm, corporation, partnership, or institution represented by the respondent, or anyone acting for such firm, corporation, partnership or institution, received citations for violations of OSHA within the past three (3) years?

YES _____ NO _____

If the respondent has indicated YES for question number one above, the respondent must provide to City of Denton, with its submission, the following information with respect to each such citation:

Date of offense, location of establishment inspected, category of offense, final disposition of offense, if any, and penalty assessed.

QUESTION TWO

Has the respondent, or the firm, corporation, partnership, or institution represented by the respondent, or anyone acting for such firm, corporation, partnership or institution, received citations for violations of environmental protection laws or regulations, of any kind or type, within the past five years? Citations include notice of violation, notice of enforcement, suspension/revocations of state or federal licenses, or registrations, fines assessed, pending criminal complaints, indictments, or convictions, administrative orders, draft orders, final orders, and judicial final judgments.

YES _____ NO _____

If the respondent has indicated YES for question number two above, the respondent must provide to City of Denton, with its submission, the following information with respect to each such conviction:

Date of offense or occurrence, location where offense occurred, type of offense, final disposition of offense, if any, and penalty assessed.

QUESTION THREE

Has the respondent, or the firm, corporation, partnership, or institution represented by respondent, or anyone acting for such firm, corporation, partnership, or institution, ever been convicted, within the past ten (10) years, of a criminal offense which resulted in serious bodily injury or death?

YES _____ NO _____

If the respondent has indicated YES for question number three above, the respondent must provide to City of Denton, with its submission, the following information with respect to each such conviction:

Date of offense, location where offense occurred, type of offense, final disposition of offense, if any, and penalty assessed.

END OF SECTION

SECTION 00 45 26

CONTRACTOR COMPLIANCE WITH WORKER'S COMPENSATION LAW

Pursuant to Texas Labor Code Section 406.096(a), as amended, Contractor certifies that it provides worker's compensation insurance coverage for all of its employees employed on **Project No. PMO 880010: U.S.. 380 Transmission Mains AND Project No. PMO 880011: Scripture Street Transmission Main**. Contractor further certifies that, pursuant to Texas Labor Code, Section 406.096(b), as amended, it will provide to City its subcontractor's certificates of compliance with worker's compensation coverage.

CONTRACTOR:

Company By: _____
(Please Print)

Address Signature: _____

City/State/Zip Title: _____
(Please Print)

THE STATE OF TEXAS §

COUNTY OF DENTON §

BEFORE ME, the undersigned authority, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same as the act and deed of _____ for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this _____ day of _____, 20__.

Notary Public in and for the State of Texas

END OF SECTION

SECTION 00 45 43
CORPORATE RESOLUTION AUTHORIZING SIGNATORIES

[Assembler: For Contract Document execution, remove this page and replace with Bidder's corporate resolution authorizing signatories.]

END OF SECTION

SECTION 00 52 43
AGREEMENT

THIS AGREEMENT, authorized on _____ is made by and between the City of Denton, a Texas home rule municipality, acting by and through its duly authorized City Manager, ("City"), and _____, authorized to do business in Texas, acting by and through its duly authorized representative, ("Contractor").

City 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 for the Project identified herein.

Article 2. PROJECT

The project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Project No. PMO 880010: U.S. 380 Transmission Mains, AND

Project No. PMO 880011: Scripture Street Transmission Main

Article 3. CONTRACT PRICE

City agrees to pay Contractor for performance of the Work in accordance with the Contract Documents an amount, in current funds, of _____ Dollars (\$_____).

Article 4. CONTRACT TIME

4.1 Final Acceptance.

The Work will be complete for Final Acceptance within **180** days after the date when the Contract Time commences to run, as provided in Paragraph 2.03 of the General Conditions, plus any extension thereof allowed in accordance with Article 12 of the General Conditions.

4.2 Liquidated Damages

Contractor recognizes that *time is of the essence* for completion of Milestones, if any, and to achieve Final Acceptance of the Work and City will suffer financial loss if the Work is not completed within the time(s) specified in Paragraph 4.1 above. The Contractor also recognizes the delays, expense and difficulties involved in proving in a legal proceeding, the actual loss suffered by the City if the Work is not completed on time. Accordingly, instead of requiring any such proof, Contractor agrees that as liquidated damages for delay (but not as a penalty), Contractor shall pay City **Seven Hundred Fifty** Dollars (**\$750.00**) for each day that expires after the time specified in Paragraph 4.1 for Final Acceptance until the City issues the Final Letter of Acceptance.

Article 5. CONTRACT DOCUMENTS

5.1 CONTENTS:

A. The Contract Documents which comprise the entire agreement between City and Contractor concerning the Work consist of the following:

1. This Agreement.

2. Attachments to this Agreement:
 - a. Bid Form
 - 1) Proposal Form
 - 2) Vendor Compliance to State Law Non-Resident Bidder
 - 3) State and Federal documents (*project specific*)
 - b. Current Prevailing Wage Rate Table
 - c. Insurance ACORD Form(s)
 - d. Payment Bond
 - e. Performance Bond
 - f. Maintenance Bond
 - g. Power of Attorney for the Bonds
 - h. Worker's Compensation Affidavit
 - i. Form 1295 – Certificate of Interested Parties
3. General Conditions.
4. Supplementary Conditions.
5. Specifications specifically made a part of the Contract Documents by attachment or, if not attached, as incorporated by reference and described in the Table of Contents of the Project's Contract Documents.
6. North Central Texas Council of Governments Standard Specifications for Public Works Construction – Fourth Edition, Divisions 200-800, and as amended by City, as incorporated by reference and described in the Table of Contents of the Project's Contract Documents.
7. Drawings.
8. Addenda.
9. Documentation submitted by Contractor prior to Notice of Award.
10. The following which may be delivered or issued after the Effective Date of the Agreement and, if issued, become an incorporated part of the Contract Documents:
 - a. Notice to Proceed.
 - b. Field Orders.
 - c. Change Orders.
 - d. Letter of Final Acceptance.

Article 6. INDEMNIFICATION

6.1 Contractor covenants and agrees to indemnify, hold harmless and defend, at its own expense, the city, its officers, servants and employees, from and against any and all claims arising out of, or alleged to arise out of, the work and services to be performed by the contractor, its officers, agents, employees, subcontractors, licensees or invitees under this contract. This indemnification provision is specifically intended to operate and be effective even if it is alleged or proven that all or some of the damages being sought were caused, in whole or in part, by any act, omission or negligence of the city. This indemnity provision is intended to include, without limitation, indemnity for any and all costs, expenses and legal fees incurred by the city in defending against such claims and causes of actions.

6.2 Contractor covenants and agrees to indemnify and hold harmless, at its own expense, the city, its officers, servants and employees, from and against any and all loss of, damage to, or destruction of, property of the city, arising out of, or alleged to arise out of, the work and services to be performed by the contractor, its officers, agents, employees, subcontractors, licensees or invitees under this contract. This indemnification provision is specifically intended to operate and be effective even if it is alleged or proven that all or some of the damages being sought were caused, in whole or in part, by any act, omission or negligence of the city.

Article 7. MISCELLANEOUS

7.1 Terms.

Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

7.2 Assignment of Contract.

This Agreement, including all of the Contract Documents may not be assigned by the Contractor without the advanced express written consent of the City.

7.3 Successors and Assigns.

City and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, in respect to all covenants, agreements and obligations contained in the Contract Documents.

7.4 Severability.

Any provision or part of the Contract Documents held to be unconstitutional, void or unenforceable by a court of competent jurisdiction shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon City and Contractor.

7.5 Governing Law and Venue.

This Agreement, including all of the Contract Documents is performable in the State of Texas. Venue shall be Denton County, Texas, or the United States District Court for the Eastern District of Texas, Sherman Division.

7.6 Authority to Sign.

Contractor shall attach evidence of authority to sign Agreement if signed by someone other than the duly authorized signatory of the Contractor.

7.7 Prohibition On Contracts With Companies Boycotting Israel.

Contractor acknowledges that in accordance with Chapter 2270 of the Texas Government Code, the City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract.

The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this contract, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract.***

7.8 Immigration Nationality Act.

Contractor shall verify the identity and employment eligibility of its employees who perform work under this Agreement, including completing the Employment Eligibility Verification Form (I-9). Upon request by City, Contractor shall provide City with copies of all I-9 forms and supporting eligibility documentation for each employee who performs work under this Agreement. Contractor shall adhere to all Federal and State laws as well as establish appropriate procedures and controls so that no services will be performed by any Contractor employee who is not legally eligible to perform such services. **CONTRACTOR SHALL INDEMNIFY CITY AND HOLD CITY HARMLESS FROM ANY PENALTIES, LIABILITIES, OR LOSSES DUE TO VIOLATIONS OF THIS PARAGRAPH BY CONTRACTOR, CONTRACTOR'S EMPLOYEES, SUBCONTRACTORS, AGENTS, OR LICENSEES.** City, upon written notice to Contractor, shall have the right to immediately terminate this Agreement for violations of this provision by Contractor.

7.9 No Third-Party Beneficiaries.

This Agreement gives no rights or benefits to anyone other than the City and the Contractor and there are no third-party beneficiaries.

7.10 No Cause of Action Against Engineer.

Contractor, its subcontractors and equipment and materials suppliers on the Project or their sureties, shall maintain no direct action against the Engineer, its officers, employees, and subcontractors, for any claim arising out of, in connection with, or resulting from the engineering services performed. Only the City will be the beneficiary of any undertaking by the Engineer. The presence or duties of the Engineer's personnel at a construction site, whether as on-site representatives or otherwise, do not make the Engineer or its personnel in any way responsible for those duties that belong to the City and/or the City's Contractors or other entities, and do not relieve the Contractors or any other entity of their obligations, duties, and responsibilities, including, but not limited to, all construction methods, means, techniques, sequences, and procedures necessary for coordinating and completing all portions of the construction work in accordance with the Contract Documents and any health or safety precautions required by such construction work. The Engineer and its personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions.

SIGNATURE PAGE TO FOLLOW

1 IN WITNESS WHEREOF, City and Contractor have each executed this Agreement to be effective
2 as of the date subscribed by the City's designated City Manager ("Effective Date").
3

4 CITY OF DENTON
5
6

7 BY: _____
8

9 TITLE: _____
10 _____
11

12 CONTRACTOR
13 *[CONTRACTOR'S CORPORATE NAME HERE]*
14

15
16 BY: _____
17 AUTHORIZED AGENT
18

19
20 _____
21 NAME
22

23
24 _____
25 TITLE
26

27
28 _____
29 PHONE NUMBER
30

31
32 _____
33 EMAIL ADDRESS
34

35
36
37 ATTEST:
38 ROSA RIOS, CITY SECRETARY
39

40
41 _____
42
43
44 APPROVED AS TO LEGAL FORM:
45 AARON LEAL, CITY ATTORNEY
46

47 _____

SECTION 00 61 13
PERFORMANCE BOND

THE STATE OF TEXAS
COUNTY OF DENTON

§
§
§

KNOW ALL BY THESE PRESENTS:

That we, _____, known as
"Principal" herein and _____, a corporate
surety(sureties, if more than one) duly authorized to do business in the State of Texas, known as
"Surety" herein (whether one or more), are held and firmly bound unto the City of Denton, a
municipal corporation created pursuant to the laws of Texas, known as "City" herein, in the penal
sum of, _____ Dollars
(\$ _____), lawful money of the United States, to be paid in Denton, Denton
County, Texas for the payment of which sum well and truly to be made, we bind ourselves, our
heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these
presents.

WHEREAS, the Principal has entered into a certain written contract with the City
awarded the ____ day of _____, 20____, which Contract is hereby referred to and
made a part hereof for all purposes as if fully set forth herein, to furnish all materials, equipment
labor and other accessories defined by law, in the prosecution of the Work, including any Change
Orders, as provided for in said Contract designated as **Project No. PMO 880010: U.S.. 380**
Transmission Mains; AND Project No. PMO 880011: Scripture Street Transmission Main.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal
shall faithfully perform it obligations under the Contract and shall in all respects duly and
faithfully perform the Work, including Change Orders, under the Contract, according to the plans,
specifications, and contract documents therein referred to, and as well during any period of
extension of the Contract that may be granted on the part of the City, then this obligation shall be
and become null and void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that if any legal action be filed on this Bond, venue shall lie in
Denton County, Texas or the United States District Court for the Eastern District of Texas,
Sherman Division.

This bond is made and executed in compliance with the provisions of Chapter 2253 of the Texas Government Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of said statute.

IN WITNESS WHEREOF, the Principal and the Surety have SIGNED and SEALED this instrument by duly authorized agents and officers on this the _____ day of _____, 20____.

PRINCIPAL:

BY: _____
Signature

ATTEST:

(Principal) Secretary

Name and Title

Address: _____

Witness as to Principal

SURETY:

BY: _____
Signature

Name and Title

Address: _____

Witness as to Surety

Telephone Number: _____

*Note: If signed by an officer of the Surety Company, there must be on file a certified extract from the by-laws showing that this person has authority to sign such obligation. If Surety's physical address is different from its mailing address, both must be provided. The date of the bond shall not be prior to the date the Contract is awarded.

SECTION 00 61 14
PAYMENT BOND

THE STATE OF TEXAS
COUNTY OF DENTON

§
§
§

KNOW ALL BY THESE PRESENTS:

That we, _____, known as
“Principal” herein, and _____, a
corporate surety (sureties), duly authorized to do business in the State of Texas, known as
“Surety” herein (whether one or more), are held and firmly bound unto the City of Denton, a
municipal corporation created pursuant to the laws of the State of Texas, known as “City” herein,
in the penal sum of _____ Dollars
(\$ _____), lawful money of the United States, to be paid in Denton, Denton
County, Texas, for the payment of which sum well and truly be made, we bind ourselves, our
heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these
presents:

WHEREAS, Principal has entered into a certain written Contract with City, awarded the
_____day of _____, 20____, which Contract is hereby referred to and
made a part hereof for all purposes as if fully set forth herein, to furnish all materials, equipment,
labor and other accessories as defined by law, in the prosecution of the Work as provided for in
said Contract and designated as **Project No. PMO 880010 U.S. 380 Transmission Mains; AND**
Project No. PMO 880011: Scripture Street Transmission Main.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if
Principal shall pay all monies owing to any (and all) payment bond beneficiary (as defined in
Chapter 2253 of the Texas Government Code, as amended) in the prosecution of the Work under
the Contract, then this obligation shall be and become null and void; otherwise to remain in full
force and effect.

This bond is made and executed in compliance with the provisions of Chapter 2253 of the
Texas Government Code, as amended, and all liabilities on this bond shall be determined in
accordance with the provisions of said statute.

1 **IN WITNESS WHEREOF**, the Principal and Surety have each SIGNED and SEALED
2 this instrument by duly authorized agents and officers on this the _____ day of
3 _____, 20____.

4

PRINCIPAL:

ATTEST:

BY: _____
Signature

(Principal) Secretary

Name and Title
Address: _____

Witness as to Principal

SURETY:

ATTEST:

BY: _____
Signature

(Surety) Secretary

Name and Title

Address: _____

Witness as to Surety

Telephone Number: _____

5
6 Note: If signed by an officer of the Surety, there must be on file a certified extract from the
7 bylaws showing that this person has authority to sign such obligation. If Surety's physical
8 address is different from its mailing address, both must be provided.

9
10 **THE DATE OF THE BOND SHALL NOT BE PRIOR**
11 **TO THE DATE THE CONTRACT IS AWARDED.**

12 **END OF SECTION**

SECTION 00 61 19
MAINTENANCE BOND

THE STATE OF TEXAS §
 § **KNOW ALL BY THESE PRESENTS:**
COUNTY OF DENTON §

That we _____, known as
“Principal” herein and _____, a corporate surety
(sureties, if more than one) duly authorized to do business in the State of Texas, known as
“Surety” herein (whether one or more), are held and firmly bound unto the City of Denton, a
municipal corporation created pursuant to the laws of the State of Texas, known as “City” herein,
in the sum of _____ Dollars
(\$ _____), lawful money of the United States, to be paid in Denton, Denton
County, Texas, for payment of which sum well and truly be made unto the City and its
successors, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly
and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the City awarded
the ____ day of _____, 20____, which Contract is hereby
referred to and a made part hereof for all purposes as if fully set forth herein, to furnish all
materials, equipment labor and other accessories as defined by law, in the prosecution of the
Work, including any Work resulting from a duly authorized Change Order (collectively herein,
the “Work”) as provided for in said contract and designated as **Project No. PMO 880010: U.S.**
380 Transmission Mains; AND Project No. PMO 880011: Scripture Street Transmission
Main; and

WHEREAS, Principal binds itself to use such materials and to so construct the Work in
accordance with the plans, specifications and Contract Documents that the Work is and will
remain free from defects in materials or workmanship for and during the period of **two (2) years**
after the date of Final Acceptance of the Work by the City (“Maintenance Period”); and

1 **WHEREAS**, Principal binds itself to repair or reconstruct the Work in whole or in part
2 upon receiving notice from the City of the need therefor at any time within the Maintenance
3 Period.
4

5 **NOW THEREFORE**, the condition of this obligation is such that if Principal shall
6 remedy any defective Work, for which timely notice was provided by City, to a completion
7 satisfactory to the City, then this obligation shall become null and void; otherwise to remain in
8 full force and effect.
9

10 **PROVIDED, HOWEVER**, if Principal shall fail so to repair or reconstruct any timely
11 noticed defective Work, it is agreed that the City may cause any and all such defective Work to
12 be repaired and/or reconstructed with all associated costs thereof being borne by the Principal and
13 the Surety under this Maintenance bond; and
14

15 **PROVIDED FURTHER**, that if any legal action be filed on this Bond, venue shall lie in
16 Denton County, Texas or the United States District Court for the Eastern District of Texas,
17 Sherman Division; and
18

19 **PROVIDED FURTHER**, that this obligation shall be continuous in nature and
20 successive recoveries may be had hereon for successive breaches.
21
22
23

1 **IN WITNESS WHEREOF**, the Principal and the Surety have each SIGNED and SEALED this
2 instrument by duly authorized agents and officers on this the _____ day of _____
3 _____, 20____.

PRINCIPAL:

BY: _____
Signature

ATTEST:

(Principal) Secretary

Name and Title

Address: _____

Witness as to Principal

SURETY:

BY: _____
Signature

ATTEST:

(Surety) Secretary

Name and Title

Address: _____

Witness as to Surety

Telephone Number: _____

*Note: If signed by an officer of the Surety Company, there must be on file a certified extract
from the by-laws showing that this person has authority to sign such obligation. If
Surety's physical address is different from its mailing address, both must be provided.
The date of the bond shall not be prior to the date the Contract is awarded.

SECTION 00 61 25
CERTIFICATE OF INSURANCE

[Assembler: For Contract Document execution, remove this page and replace with standard ACORD Certificate of Insurance form.]

END OF SECTION

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

**STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT
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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in these General Conditions or in other Contract Documents, the terms listed below have the meanings indicated which are applicable to both the singular and plural thereof, and words denoting gender shall include the masculine, feminine and neuter. Said terms are generally capitalized or written in italics, but not always. When used in a context consistent with the definition of a listed-defined term, the term shall have a meaning as defined below whether capitalized or italicized or otherwise. 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 City and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to City 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. *Award* – Authorization by the City Council for the City to enter into an Agreement.
 6. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 7. *Bidder*—The individual or entity who submits a Bid directly to City.
 8. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 9. *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.
 10. *Business Day* – A business day is defined as a day that the City conducts normal business, generally Monday through Friday, except for federal or state holidays observed by the City.
 11. *Calendar Day* – A day consisting of 24 hours measured from midnight to the next midnight.

12. *Change Order*—A document, which is prepared and approved by the City, which is signed by Contractor and City and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.
13. *City*— The City of Denton is a Texas home-rule municipal corporation acting by its City Council through its City Manager or his designee.
14. *City Attorney* – The officially appointed City Attorney of the City of Denton, Texas, or his duly authorized representative.
15. *City Council* - The duly elected and qualified governing body of the City of Denton, Texas.
16. *City Manager* – The officially appointed and authorized City Manager of the City of Denton, Texas, or his duly authorized representative.
17. *Contract Claim*—A demand or assertion by City or Contractor seeking an adjustment of Contract Price or Contract Time, 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 Contract Claim.
18. *Contract*—The entire and integrated written document between the City and Contractor concerning the Work. The Contract contains the Agreement and all Contract Documents and supersedes prior negotiations, representations, or agreements, whether written or oral.
19. *Contract Documents*—Those items so designated in the Agreement. All items listed in the Agreement are Contract Documents. Approved Submittals, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
20. *Contract Price*—The moneys payable by City 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).
21. *Contract Time*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any and (ii) complete the Work so that it is ready for Final Acceptance.
22. *Contractor*—The individual or entity with whom City has entered into the Agreement.
23. *Cost of the Work*—See Paragraph 11.01 of these General Conditions for definition.

24. *Damage Claims* – A demand for money or services arising from the Project or Site from a third party, City or Contractor exclusive of a Contract Claim.
25. *Day or day* – A day, unless otherwise defined, shall mean a Calendar Day.
26. *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. Submittals are not Drawings as so defined.
27. *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.
28. *Engineer*—The licensed professional engineer or engineering firm registered in the State of Texas performing professional services for the City.
29. *Extra Work* – Additional work made necessary by changes or alterations of the Contract Documents or quantities; or for other reasons for which no prices are provided in the Contract Documents. Extra work shall be part of the Work.
30. *Field Order* — A written order issued by City which requires changes in the Work but which does not involve a change in the Contract Price, Contract Time, or the intent of the Engineer.
31. *Final Acceptance* – The written notice given by the City to the Contractor that the Work specified in the Contract Documents has been completed to the satisfaction of the City.
32. *Final Inspection* – Inspection carried out by the City to verify that the Contractor has completed the Work, and each and every part or appurtenance thereof, fully, entirely, and in conformance with the Contract Documents.
33. *General Requirements*—Sections of Division 1 of the Contract Documents.
34. *Hazardous Environmental Condition* — The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, Radioactive Material, or other materials in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
35. *Hazardous Waste*—Hazardous waste is defined as any solid waste listed as hazardous or possesses one or more hazardous characteristics as defined in the federal waste regulations, as amended from time to time.
36. *Incidental* – Work items that the Contractor is not paid for directly, but costs for which are included under the various bid items of the Project.

37. *Laws and Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
38. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
39. *Major Item* – An Item of work included in the Contract Documents that has a total cost equal to or greater than 5% of the original Contract Price or \$25,000 whichever is less.
40. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate Contract Time prior to Final Acceptance of the Work.
41. *Notice of Award*—The written notice by City to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, City will sign and deliver the Agreement.
42. *Notice to Proceed*—A written notice given by City to Contractor fixing the date on which the Contract Time will commence to run and on which Contractor shall start to perform the Work specified in Contract Documents.
43. *PCBs*—Polychlorinated biphenyls.
44. *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.
45. *Plans* – See definition of Drawings.
46. *Project Schedule*—A schedule, prepared and maintained by Contractor, in accordance with the General Requirements, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Time.
47. *Project*—The Work to be performed under the Contract Documents.
48. *Project Manager* —The authorized representative of the City who will be assigned to the Project.
49. *Project Manual* – The documentary information prepared for bidding and furnishing the Work. A listing of the contents of the Project Manual is contained in its Table of Contents.
50. *Public Meeting* – An announced meeting conducted by the City to facilitate public participation and to assist the public in gaining an informed view of the Project.

51. *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.
52. *Regular Working Hours* – Excluding legal holidays, regular working hours shall be Monday thru Friday between 6:00 a.m. and 8:30 p.m. from June 1 to September 30 and between 7:00 a.m. and 8:30 p.m. from October 1 to May 31.
53. *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.
54. *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.
55. *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.
56. *Site*—Lands or areas indicated in the Contract Documents as being furnished by City upon which the Work is to be performed, including rights-of-way, permits, and easements for access thereto, and such other lands furnished by City which are designated for the use of Contractor.
57. *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. Specifications may be specifically made a part of the Contract Documents by attachment or, if not attached, may be incorporated by reference as indicated in the Table of Contents (Division 00 00 00) of each Project.
58. *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.
59. *Submittals*—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.
60. *Subsidiary* – See definition of Incidental.
61. *Successful Bidder*—The Bidder submitting the lowest and most responsive Bid to whom City makes an Award.
62. *Superintendent* – The representative of the Contractor who is available at all times and able to receive instructions from the City and to act for the Contractor.

63. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
64. *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.
65. *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 but not limited to, 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.
66. *Unit Price Work*—See Paragraph 11.03 of these General Conditions for definition.
67. *Weekend Working Hours* – Hours between 8:00 a.m. and 8:30 p.m., Saturday, and between 1:00 p.m. and 8:30 p.m. Sunday or legal holiday, as approved in advance by the City.
68. *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 including any Change Order or Field Order, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
69. *Working Day* – A working day is defined as a day, not including Saturdays, Sundays, or legal holidays authorized by the City for contract purposes, in which weather or other conditions not under the control of the Contractor will permit the performance of the principal unit of work underway for a continuous period of not less than 7 hours between 7 a.m. and 8 p.m.

1.02 Terminology

- A. The words and terms discussed in Paragraph 1.02.B through E 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 judgment by City. 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 City 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).

C. 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 City’s written acceptance.

D. Furnish, Install, Perform, Provide:

1. The word “Furnish” or the word “Install” or the word “Perform” or the word “Provide” or the word “Supply,” or any combination or similar directive or usage thereof, shall mean furnishing and incorporating in the Work including all necessary labor, materials, equipment, and everything necessary to perform the Work indicated, unless specifically limited in the context used.

- E. 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 *Copies of Documents*

City shall furnish to Contractor one (1) original executed copy and one (1) electronic copy of the Contract Documents, and three (3) additional copies of the Drawings. Additional copies will be furnished upon request at the cost of reproduction.

2.02 *Commencement of Contract Time; Notice to Proceed*

The Contract Time will commence to run 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.

2.03 *Starting the Work*

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

2.04 *Before Starting Construction*

Baseline Schedules: Submit in accordance with the Contract Documents, and prior to starting the Work.

2.05 *Preconstruction Conference*

Before any Work at the Site is started, the Contractor shall attend a Preconstruction Conference as specified in the Contract Documents.

2.06 *Public Meeting*

Contractor may not mobilize any equipment, materials or resources to the Site prior to Contractor attending the Public Meeting as scheduled by the City.

2.07 *Initial Acceptance of Schedules*

No progress payment shall be made to Contractor until acceptable schedules are submitted to City in accordance with the Schedule Specification as provided in the Contract Documents.

2.08 *Electronic Submittals*

- A. Except as otherwise stated elsewhere in the Contract, the City and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format.
- B. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

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 City.
- C. Clarifications and interpretations of the Contract Documents shall be issued by City.
- D. The Specifications may vary in form, format and style. Some Specification sections may be written in varying degrees of streamlined or declarative style and some sections may be

relatively narrative by comparison. Omission of such words and phrases as “the Contractor shall,” “in conformity with,” “as shown,” or “as specified” are intentional in streamlined sections. Omitted words and phrases shall be supplied by inference. Similar types of provisions may appear in various parts of a section or articles within a part depending on the format of the section. The Contractor shall not take advantage of any variation of form, format or style in making Contract Claims.

- E. The cross referencing of specification sections under the subparagraph heading “Related Sections include but are not necessarily limited to:” and elsewhere within each Specification section is provided as an aid and convenience to the Contractor. The Contractor shall not rely on the cross referencing provided and shall be responsible to coordinate the entire Work under the Contract Documents and provide a complete Project whether or not the cross referencing is provided in each section or whether or not the cross referencing is complete.

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 City, Contractor, 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 City, or any of its 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.

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 against all applicable field measurements and conditions. Contractor shall promptly report in writing to City any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from City 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 City in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.17.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 City 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 the provisions of any standard, specification, manual, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents).
2. In case of discrepancies, figured dimensions shall govern over scaled dimensions, Drawings shall govern over Specifications, and Supplementary Conditions shall govern over General Conditions and Specifications.

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 a Change Order.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work not involving a change in Contract Price or Contract Time, may be authorized, by one or more of the following ways:
 1. A Field Order;
 2. City's review of a Submittal (subject to the provisions of Paragraph 6.18.C); or
 3. City'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, 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 City 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 City or Engineer to Contractor, or by Contractor to City or Engineer, that may be relied upon are limited to the printed copies included in the Contract Documents (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. 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.

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

4.01 *Availability of Lands*

- A. City shall furnish the Site. City 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. City will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities.
 - 1. The City has obtained or anticipates acquisition of and/or access to right-of-way, and/or easements. Any outstanding right-of-way and/or easements are anticipated to be acquired in accordance with the schedule set forth in the Supplementary Conditions. The Project Schedule submitted by the Contractor in accordance with the Contract Documents must consider any outstanding right-of-way, and/or easements.
 - 2. The City has or anticipates removing and/or relocating utilities, and obstructions to the Site. Any outstanding removal or relocation of utilities or obstructions is anticipated in accordance with the schedule set forth in the Supplementary Conditions. The Project Schedule submitted by the Contractor in accordance with the Contract Documents must consider any outstanding utilities or obstructions to be removed, adjusted, and/or relocated by others.
- B. Upon reasonable written request, City 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.

- C. Contractor shall provide for all additional lands and access thereto that may be required for 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 City of explorations and tests of subsurface conditions at or contiguous to the Site; and
2. those drawings known to City 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. Contractor may not make any Contract Claim against City, 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.

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 6.17.A), notify City in writing about such condition.

B. Possible Price and Time Adjustments

Contractor shall not be entitled to any adjustment in the Contract Price or Contract Time if:

1. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to City with respect to Contract Price and Contract Time by the submission of a Bid or becoming bound under a negotiated contract; or
2. the existence of such condition could reasonably have been discovered or revealed as a result of the examination of the Contract Documents or the Site; or
3. Contractor failed to give the written notice as required by Paragraph 4.03.A.

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 City or Engineer by the owners of such Underground Facilities, including City, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. City 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 and adjustment of the Work with the owners of such Underground Facilities, including City, 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 which conflicts with the Work 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 6.17.A),

identify the owner of such Underground Facility and give notice to that owner and to City. City will review the discovered Underground Facility and determine the extent, if any, to which a change may be required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. Contractor shall be responsible for the safety and protection of such discovered Underground Facility.

2. If City concludes that a change in the Contract Documents is required, a Change Order may be issued to reflect and document such consequences.
3. Verification of existing utilities, structures, and service lines shall include notification of all utility companies a minimum of 48 hours in advance of construction including exploratory excavation if necessary.

4.05 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to City 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. Contractor may not make any Contract Claim against City, 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.
- 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 6.17.A); and (iii) notify City (and promptly thereafter confirm such notice in writing). City may consider the necessity to retain a qualified expert to evaluate such condition or take corrective action, if any.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after City 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 suitable for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed.
- 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 City may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. City may have such deleted portion of the Work performed by City's own forces or others.
- G. ***To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless City, 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.G shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.***
- H. 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 *Licensed Sureties and Insurers*

All bonds and insurance required by the Contract Documents to be purchased and maintained by Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the State of Texas to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.02 *Performance, Payment, and Maintenance Bonds*

- A. Contractor shall furnish performance and payment bonds, in accordance with Texas Government Code Chapter 2253 or successor statute, each in an amount equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents.
- B. Contractor shall furnish maintenance bonds in an amount equal to the Contract Price as security

to protect the City against any defects in any portion of the Work described in the Contract Documents. Maintenance bonds shall remain in effect for two (2) years after the date of Final Acceptance by the City.

- C. 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 sealed and dated power of attorney which shall show that it is effective on the date the agent or attorney-in-fact signed each bond. The bonds must be dated on, or after, the date of the Contract.
- D. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Texas or it ceases to meet the requirements of Paragraph 5.02.C, Contractor shall promptly notify City and shall, within 30 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 and 5.02.C.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to City, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by City or any other additional insured) which Contractor is required to purchase and maintain.
 - 1. The certificate of insurance shall document the City, and all identified entities named in the Supplementary Conditions as “Additional Insured” on all liability policies.
 - 2. The Contractor’s general liability insurance shall include a, “per project” or “per location”, endorsement, which shall be identified in the certificate of insurance provided to the City.
 - 3. The certificate shall be signed by an agent authorized to bind coverage on behalf of the insured, be complete in its entirety, and show complete insurance carrier names as listed in the current A.M. Best Property & Casualty Guide
 - 4. The insurers for all policies must be licensed and/or approved to do business in the State of Texas. Except for workers’ compensation, all insurers must have a minimum rating of A-: VII in the current A. M. Best Key Rating Guide or have reasonably equivalent financial strength and solvency to the satisfaction of Risk Management. If the rating is below that required, written approval of City is required.
 - 5. All applicable policies shall include a Waiver of Subrogation (Rights of Recovery) in favor of the City. In addition, the Contractor agrees to waive all rights of subrogation against the Engineer (if applicable), and each additional insured identified in the Supplementary Conditions

6. Failure of the City to demand such certificates or other evidence of full compliance with the insurance requirements or failure of the City to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such lines of insurance coverage.
7. If insurance policies are not written for specified coverage limits, an Umbrella or Excess Liability insurance for any differences is required. Excess Liability shall follow form of the primary coverage.
8. Unless otherwise stated, all required insurance shall be written on the "occurrence basis". If coverage is underwritten on a claims-made basis, the retroactive date shall be coincident with or prior to the date of the effective date of the agreement and the certificate of insurance shall state that the coverage is claims-made and the retroactive date. The insurance coverage shall be maintained for the duration of the Contract and for three (3) years following Final Acceptance provided under the Contract Documents or for the warranty period, whichever is longer. An annual certificate of insurance submitted to the City shall evidence such insurance coverage.
9. Policies shall have no exclusions by endorsements, which, neither nullify or amend, the required lines of coverage, nor decrease the limits of said coverage unless such endorsements are approved in writing by the City. In the event a Contract has been bid or executed and the exclusions are determined to be unacceptable or the City desires additional insurance coverage, and the City desires the contractor/engineer to obtain such coverage, the contract price shall be adjusted by the cost of the premium for such additional coverage plus 10%.
10. Any self-insured retention (SIR), in excess of \$25,000.00, affecting required insurance coverage shall be approved by the City in regards to asset value and stockholders' equity. In lieu of traditional insurance, alternative coverage maintained through insurance pools or risk retention groups, or self-funding, must also be approved by City.
11. Any deductible in excess of \$5,000.00, for any policy that does not provide coverage on a first-dollar basis, must be acceptable to and approved by the City.
12. City, at its sole discretion, reserves the right to review the insurance requirements and to make reasonable adjustments to insurance coverage's and their limits when deemed necessary and prudent by the City based upon the scope of the Work, changes in statutory law, court decision or the claims history of the industry as well as of the contracting party to the City. The City shall be required to provide prior notice of 90 days, and the insurance adjustments shall be incorporated into the Work by Change Order.
13. City shall be entitled, upon written request and without expense, to receive copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modifications of particular policy terms, conditions, limitations, or exclusions necessary to conform the policy and endorsements to the requirements of the Contract. Deletions, revisions, or modifications shall not be required where policy provisions are established by

law or regulations binding upon either party or the underwriter on any such policies.

14. City shall not be responsible for the direct payment of insurance premium costs for Contractor's insurance.

5.04 *Contractor's Insurance*

- A. *Workers Compensation and Employers' Liability.* Contractor shall purchase and maintain such insurance coverage with limits consistent with statutory benefits outlined in the Texas Workers' Compensation Act (Texas Labor Code, Ch. 406, as amended), and minimum limits for Employers' Liability 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.
- B. *Commercial General Liability.* Coverage shall include but not be limited to covering liability (bodily injury or property damage) arising from: premises/operations, independent contractors, products/completed operations, personal injury, liability under an insured contract, and explosion/collapse/underground (where those exposures exist). Insurance shall be provided on an occurrence basis, and as comprehensive as the current Insurance Services Office (ISO) policy. This insurance shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the City. The Commercial General Liability policy, shall have no exclusions by endorsements that would alter or nullify premises/operations, products/completed operations, contractual, personal injury, or advertising injury, which are normally contained with the policy, unless the City approves such exclusions in writing.
- For construction projects that present a substantial completed operation exposure, the City may require the contractor to maintain completed operations coverage for a minimum of no less than three (3) years following the completion of the project (if identified in the Supplementary Conditions).
- C. *Automobile Liability.* A commercial business auto policy shall provide coverage on "any auto", defined as autos owned, hired and non-owned and provide indemnity for claims for damages because bodily injury or death of any person and or property damage arising out of the work, maintenance or use of any motor vehicle by the 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.

- D. *Railroad Protective Liability.* If any of the work or any warranty work is within the limits of railroad right-of-way, the Contractor shall comply with the requirements identified in the Supplementary Conditions.
- E. *Notification of Policy Cancellation:* Contractor shall immediately notify City upon cancellation or other loss of insurance coverage. Contractor shall stop work until replacement insurance has been procured. There shall be no time credit for days not worked pursuant to this section.

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

If City has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the Contractor in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the City shall so notify the Contractor in writing within 10 Business Days after receipt of the certificates (or other evidence requested). Contractor shall provide to the City such additional information in respect of insurance provided as the City may reasonably request. If Contractor does not purchase or maintain all of the bonds and insurance required by the Contract Documents, the City shall notify the Contractor in writing of such failure prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

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.
- B. At all times during the progress of the Work, Contractor shall assign a competent Superintendent, who is proficient in English, and who shall not be replaced without written notice to City. If at any time the Superintendent is not satisfactory to the City, Contractor shall, if requested by City, replace the Superintendent with another satisfactory to City.
- C. Contractor shall notify the City 24 hours prior to moving areas during the sequence of construction.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to 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 beyond Regular Working Hours or for Weekend Working Hours without City's written consent (which will not be unreasonably withheld). Written request (by letter or electronic communication) to perform Work:

1. for beyond Regular Working Hours, request must be made by noon at least two (2) Business Days prior
2. for Weekend Working Hours, request must be made by noon of the preceding Wednesday
3. for legal holidays, request must be made by noon seven Days prior to the legal holiday.

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, Contractor required testing, start-up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of sufficient quality to complete the Work 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 City. If required by City, 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 to be incorporated into the Work 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.
- D. All items of standard equipment to be incorporated into the Work shall be the latest model at the time of bid, unless otherwise specified.

6.04 *Project Schedule*

- A. Contractor shall adhere to the Project Schedule established in accordance with Paragraph 2.07 and the General Requirements as it may be adjusted from time to time as provided below.
 1. Contractor shall submit to City for acceptance (to the extent indicated in Paragraph 2.07 and the General Requirements) proposed adjustments in the Project Schedule that will not result in changing the Contract Time. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 2. Contractor shall submit to City a monthly Project Schedule with a monthly progress payment

for the duration of the Contract in accordance with the schedule specification 01 32 16.

3. Proposed adjustments in the Project Schedule that will change the Contract Time shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Time 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 of other Suppliers may be submitted to City for review under the circumstances described below.

1. *"Or-Equal" Items:* If in City'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 City as an "or-equal" item, in which case review and approval of the proposed item may, in City'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. the City determines that:

- 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
- 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; and
- 4) it is not objectionable to the City.

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

- 1) there will be no increase in cost to the City or increase in Contract Time; and
- 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in City'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 may be submitted as a

proposed substitute item.

- b. Contractor shall submit sufficient information as provided below to allow City 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 City from anyone other than Contractor.
- c. Contractor shall make written application to City for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application shall comply with Section 01 25 00 and:
 - 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;
 - c) be suited to the same use as that specified; and
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of final 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 City for other work on the Project) to adapt the design to the proposed substitute item;
 - 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; and
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified;
 - 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 Damage 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 City. Contractor shall submit sufficient information to allow City, in City's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. Contractor shall make written application to City for review in the same manner as those provided in Paragraph 6.05.A.2.

- C. *City's Evaluation:* City 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. City may require Contractor to furnish additional data about the proposed substitute. City will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until City's review is complete, which will be evidenced by a Change Order in the case of a substitute and an accepted Submittal for an "or-equal." City will advise Contractor in writing of its determination.
- D. *Special Guarantee:* City may require Contractor to furnish at Contractor's expense a special performance guarantee, warranty, or other surety with respect to any substitute. ***Contractor shall indemnify and hold harmless City and anyone directly or indirectly employed by them from and against any and all claims, damages, losses and expenses (including attorneys fees) arising out of the use of substituted materials or equipment.***
- E. *City's Cost Reimbursement:* City will record City'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 City approves a substitute so proposed or submitted by Contractor, Contractor may be required to reimburse City for evaluating each such proposed substitute. Contractor may also be required to reimburse City for the charges for making changes in the Contract Documents (or in the provisions of any other direct contract with City) 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.
- G. *City Substitute Reimbursement:* Costs (savings or charges) attributable to acceptance of a substitute shall be incorporated to the Contract by Change Order.
- H. *Time Extensions:* No additional time will be granted for substitutions.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall perform with his own organization, work of a value not less than 35% of the value embraced on the Contract, unless otherwise approved by the City.
- B. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, against whom City may have reasonable objection. Contractor shall not be 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 (excluding those acceptable to City as indicated in Paragraph 6.06.C).
- C. The City may from time to time require the use of certain Subcontractors, Suppliers, or other

individuals or entities on the project, and will provide such requirements in the Supplementary Conditions.

- D. Contractor shall be fully responsible to City 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 City and any such Subcontractor, Supplier or other individual or entity; nor
 - 2. shall create any obligation on the part of City 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.
- E. 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.
- F. All Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work shall communicate with City through Contractor.
- 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 City.

6.07 *Wage Rates*

- A. *Duty to pay Prevailing Wage Rates.* The Contractor shall comply with all requirements of Chapter 2258, Texas Government Code (as amended), including the payment of not less than the rates determined by the City Council of the City of Denton to be the prevailing wage rates in accordance with Chapter 2258. Such prevailing wage rates are included in these Contract Documents.
- B. *Penalty for Violation.* A Contractor or any Subcontractor who does not pay the prevailing wage shall, upon demand made by the City, pay to the City \$60 for each worker employed for each calendar day or part of the day that the worker is paid less than the prevailing wage rates stipulated in these contract documents. This penalty shall be retained by the City to offset its administrative costs, pursuant to Texas Government Code 2258.023.
- C. *Complaints of Violations and City Determination of Good Cause.* On receipt of information, including a complaint by a worker, concerning an alleged violation of 2258.023, Texas Government Code, by a Contractor or Subcontractor, the City shall make an initial determination, before the 31st day after the date the City receives the information, as to whether

good cause exists to believe that the violation occurred. The City shall notify in writing the Contractor or Subcontractor and any affected worker of its initial determination. Upon the City's determination that there is good cause to believe the Contractor or Subcontractor has violated Chapter 2258, the City shall retain the full amounts claimed by the claimant or claimants as the difference between wages paid and wages due under the prevailing wage rates, such amounts being subtracted from successive progress payments pending a final determination of the violation.

- D. *Arbitration Required if Violation Not Resolved.* An issue relating to an alleged violation of Section 2258.023, Texas Government Code, including a penalty owed to the City or an affected worker, shall be submitted to binding arbitration in accordance with the Texas General Arbitration Act (Article 224 et seq., Revised Statutes) if the Contractor or Subcontractor and any affected worker does not resolve the issue by agreement before the 15th day after the date the City makes its initial determination pursuant to Paragraph C above. If the persons required to arbitrate under this section do not agree on an arbitrator before the 11th day after the date that arbitration is required, a district court shall appoint an arbitrator on the petition of any of the persons. The City is not a party in the arbitration. The decision and award of the arbitrator is final and binding on all parties and may be enforced in any court of competent jurisdiction.
- E. *Records to be Maintained.* The Contractor and each Subcontractor shall, for a period of three (3) years following the date of acceptance of the work, maintain records that show (i) the name and occupation of each worker employed by the Contractor in the construction of the Work provided for in this Contract; and (ii) the actual per diem wages paid to each worker. The records shall be open at all reasonable hours for inspection by the City. The provisions of Paragraph 6.23, Right to Audit, shall pertain to this inspection.
- F. *Progress Payments.* With each progress payment or payroll period, whichever is less, the Contractor shall submit an affidavit stating that the Contractor has complied with the requirements of Chapter 2258, Texas Government Code.
- G. *Posting of Wage Rates.* The Contractor shall post prevailing wage rates in a conspicuous place at all times.
- H. *Subcontractor Compliance.* The Contractor shall include in its subcontracts and/or shall otherwise require all of its Subcontractors to comply with Paragraphs A through G above.

6.08 *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 City, 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 City in the Contract Documents. Failure of the City to disclose such information does not relieve the Contractor from its obligations to pay for the

use of said fees or royalties to others.

- B. *To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless City, 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.***

6.09 *Permits and Utilities*

- A. *Contractor obtained permits and licenses.* Contractor shall obtain and pay for all construction permits and licenses except those provided for in the Supplementary Conditions or Contract Documents. City 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, except for permits provided by the City as specified in 6.09.B. City shall pay all charges of utility owners for connections for providing permanent service to the Work.
- B. *City obtained permits and licenses.* City will obtain and pay for all permits and licenses as provided for in the Supplementary Conditions or Contract Documents. It will be the Contractor's responsibility to carry out the provisions of the permit. If the Contractor initiates changes to the Contract and the City approves the changes, the Contractor is responsible for obtaining clearances and coordinating with the appropriate regulatory agency. The City will not reimburse the Contractor for any cost associated with these requirements of any City acquired permit. The following are permits the City will obtain if required:
1. Texas Department of Transportation Permits
 2. U.S. Army Corps of Engineers Permits
 3. Texas Commission on Environmental Quality Permits
 4. Railroad Company Permits
 5. Texas Department of Licensing and Regulation (TDLR) Permits
- C. *Outstanding permits and licenses.* The City anticipates acquisition of and/or access to permits and licenses. Any outstanding permits and licenses are anticipated to be acquired in accordance with the schedule set forth in the Supplementary Conditions. The Project Schedule submitted by the Contractor in accordance with the Contract Documents must consider any outstanding permits and licenses.

6.10 *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, the City shall not 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 3.02.
- C. Changes in Laws or Regulations not known at the time of opening of Bids having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Time.

6.11 *Taxes*

- A. On a contract awarded by the City, an organization which qualifies for exemption pursuant to Texas Tax Code, Subchapter H (as amended), the Contractor may purchase, rent or lease all materials, supplies and equipment used or consumed in the performance of this contract by issuing to his supplier an exemption certificate in lieu of the tax, said exemption certificate to comply with State Comptroller's Rulings applicable to Texas Tax Code, Subchapter H. Any such exemption certificate issued to the Contractor in lieu of the tax shall be subject to and shall comply with all applicable rulings pertaining to the Texas Tax Code, Subchapter H.
- B. Texas Tax permits and information may be obtained from:
 - 1. Comptroller of Public Accounts
Sales Tax Division
Capitol Station
Austin, TX 78711; or
 - 2. <http://www.window.state.tx.us/taxinfo/taxforms/93-forms.html>

6.12 *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. At any time when, in the judgment of the City, the Contractor has obstructed, closed, or is carrying on operations in a portion of a street, right-of-way, or easement greater than is necessary for proper execution of the Work, the City may require the Contractor to finish the section on which operations are in progress before work is commenced on any additional area of the Site.
 3. Construction equipment, spoil materials, supplies, forms, buildings, labs, or equipment and supply storage buildings, or any other item that may be transported by flood flows, shall not be stored within existing federal floodways during the course of the Work.
 4. Should any Damage Claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly attempt to resolve the Damage Claim.
 5. ***Pursuant to Paragraph 6.21, Contractor shall indemnify and hold harmless City, from and against all claims, costs, losses, and damages arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against City.***
- 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. *Site Maintenance Cleaning:* 24 hours after written notice is given to the Contractor that the clean-up on the job site is proceeding in a manner unsatisfactory to the City, if the Contractor fails to correct the unsatisfactory procedure, the City may take such direct action as the City deems appropriate to correct the clean-up deficiencies cited to the Contractor in the written notice (by letter or electronic communication), and the costs of such direct action, plus 25% of such costs, shall be deducted from the monies due or to become due to the Contractor.
- D. *Final Site Cleaning:* Prior to Final Acceptance of the Work, Contractor shall clean the Site and the Work and make it ready for utilization by City or adjacent property 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 or better all property disturbed by the Work.
- E. *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.

6.13 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site or in a place designated by the Contractor and approved by the City, one (1) record copy of all Drawings, Specifications, Addenda, Change Orders, 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 accepted Submittals will be available to City for reference. Upon completion of the Work, these record documents, any operation and maintenance manuals, and Submittals will be delivered to City prior to Final Inspection. Contractor shall include accurate locations for buried and embedded items.

6.14 *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 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 City's safety programs, if any.
- D. Contractor shall inform City of the specific requirements of Contractor's safety program, if any, with which City's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.14.A.2 or 6.14.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.
- 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 City has accepted the Work.

6.15 *Safety Representative*

Contractor shall inform City in writing of Contractor's designated safety representative at the Site.

6.16 *Hazard Communication Programs*

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 in accordance with Laws or Regulations.

6.17 *Emergencies and/or Rectification*

- 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 City 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 City determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Change Order may be issued.
- B. Should the Contractor fail to respond to a request from the City to rectify any discrepancies, omissions, or correction necessary to conform with the requirements of the Contract Documents, the City shall give the Contractor written notice that such work or changes are to be performed. The written notice shall direct attention to the discrepant condition and request the Contractor to take remedial action to correct the condition. In the event the Contractor does not take positive steps to fulfill this written request, or does not show just cause for not taking the proper action, within 24 hours, the City may take such remedial action with City resources or by contract. The City shall deduct an amount equal to the entire costs for such remedial action, plus 25%, from any funds due or become due the Contractor on the Project.

6.18 *Submittals*

- A. Contractor shall submit required Submittals to City for review and acceptance in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as City may require.
 - 1. Submit in accordance with the General Requirements.
 - 2. Data shown on the Submittals will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data, to demonstrate to City the services, materials, and equipment Contractor proposes to provide, and to enable City to review the information for the limited purposes required by Paragraph 6.18.C.
 - 3. Submittals submitted as herein provided by Contractor and reviewed by City for conformance with the design concept shall be executed in conformity with the Contract Documents unless otherwise required by City.
 - 4. When Submittals are submitted for the purpose of showing the installation in greater detail, their review shall not excuse Contractor from requirements shown on the Drawings and Specifications.

5. For-Information-Only submittals upon which the City is not expected to conduct review or take responsive action may be so identified in the Contract Documents.
 6. Submit required number of Samples specified in the Specifications.
 7. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as City may require to enable City to review the submittal for the limited purposes required by Paragraph 6.18.C.
- B. Where a Submittal is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to City's review and acceptance of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *City's Review:*
1. City will provide timely review of required Submittals in accordance with the Schedule of Submittals acceptable to City. City's review and acceptance 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. City's review and acceptance 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 acceptance of a separate item as such will not indicate approval of the assembly in which the item functions.
 3. City's review and acceptance shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Section 01 33 00 and City has given written acceptance of each such variation by specific written notation thereof incorporated in or accompanying the Submittal. City's review and acceptance shall not relieve Contractor from responsibility for complying with the requirements of the Contract Documents.

6.19 *Continuing the Work*

Except as otherwise provided, Contractor shall carry on the Work and adhere to the Project Schedule during all disputes or disagreements with City. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as City and Contractor may otherwise agree in writing.

6.20 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to City that all Work will be in accordance with the Contract Documents and will not be defective. City 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 City;
 - 2. recommendation or payment by City of any progress or final payment;
 - 3. the issuance of a certificate of Final Acceptance by City or any payment related thereto by City;
 - 4. use or occupancy of the Work or any part thereof by City;
 - 5. any review and acceptance of a Submittal by City;
 - 6. any inspection, test, or approval by others; or
 - 7. any correction of defective Work by City.
- D. The Contractor shall remedy any defects or damages in the Work and pay for any damage to other work or property resulting therefrom which shall appear within a period of two (2) years from the date of Final Acceptance of the Work unless a longer period is specified and shall furnish a good and sufficient maintenance bond, complying with the requirements of Article 5.02.B. The City will give notice of observed defects with reasonable promptness.

6.21 **Indemnification**

- A. **Contractor covenants and agrees to indemnify, hold harmless and defend, at its own expense, the City, its officers, servants and employees, from and against any and all claims arising out of, or alleged to arise out of, the work and services to be performed by the Contractor, its officers, agents, employees, subcontractors, licenses or invitees under this**

Contract. THIS INDEMNIFICATION PROVISION IS SPECIFICALLY INTENDED TO OPERATE AND BE EFFECTIVE EVEN IF IT IS ALLEGED OR PROVEN THAT ALL OR SOME OF THE DAMAGES BEING SOUGHT WERE CAUSED, IN WHOLE OR IN PART, BY ANY ACT, OMISSION OR NEGLIGENCE OF THE CITY. This indemnity provision is intended to include, without limitation, indemnity for costs, expenses and legal fees incurred by the City in defending against such claims and causes of actions.

- B. Contractor covenants and agrees to indemnify and hold harmless, at its own expense, the City, its officers, servants and employees, from and against any and all loss, damage or destruction of property of the City, arising out of, or alleged to arise out of, the work and services to be performed by the Contractor, its officers, agents, employees, subcontractors, licensees or invitees under this Contract. **THIS INDEMNIFICATION PROVISION IS SPECIFICALLY INTENDED TO OPERATE AND BE EFFECTIVE EVEN IF IT IS ALLEGED OR PROVEN THAT ALL OR SOME OF THE DAMAGES BEING SOUGHT WERE CAUSED, IN WHOLE OR IN PART, BY ANY ACT, OMISSION OR NEGLIGENCE OF THE CITY.**

6.22 *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.
- 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, City 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, and Submittals prepared by such professional. 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 City.
- C. City shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided City has specified to Contractor performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.22, City's review and acceptance 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. City's review and acceptance of Submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.18.C.

6.23 *Right to Audit*

- A. The City shall have the right to audit and make copies of the books, records and computations pertaining to the Contract. The Contractor shall retain such books, records, documents and other evidence pertaining to the Contract period and five years thereafter, except if an audit is in progress or audit findings are yet unresolved, in which case records shall be kept until all audit tasks are completed and resolved. These books, records, documents and other evidence shall be available, within ten (10) business days of written request. Further, the Contractor shall also require all Subcontractors, material suppliers, and other payees to retain all books, records, documents and other evidence pertaining to the Contract, and to allow the City similar access to those documents. All books and records will be made available within a 50 mile radius of the City. The cost of the audit will be borne by the City unless the audit reveals an overpayment of 1% or greater. If an overpayment of 1% or greater occurs, the reasonable cost of the audit, including any travel costs, must be borne by the Contractor which must be payable within five (5) business days of receipt of an invoice.
- B. Failure to comply with the provisions of this section shall be a material breach of the Contract and shall constitute, in the City's sole discretion, grounds for termination thereof. Each of the terms "books", "records", "documents" and "other evidence", as used above, shall be construed to include drafts and electronic files, even if such drafts or electronic files are subsequently used to generate or prepare a final printed document.

6.24 *Nondiscrimination*

- A. The City is responsible for operating Public Transportation Programs and implementing transit-related projects, which are funded in part with Federal financial assistance awarded by the U.S. Department of Transportation and the Federal Transit Administration (FTA), without discriminating against any person in the United States on the basis of race, color, or national origin.
- B. *Title VI, Civil Rights Act of 1964 as amended:* Contractor shall comply with the requirements of the Act and the Regulations as further defined in the Supplementary Conditions for any project receiving Federal assistance.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. City may perform other work related to the Project at the Site with City's employees, or other City contractors, 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 written notice thereof will be given to Contractor prior to starting any such other work; and
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and City, if City is performing other work with City's employees or other City contractors, 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 City and the others whose work will be affected.

- 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 City 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 in the work provided by others.

7.02 *Coordination*

- A. If City 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.
- B. Unless otherwise provided in the Supplementary Conditions, City shall have authority for such coordination.

ARTICLE 8 – CITY'S RESPONSIBILITIES

8.01 *Communications to Contractor*

Except as otherwise provided in the Supplementary Conditions, City shall issue all communications to Contractor.

8.02 *Furnish Data*

City shall timely furnish the data required under the Contract Documents.

8.03 *Pay When Due*

City shall make payments to Contractor in accordance with Article 14.

8.04 *Lands and Easements; Reports and Tests*

City'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 City'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 or contiguous to the Site that have been utilized by City in preparing the Contract Documents.

8.05 *Change Orders*

City shall execute Change Orders in accordance with Paragraph 10.03.

8.06 *Inspections, Tests, and Approvals*

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

8.07 *Limitations on City's Responsibilities*

A. The City 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. City will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

B. City will notify the Contractor of applicable safety plans pursuant to Paragraph 6.14.

8.08 *Undisclosed Hazardous Environmental Condition*

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

8.09 *Compliance with Safety Program*

While at the Site, City's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which City has been informed pursuant to Paragraph 6.14.

ARTICLE 9 – CITY'S OBSERVATION STATUS DURING CONSTRUCTION

9.01 *City's Project Manager or Duly Authorized Representative*

City will provide a Project Manager or duly authorized representative during the construction period. The duties and responsibilities and the limitations of authority of City's Project Manager or duly appointed representative during construction are set forth in the Contract Documents. City's Project Manager for this Contract is as set forth in the Supplementary Conditions. City will establish a duly authorized representative at the Preconstruction Meeting in accordance with Section 01 31 19.

9.02 *Visits to Site*

- A. City will make visits to the Site at intervals appropriate to the various stages of construction as City deems necessary in order to observe 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, City will determine, in general, if the Work is proceeding in accordance with the Contract Documents. City will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. City's efforts will be directed toward providing City a greater degree of confidence that the completed Work will conform generally to the Contract Documents.
- B. City's visits and observations are subject to all the limitations on authority and responsibility set forth in Paragraph 8.07. Particularly, but without limitation, during or as a result of City's visits or observations of Contractor's Work, City 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 *Authorized Variations in Work*

City's Project Manager or duly authorized representative 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 Time 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 City and also on Contractor, who shall perform the Work involved promptly.

9.04 *Rejecting Defective Work*

City will have authority to reject Work which City's Project Manager or duly authorized representative believes to be defective, or 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. City will have authority to conduct special inspection or testing of the Work as provided in Article 13, whether or not the Work is fabricated, installed, or completed.

9.05 *Determinations for Work Performed*

Contractor will determine the actual quantities and classifications of Work performed. City's Project Manager or duly authorized representative will review with Contractor the preliminary determinations on such matters before rendering a written recommendation. City's written decision will be final (except as modified to reflect changed factual conditions or more accurate data).

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

- A. City will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder.
- B. City will render a written decision on any issue referred.
- C. City's written decision on the issue referred will be final and binding on the Contractor, subject to the provisions of Paragraph 10.06.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS; EXTRA WORK

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, City may, at any time or from time to time, order Extra Work. Upon notice of such Extra Work, Contractor shall proceed with the Work involved only upon receiving written notice from City. Extra Work will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided). Extra Work shall be memorialized by a Change Order which may or may not precede an order of Extra work.
- B. For minor changes of Work not requiring changes to Contract Time or Contract Price, a Field Order may be issued by the City.

10.02 *Unauthorized Changes in the Work*

Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Time 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 6.17.

10.03 *Execution of Change Orders*

- A. City and Contractor shall execute appropriate Change Orders covering:
 - 1. changes in the Work which are: (i) ordered by City pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08 or City's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Time which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed.

10.04 *Dispute of Extra Work*

- A. Should a difference arise as to what does or does not constitute Extra Work, or as to the payment thereof, and the City insists upon its performance, the Contractor shall proceed with the work after making written request for written orders and shall keep accurate account of the actual

reasonable cost thereof. Contract Claims regarding Extra Work shall be made pursuant to Paragraph 10.06.

- B. The Contractor shall furnish the City such installation records of all deviations from the original Contract Documents as may be necessary to enable the City to prepare for permanent record a corrected set of plans showing the actual installation.
- C. The compensation agreed upon for Extra Work whether or not initiated by a Change Order shall be a full, complete and final payment for all costs Contractor incurs as a result or relating to the change or Extra Work, whether said costs are known, unknown, foreseen or unforeseen at that time, including without limitation, any costs for delay, extended overhead, ripple or impact cost, or any other effect on changed or unchanged work as a result of the change or Extra Work.

10.05 *Notification to Surety*

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 Time), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted by the Contractor to reflect the effect of any such change.

10.06 *Contract Claims Process*

- A. City's Decision Required: All Contract Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the City for decision. A decision by City shall be required as a condition precedent to any exercise by Contractor of any rights or remedies he may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Contract Claims.
- B. *Notice:*
 - 1. Written notice stating the general nature of each Contract Claim shall be delivered by the Contractor to City no later than 15 days after the start of the event giving rise thereto. The responsibility to substantiate a Contract Claim shall rest with the party making the Contract Claim.
 - 2. Notice of the amount or extent of the Contract Claim, with supporting data shall be delivered to the City on or before 45 days from the start of the event giving rise thereto (unless the City allows additional time for Contractor to submit additional or more accurate data in support of such Contract Claim).
 - 3. A Contract Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.
 - 4. A Contract Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.

5. Each Contract Claim shall be accompanied by Contractor's written statement that the adjustment claimed is the entire adjustment to which the Contractor believes it is entitled as a result of said event.
 6. The City shall submit any response to the Contractor within 30 days after receipt of the claimant's last submittal (unless Contract allows additional time).
- C. *City's Action:* City will review each Contract Claim and, within 30 days after receipt of the last submittal of the Contractor, if any, take one of the following actions in writing:
1. deny the Contract Claim in whole or in part;
 2. approve the Contract Claim; or
 3. notify the Contractor that the City is unable to resolve the Contract Claim if, in the City's sole discretion, it would be inappropriate for the City to do so. For purposes of further resolution of the Contract Claim, such notice shall be deemed a denial.
- D. City's written action under Paragraph 10.06.C will be final and binding, unless City or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- E. No Contract Claim for an adjustment in Contract Price or Contract Time will be valid if not submitted in accordance with this Paragraph 10.06.
- F. If the City fails to take any action pursuant to Paragraph 10.06 (C) the contract Claim is considered to have been denied by the City.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK; PLANS QUANTITY MEASUREMENT

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, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work. Such costs shall not include any of the costs itemized in Paragraph 11.01.B, and shall include but not be limited to the following items:
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 City 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;

- a. 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, Weekend Working Hours, or legal holidays, shall be included in the above to the extent authorized by City.
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.
3. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by City, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of 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.
4. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by City, Contractor shall obtain competitive bids from subcontractors acceptable to City and Contractor and shall deliver such bids to City, who will then determine, 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.
5. 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.
6. 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. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable not covered under Paragraph 6.11, as imposed by Laws and Regulations.

- d. 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.
- e. 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, 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 City. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- f. The cost of utilities, fuel, and sanitary facilities at the Site.
- g. Minor expenses such as telegrams, long distance telephone calls, telephone and communication services at the Site, express and courier services, and similar petty cash items in connection with the Work.
- h. 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, expeditors, 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 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.

- 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 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 City an itemized cost breakdown together with supporting data.

11.02 Allowances

- A. *Specified Allowance:* 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 City.
- 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 allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance:* Contractor agrees that a contingency allowance, if any, is for the sole use of City.
- D. Prior to final payment, an appropriate Change Order will be issued 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 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

City subject to the provisions of Paragraph 9.05.

- 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. Work described in the Contract Documents, or reasonably inferred as required for a functionally complete installation, but not identified in the listing of unit price items shall be considered incidental to unit price work listed and the cost of incidental work included as part of the unit price.
- D. City may make an adjustment in the Contract Price in accordance with Paragraph 12.01 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.
- E. *Increased or Decreased Quantities:* The City reserves the right to order Extra Work in accordance with Paragraph 10.01.
 - 1. If the changes in quantities or the alterations do not significantly change the character of work under the Contract Documents, the altered work will be paid for at the Contract unit price.
 - 2. If the changes in quantities or alterations significantly change the character of work, the Contract will be amended by a Change Order.
 - 3. If no unit prices exist, this will be considered Extra Work and the Contract will be amended by a Change Order in accordance with Article 12.
 - 4. A significant change in the character of work occurs when:
 - a. the character of work for any Item as altered differs materially in kind or nature from that in the Contract or
 - b. a Major Item of work varies by more than 25% from the original Contract quantity.
 - 5. When the quantity of work to be done under any Major Item of the Contract is more than 125% of the original quantity stated in the Contract, then either party to the Contract may request an adjustment to the unit price on the portion of the work that is above 125%.
 - 6. When the quantity of work to be done under any Major Item of the Contract is less than 75% of the original quantity stated in the Contract, then either party to the Contract may request an adjustment to the unit price.

11.04 *Plans Quantity Measurement for Unclassified Excavation or Embankment*

- A. Plans quantities may or may not represent the exact quantity of work performed or material moved, handled, or placed during the execution of the Contract. The estimated bid quantities are designated as final payment quantities, unless revised by the governing Section or this Article.
- B. If the quantity measured as outlined under “Price and Payment Procedures” varies by more than 25% (or as stipulated under “Price and Payment Procedures” for specific Items) from the total estimated quantity for an individual Item originally shown in the Contract Documents, an adjustment may be made to the quantity of authorized work done for payment purposes. The party to the Contract requesting the adjustment will provide field measurements and calculations showing the final quantity for which payment will be made. Payment for revised quantity will be made at the unit price bid for that Item, except as provided for in Article 10.
- C. When quantities are revised by a change in design approved by the City, by Change Order, or to correct an error, or to correct an error on the plans, the plans quantity will be increased or decreased by the amount involved in the change, and the 25% variance will apply to the new plans quantity.
- D. If the total Contract quantity multiplied by the unit price bid for an individual Item is less than \$250 and the Item is not originally a plans quantity Item, then the Item may be paid as a plans quantity Item if the City and Contractor agree in writing to fix the final quantity as a plans quantity.
- E. For callout work or non-site specific Contracts, the plans quantity measurement requirements are not applicable.

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

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order.
- B. The value of any Work covered by a Change Order 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 or unit price (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2), and shall include the cost of any secondary impacts that are foreseeable at the time of pricing the cost of Extra Work; or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents

and agreement to a lump sum or unit price 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).

- C. *Contractor's Fee:* The Contractor's additional 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, 11.01.A.2. and 11.01.A.3, the Contractor's additional fee shall be 15 percent except for:
 - 1) rental fees for Contractor's own equipment using standard rental rates;
 - 2) bonds and insurance;
 - b. for costs incurred under Paragraph 11.01.A.4 and 11.01.A.5, the Contractor's fee shall be five percent (5%);
 - 1) 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 (5%) of the amount paid to the next lower tier Subcontractor, however in no case shall the cumulative total of fees paid be in excess of 25%;
 - c. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.6, and 11.01.B;
 - d. the amount of credit to be allowed by Contractor to City 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 (5%) of such net decrease.

12.02 *Change of Contract Time*

- A. The Contract Time may only be changed by a Change Order.
- B. No extension of the Contract Time will be allowed for Extra Work or for claimed delay unless the Extra Work contemplated or claimed delay is shown to be on the critical path of the Project Schedule or Contractor can show by Critical Path Method analysis how the Extra Work or claimed delay adversely affects the critical path.

12.03 *Delays*

- A. Where Contractor is reasonably delayed in the performance or completion of any part of the Work within the Contract Time due to delay beyond the control of Contractor, the Contract Time may be extended in an amount equal to the time lost due to such delay if a Contract Claim is made therefor. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by City, 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. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph.
- B. If Contractor is delayed, City 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.
- C. Contractor shall not be entitled to an adjustment in Contract Price or Contract Time 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.
- D. The Contractor shall receive no compensation for delays or hindrances to the Work, except when direct and unavoidable extra cost to the Contractor is caused by the failure of the City to provide information or material, if any, which is to be furnished by the City.

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

13.01 *Notice of Defects*

Notice of all defective Work of which City 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*

City, 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.

13.03 *Tests and Inspections*

- A. Contractor shall give City 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. If Contract Documents, Laws or Regulations of any public body having jurisdiction require any

of the Work (or part thereof) to be inspected, tested, or approved, Contractor shall assume full responsibility for arranging and obtaining such independent inspections, tests, retests or approvals, pay all costs in connection therewith, and furnish City the required certificates of inspection or approval; excepting, however, those fees specifically identified in the Supplementary Conditions or any Texas Department of Licensure and Regulation (TDLR) inspections, which shall be paid as described in the Supplementary Conditions.

- C. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, re-tests, or approvals required for City'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, re-tests, or approvals shall be performed by organizations acceptable to City.
- D. City may arrange for the services of an independent testing laboratory ("Testing Lab") to perform any inspections or tests ("Testing") for any part of the Work, as determined solely by City.
 - 1. City will coordinate such Testing to the extent possible, with Contractor;
 - 2. Should any Testing under this Section 13.03 D result in a "fail", "did not pass" or other similar negative result, the Contractor shall be responsible for paying for any and all retests. Contractor's cancellation without cause of City initiated Testing shall be deemed a negative result and require a retest.
 - 3. Any amounts owed for any retest under this Section 13.03 D shall be paid directly to the Testing Lab by Contractor. City will forward all invoices for retests to Contractor.
 - 4. If Contractor fails to pay the Testing Lab, City will not issue Final Payment until the Testing Lab is paid.
- 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 City, Contractor shall, if requested by City, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense.
- G. Contractor shall have the right to make a Contract Claim regarding any retest or invoice issued under Section 13.03 D.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the Contract Documents or specific instructions by the City, it must, if requested by City, be uncovered for City's observation and replaced at Contractor's expense.
- B. If City considers it necessary or advisable that covered Work be observed by City or inspected or tested by others, Contractor, at City's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as City may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
 - 1. 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 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); or City shall be entitled to accept defective Work in accordance with Paragraph 13.08 in which case Contractor shall still be responsible for all costs associated with exposing, observing, and testing the defective Work.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an extension of the Contract Time directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

13.05 *City May Stop the Work*

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, City may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of City to stop the Work shall not give rise to any duty on the part of City 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 pursuant to an acceptable schedule, whether or not fabricated, installed, or completed, or, if the Work has been rejected by City, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, additional testing, 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). Failure to require the removal of any defective Work shall not constitute acceptance of such Work.

- 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 City's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within two (2) years after the date of Final Acceptance (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by 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 City or permitted by Laws and Regulations as contemplated in Paragraph 6.10.A is found to be defective, Contractor shall promptly, without cost to City and in accordance with City's written instructions:
1. repair such defective land or areas; or
 2. correct such defective Work; or
 3. if the defective Work has been rejected by City, 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 City's written instructions, or in an emergency where delay would cause serious risk of loss or damage, City 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 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 Final Acceptance of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Contract Documents.
- 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 may be required to be extended for an additional period of one year after the end of the initial correction period. City shall provide 30 days written notice to Contractor should such additional warranty coverage be required. Contractor may dispute this requirement by filing a Contract Claim, pursuant to Paragraph 10.06.
- 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*

If, instead of requiring correction or removal and replacement of defective Work, City prefers to accept it, City 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 other dispute resolution costs) attributable to City's evaluation of and determination to accept such defective Work and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to Final Acceptance, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and City shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted.

13.09 *City May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from City to correct defective Work, or to remove and replace rejected Work as required by City 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, City may, after seven (7) days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, City shall proceed expeditiously. In connection with such corrective or remedial action, City 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, and incorporate in the Work all materials and equipment incorporated in the Work, stored at the Site or for which City has paid Contractor but which are stored elsewhere. Contractor shall allow City, City's representatives, agents, consultants, employees, and City's other contractors, access to the Site to enable City 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 other dispute resolution costs) incurred or sustained by City 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 City shall be entitled to an appropriate decrease in the Contract Price.
- D. Contractor shall not be allowed an extension of the Contract Time because of any delay in the performance of the Work attributable to the exercise of City's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

The Schedule of Values for lump sum contracts established as provided in Paragraph 2.07 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment

acceptable to City. 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. Contractor is responsible for providing all information as required to become a vendor of the City.
2. At least 20 days before the date established in the General Requirements for each progress payment, Contractor shall submit to City for review an 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.
3. 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 City has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate insurance or other arrangements to protect City's interest therein, all of which must be satisfactory to City.
4. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that 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.
5. The amount of retainage with respect to progress payments will be as stipulated in the Contract Documents.

B. Review of Applications:

1. City will, after receipt of each Application for Payment, either indicate in writing a recommendation of payment or return the Application to Contractor indicating reasons for refusing payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. City's processing of any payment requested in an Application for Payment will be based on City's observations of the executed Work, and on City's review of the Application for Payment and the accompanying data and schedules, that to the best of City's knowledge:
 - 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 Final Acceptance,

the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Work performed under Paragraph 9.05, and any other qualifications stated in the recommendation).

3. Processing any such payment 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 involved detailed inspections of the Work beyond the responsibilities specifically assigned to City 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 City or entitle City to withhold payment to Contractor, or
 - c. Contractor has complied with Laws and Regulations applicable to Contractor's performance of the Work.
4. City may refuse to process the whole or any part of any payment because of subsequently discovered evidence or the results of subsequent inspections or tests, and revise or revoke any such payment previously made, to such extent as may be necessary to protect City from loss because:
 - a. the Work is defective, or the completed Work has been damaged by the Contractor or his subcontractors, requiring correction or replacement;
 - b. discrepancies in quantities contained in previous applications for payment;
 - c. the Contract Price has been reduced by Change Orders;
 - d. City has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - e. City has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Retainage:

1. For all contracts, retainage shall be five percent (5%).
- D. *Liquidated Damages:* For each calendar day that any work shall remain uncompleted after the time specified in the Contract Documents, the sum per day specified in the Agreement, will be deducted from the monies due the Contractor, not as a penalty, but as liquidated damages suffered by the City.
- E. *Payment:* Contractor will be paid pursuant to the requirements of this Article 14 and payment will become due in accordance with the Contract Documents.

F. *Reduction in Payment:*

1. City may refuse to make payment of the amount requested because:
 - a. Claims have been made against City 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 City to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling City to a set-off against the amount recommended; or
 - d. City has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.4.a through 14.02.B.4.e or Paragraph 15.02.A.
2. If City refuses to make payment of the amount requested, City will give Contractor written notice stating the reasons for such action and pay Contractor any amount remaining after deduction of the amount so withheld. City shall pay Contractor the amount so withheld, or any adjustment thereto agreed to by City and Contractor, when Contractor remedies the reasons for such action.

14.03 *Contractor's Warranty of Title*

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 City no later than the time of payment free and clear of all Liens.

14.04 *Partial Utilization*

A. Prior to Final Acceptance of all the Work, City may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which City, determines constitutes a separately functioning and usable part of the Work that can be used by City for its intended purpose without significant interference with Contractor's performance of the remainder of the Work. City at any time may notify Contractor in writing to permit City to use or occupy any such part of the Work which City determines to be ready for its intended use, subject to the following conditions:

1. Contractor at any time may notify City in writing that Contractor considers any such part of the Work ready for its intended use.
2. Within a reasonable time after notification as enumerated in Paragraph 14.05.A.1, City and Contractor shall make an inspection of that part of the Work to determine its status of completion. If City does not consider that part of the Work to be substantially complete, City will notify Contractor in writing giving the reasons therefor.
3. Partial Utilization will not constitute Final Acceptance by City.

14.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work is complete in accordance with the Contract Documents:
1. City will promptly schedule a Final Inspection with Contractor.
 2. City 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.
- B. City reserves the right to deny request for Final Inspection if City determines that the entire Work is not sufficiently complete to warrant a Final Inspection.

14.06 *Final Acceptance*

Upon completion by Contractor to City's satisfaction, of any additional Work identified in the Final Inspection, City will issue to Contractor a letter of Final Acceptance.

14.07 *Final Payment*

A. *Application for Payment:*

1. Upon Final Acceptance, and in the opinion of City, Contractor may make an application for final payment following the procedure for progress payments in accordance with the Contract Documents.
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 5.03;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all pending or released Damage Claims against City that Contractor believes are unsettled; and
 - d. affidavits of payments and complete and legally effective releases or waivers (satisfactory to City) of all Lien rights arising out of or Liens filed in connection with the Work.

B. *Payment Becomes Due:*

1. After City's acceptance of the Application for Payment and accompanying documentation, requested by Contractor, less previous payments made and any sum City is entitled, including but not limited to liquidated damages, will become due and payable.
2. After all Damage Claims have been resolved:
 - a. directly by the Contractor or;
 - b. Contractor provides evidence that the Damage Claim has been reported to Contractor's insurance provider for resolution.
3. The making of the final payment by the City shall not relieve the Contractor of any guarantees or other requirements of the Contract Documents which specifically continue thereafter.

14.08 *Final Completion Delayed and Partial Retainage Release*

- A. If final completion of the Work is significantly delayed, and if City so confirms, City may, upon receipt of Contractor's final Application for Payment, 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 City for Work not fully completed or corrected is less than the retainage stipulated in Paragraph 14.02.C, and if bonds have been furnished as required in Paragraph 5.02, 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 City 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 Contract Claims.

- B. *Partial Retainage Release.* For a Contract that provides for a separate vegetative establishment and maintenance, and test and performance periods following the completion of all other construction in the Contract Documents for all Work locations, the City may release a portion of the amount retained provided that all other work is completed as determined by the City. Before the release, all submittals and final quantities must be completed and accepted for all other work. An amount sufficient to ensure Contract compliance will be retained.

14.09 *Waiver of Claims*

The acceptance of final payment will constitute a release of the City from all claims or liabilities under the Contract for anything done or furnished or relating to the work under the Contract Documents or any act or neglect of City related to or connected with the Contract.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *City May Suspend Work*

- A. At any time and without cause, City may suspend the Work or any portion thereof by written notice to Contractor and which may fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. During temporary suspension of the Work covered by these Contract Documents, for any reason, the City will make no extra payment for stand-by time of construction equipment and/or construction crews.
- B. Should the Contractor not be able to complete a portion of the Project due to causes beyond the control of and without the fault or negligence of the Contractor, and should it be determined by mutual consent of the Contractor and City that a solution to allow construction to proceed is not available within a reasonable period of time, Contractor may request an extension in Contract Time, directly attributable to any such suspension.
- C. If it should become necessary to suspend the Work for an indefinite period, the Contractor shall store all materials in such a manner that they will not obstruct or impede the public unnecessarily nor become damaged in any way, and he shall take every precaution to prevent damage or deterioration of the work performed; he shall provide suitable drainage about the work, and erect temporary structures where necessary.
- D. Contractor may be reimbursed for the cost of moving his equipment off the job and returning the necessary equipment to the job when it is determined by the City that construction may be resumed. Such reimbursement shall be based on actual cost to the Contractor of moving the equipment and no profit will be allowed. Reimbursement may not be allowed if the equipment is moved to another construction project for the City.

15.02 *City May Terminate for Cause*

- A. The occurrence of any one or more of the following events by way of example, but not of

limitation, may 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, failure to adhere to the Project 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 City; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents;
or
 5. Contractor's failure to promptly make good any defect in materials or workmanship, or defects of any nature, the correction of which has been directed in writing by the City; or
 6. Substantial indication that the Contractor has made an unauthorized assignment of the Contract or any funds due therefrom for the benefit of any creditor or for any other purpose;
or
 7. Substantial evidence that the Contractor has become insolvent or bankrupt, or otherwise financially unable to carry on the Work satisfactorily; or
 8. Contractor commences legal action in a court of competent jurisdiction against the City.
- B. If one or more of the events identified in Paragraph 15.02A. occur, City will provide written notice to Contractor and Surety to arrange a conference with Contractor and Surety to address Contractor's failure to perform the Work. Conference shall be held not later than 15 days, after receipt of notice.
1. If the City, the Contractor, and the Surety do not agree to allow the Contractor to proceed to perform the construction Contract, the City may, to the extent permitted by Laws and Regulations, declare a Contractor default and formally terminate the Contractor's right to complete the Contract. Contractor default shall not be declared earlier than 20 days after the Contractor and Surety have received notice of conference to address Contractor's failure to perform the Work.
 2. If Contractor's services are terminated, Surety shall be obligated to take over and perform the Work. If Surety does not commence performance thereof within 15 consecutive calendar days after date of an additional written notice demanding Surety's performance of its obligations, then City, without process or action at law, may take over any portion of the Work and complete it as described below.
 - a. If City completes the Work, City may exclude Contractor and Surety from the site and take possession of the Work, and all materials and equipment incorporated into the

Work stored at the Site or for which City has paid Contractor or Surety but which are stored elsewhere, and finish the Work as City may deem expedient.

3. Whether City or Surety completes the Work, Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses and damages sustained by City arising out of or resulting from 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 City. Such claims, costs, losses and damages incurred by City will be incorporated in a Change Order, provided that when exercising any rights or remedies under this Paragraph, City shall not be required to obtain the lowest price for the Work performed.
 4. Neither City, nor any of its respective consultants, agents, officers, directors or employees shall be in any way liable or accountable to Contractor or Surety for the method by which the completion of the said Work, or any portion thereof, may be accomplished or for the price paid therefor.
 5. City, notwithstanding the method used in completing the Contract, shall not forfeit the right to recover damages from Contractor or Surety for Contractor's failure to timely complete the entire Contract. Contractor shall not be entitled to any claim on account of the method used by City in completing the Contract.
 6. Maintenance of the Work shall continue to be Contractor's and Surety's responsibilities as provided for in the bond requirements of the Contract Documents or any special guarantees provided for under the Contract Documents or any other obligations otherwise prescribed by law.
- C. Notwithstanding Paragraphs 15.02.B, 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.
- D. Where Contractor's services have been so terminated by City, the termination will not affect any rights or remedies of City against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by City will not release Contractor from liability.
- E. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.02, the termination procedures of that bond shall not supersede the provisions of this Article.

15.03 *City May Terminate For Convenience*

- A. City may, without cause and without prejudice to any other right or remedy of City, terminate the Contract. Any termination shall be effected by mailing a notice of the termination to the

Contractor specifying the extent to which performance of Work under the contract is terminated, and the date upon which such termination becomes effective. Receipt of the notice shall be deemed conclusively presumed and established when the letter is placed in the United States Postal Service Mail by the City. Further, it shall be deemed conclusively presumed and established that such termination is made with just cause as therein stated; and no proof in any claim, demand or suit shall be required of the City regarding such discretionary action.

- B. After receipt of a notice of termination, and except as otherwise directed by the City, the Contractor shall:
1. Stop work under the Contract on the date and to the extent specified in the notice of termination;
 2. place no further orders or subcontracts for materials, services or facilities except as may be necessary for completion of such portion of the Work under the Contract as is not terminated;
 3. terminate all orders and subcontracts to the extent that they relate to the performance of the Work terminated by notice of termination;
 4. transfer title to the City and deliver in the manner, at the times, and to the extent, if any, directed by the City:
 - a. the fabricated or unfabricated parts, Work in progress, completed Work, supplies and other material produced as a part of, or acquired in connection with the performance of, the Work terminated by the notice of the termination; and
 - b. the completed, or partially completed plans, drawings, information and other property which, if the Contract had been completed, would have been required to be furnished to the City.
 5. complete performance of such Work as shall not have been terminated by the notice of termination; and
 6. take such action as may be necessary, or as the City may direct, for the protection and preservation of the property related to its contract which is in the possession of the Contractor and in which the owner has or may acquire the rest.
- C. At a time not later than 30 days after the termination date specified in the notice of termination, the Contractor may submit to the City a list, certified as to quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by City.
- D. Not later than 15 days thereafter, the City shall accept title to such items provided, that the list

submitted shall be subject to verification by the City upon removal of the items or, if the items are stored, within 45 days from the date of submission of the list, and any necessary adjustments to correct the list as submitted, shall be made prior to final settlement.

- E. Not later than 60 days after the notice of termination, the Contractor shall submit his termination claim to the City in the form and with the certification prescribed by the City. Unless an extension is made in writing within such 60 day period by the Contractor, and granted by the City, any and all such claims shall be conclusively deemed waived.
- F. 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; and
 - 3. reasonable expenses directly attributable to termination.
- G. In the event of the failure of the Contractor and City to agree upon the whole amount to be paid to the Contractor by reason of the termination of the Work, the City shall determine, on the basis of information available to it, the amount, if any, due to the Contractor by reason of the termination and shall pay to the Contractor the amounts determined. 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.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either City or Contractor may request mediation of any Contract Claim submitted for a decision under Paragraph 10.06 before such decision becomes final and binding. The request for mediation shall be submitted to the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.06.E.
- B. City and Contractor shall participate in the mediation process in good faith. The process shall be commenced within 60 days of filing of the request.
- C. If the Contract Claim is not resolved by mediation, City's action under Paragraph 10.06.C or a denial pursuant to Paragraphs 10.06.C.3 or 10.06.D shall become final and binding 30 days after termination of the mediation unless, within that time period, City or Contractor:
 - 1. elects in writing to invoke any other dispute resolution process provided for in the

Supplementary Conditions; or

2. agrees with the other party to submit the Contract Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Contract 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:
 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.
 3. delivered by electronic means to or from the Project Manager.
- B. Business address changes must be promptly made in writing to the other party.
- C. Whenever the Contract Documents specifies giving notice by electronic means such electronic notice shall be deemed sufficient upon confirmation of receipt by the receiving party.

17.02 *Computation of Times*

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 the next Working Day shall become the last day of the period.

17.03 *Cumulative Remedies*

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*

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 *Headings*

Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 00 73 00
SUPPLEMENTARY CONDITIONS
TO
GENERAL CONDITIONS

Supplementary Conditions

These Supplementary Conditions modify and supplement Section 00 72 00 - General Conditions, and other provisions of the Contract Documents as indicated below. All provisions of the General Conditions that are modified or supplemented remain in full force and effect as so modified or supplemented. All provisions of the General Conditions which are not so modified or supplemented remain in full force and effect.

Defined Terms

The terms used in these Supplementary Conditions which are defined in the General Conditions have the meaning assigned to them in the General Conditions, unless specifically noted herein.

Modifications and Supplements

The following are instructions that modify or supplement specific paragraphs in the General Conditions and other Contract Documents.

SC-4.01A

Easement limits shown on the Drawing are approximate and were provided to establish a basis for bidding. Upon receiving the final easements descriptions, Contractor shall compare them to the lines shown on the Contract Drawings.

SC-4.01A.1., "Availability of Lands"

The following is a list of known outstanding right-of-way, and/or easements to be acquired, if any as of **September 4, 2020**:

Outstanding Right-Of-Way, and/or Easements to Be Acquired

PARCEL NUMBER	OWNER	TARGET DATE OF POSSESSION
3A	Caliber Collision	12/1/2020
10A	RR Towncenter Trl	12/1/2020
10B	RR Towncenter Trl	12/1/2020
11B	Texas Blue Horsehoe	12/1/2020

The Contractor understands and agrees that the dates listed above are estimates only, are not guaranteed, and do not bind the City.

If Contractor considers the final easements provided to differ materially from the representations on the Contract Drawings, Contractor shall within five (5) Business Days and before proceeding with the Work, notify City in writing associated with the differing easement line locations.

SC-4.01A.2, "Availability of Lands"

Utilities or obstructions to be removed, adjusted, and/or relocated

The following is list of utilities and/or obstructions that have not been removed, adjusted, and/or relocated as of *September 2, 2020*:

EXPECTED OWNER	UTILITY AND LOCATION	TARGET DATE OF ADJUSTMENT
-------------------	----------------------	------------------------------

N/A

The Contractor understands and agrees that the dates listed above are estimates only, are not guaranteed, and do not bind the City.

SC-4.02A., "Subsurface and Physical Conditions"

The following are reports of explorations and tests of subsurface conditions at the site of the Work:

A Geotechnical Investigation Report Report No. 19829G, dated 2 May, 2019, prepared by Henley-Johnston & Associates, Inc., a sub-consultant of Birkhoff, Hendricks & Carter, L.L.P., a consultant of the City, providing additional information on the anticipated types of materials to be encountered during installation of the transmission mains and earthwork criteria for backfill of the utility trench.

A Geotechnical Investigation Report Report No. 19830G, dated 2 May, 2019, prepared by Henley-Johnston & Associates, Inc., a sub-consultant of Birkhoff, Hendricks & Carter, L.L.P., a consultant of the City, providing additional information on the anticipated types of materials to be encountered during installation of the transmission mains and earthwork criteria for backfill of the utility trench.

A Design Memorandum Report on the City of Denton S.H. 380 Transmission Mains & Scripture Street Transmission Main Report No. N/A, dated 11 December, 2018, prepared by ELK Engineering Associates, Inc., a sub-consultant of Birkhoff, Hendricks & Carter, L.L.P., a consultant of the City, providing additional information on soil corrosivity and recommended methods for cathodic protection of proposed transmission mains.

The following are drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site of the Work:

See Plans titled "S.H. 380 Transmission Mains" dated Sept. 9, 2020 and "Scripture Street Transmission Main" dated Sept. 9, 2020

SC-4.06A., "Hazardous Environmental Conditions at Site"

The following are reports and drawings of existing hazardous environmental conditions known to the City:

None

SC-5.03A., "Certificates of Insurance"

The entities listed below are "additional insureds as their interest may appear" including their respective officers, directors, agents and employees.

- (1) City
- (2) Consultant: **Birkhoff, Hendricks & Carter, L.L.P.**
- (3) Other: **None**

[Obtain approval for the limits shown for SC 5.04A thru 5.04D. from City before finalizing Contract Documents]

SC-5.04A., “Contractor’s Insurance”

The limits of liability for the insurance required by Paragraph GC-5.04 shall provide the following coverages for not less than the following amounts or greater where required by laws and regulations:

5.04A. Workers' Compensation, under Paragraph GC-5.04A.

Statutory limits

Employer's liability

\$100,000 each accident/occurrence

\$100,000 Disease - each employee

\$500,000 Disease - policy limit

SC-5.04B., “Contractor’s Insurance”

5.04B. Commercial General Liability, under Paragraph GC-5.04B. Contractor's Liability Insurance under Paragraph GC-5.04B., which shall be on a per project basis covering the Contractor with minimum limits of:

\$1,000,000 each occurrence

\$2,000,000 aggregate limit

The policy must have an endorsement (Amendment – Aggregate Limits of Insurance) making the General Aggregate Limits apply separately to each job site.

The Commercial General Liability Insurance policies shall provide “X”, “C”, and “U” coverage’s. Verification of such coverage must be shown in the Remarks Article of the Certificate of Insurance.

SC 5.04C., “Contractor’s Insurance”

5.04C. Automobile Liability, under Paragraph GC-5.04C. Contractor’s Liability Insurance under Paragraph GC-5.04C., which shall be in an amount not less than the following amounts:

- (1) **Automobile Liability** - a commercial business policy shall provide coverage on "Any Auto", defined as autos owned, hired and non-owned.

\$1,000,000 each accident on a combined single limit basis. Split limits are acceptable if limits are at least:

\$250,000 Bodily Injury per person /

\$500,000 Bodily Injury per accident /

\$100,000 Property Damage

SC-5.04D., “Contractor’s Insurance”

The Contractor’s construction activities will require its employees, agents, subcontractors, equipment, and material deliveries to cross railroad properties and tracks, or perform work within 25 feet of the center line of tracks *None*

The Contractor shall conduct its operations on railroad properties in such a manner as not to interfere with, hinder, or obstruct the railroad company in any manner whatsoever in the use or operation of its/their trains or other property. Such operations on railroad properties may require that Contractor to execute a "Right of Entry Agreement" with the particular railroad company or companies involved, and to this end the Contractor should satisfy itself as to the requirements of each railroad company and be prepared to execute the right-of-entry (if any) required by a railroad company. The requirements specified herein likewise relate to the Contractor's use of private and/or construction access roads crossing said railroad company's properties.

The Contractual Liability coverage required by Paragraph 5.04D of the General Conditions shall provide coverage for not less than the following amounts, issued by companies satisfactory to the City and to the Railroad Company for a term that continues for so long as the Contractor's operations and work cross, occupy, or touch railroad property:

(1) General Aggregate: \$Confirm Limits with Railroad

(2) Each Occurrence: \$Confirm Limits with Railroad

 Required for this Contract

 X Not required for this Contract

With respect to the above outlined insurance requirements, the following shall govern:

1. Where a single railroad company is involved, the Contractor shall provide one insurance policy in the name of the railroad company. However, if more than one grade separation or at-grade crossing is affected by the Project at entirely separate locations on the line or lines of the same railroad company, separate coverage may be required, each in the amount stated above.
2. Where more than one railroad company is operating on the same right-of-way or where several railroad companies are involved and operated on their own separate rights-of-way, the Contractor may be required to provide separate insurance policies in the name of each railroad company.
3. If, in addition to a grade separation or an at-grade crossing, other work or activity is proposed on a railroad company's right-of-way at a location entirely separate from the grade separation or at-grade crossing, insurance coverage for this work must be included in the policy covering the grade separation.
4. If no grade separation is involved but other work is proposed on a railroad company's right-of-way, all such other work may be covered in a single policy for that railroad, even though the work may be at two or more separate locations.

No work or activities on a railroad company's property to be performed by the Contractor shall be commenced until the Contractor has furnished the City with an original policy or policies of the insurance for each railroad company named, as required above. All such insurance must be approved by the City and each affected Railroad Company prior to the Contractor's beginning work.

The insurance specified above must be carried until all Work to be performed on the railroad right-of-way has been completed and the grade crossing, if any, is no longer used by the Contractor. In addition, insurance must be carried during all maintenance and/or repair work performed in the railroad right-of-way. Such insurance must name the railroad company as the insured, together with any tenant or lessee of the railroad company operating over tracks involved in the Project.

SC-6.09., "Permits and Utilities"

SC-6.09A., "Contractor obtained permits and licenses"

The following are known permits and/or licenses required by the Contract to be acquired by the Contractor:

1. TCEQ: Stormwater Pollution Prevention Plan (SWPPP)
2. City of Denton: Contractor Registration

SC-6.09B. "City obtained permits and licenses"

The following are known permits and/or licenses required by the Contract to be acquired by the City:

3. TxDOT: TxDOT permit Application No. DAL20200811185025 (Scripture WL)
4. TxDOT: TxDOT permit Application No. DAL20200811195033(U.S. 380 W.L.'s)
5. TxDOT: TxDOT permit Application No. DAL:2020827200952(U.S. 380 W.L. west of IH 35)

SC-6.09C. "Outstanding permits and licenses"

The following is a list of known outstanding permits and/or licenses to be acquired, if any as of **Sept. 4, 2020**:

Outstanding Permits and/or Licenses to Be Acquired

OWNER	PERMIT OR LICENSE AND LOCATION	TARGET DATE OF POSSESSION
-------	--------------------------------	------------------------------

City of Denton	I.H. 35 Crossing near Scripture Street	TBD
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SC-6.24B., "Title VI, Civil Rights Act of 1964 as amended"

During the performance of this Contract, the Contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. **Compliance with Regulations:** The Contractor shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin, in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by 49 CFR, section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
3. **Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by City or the Texas Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the City, or the Texas Department of Transportation, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, City shall impose such contract sanctions as it or the Texas Department of Transportation may determine to be appropriate, including, but not limited to:
- a. withholding of payments to the Contractor under the Contract until the Contractor complies, and/or
 - b. cancellation, termination or suspension of the Contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as City or the Texas Department of Transportation may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request City to enter into such litigation to protect the interests of City, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

Additional Title VI requirements can be found in the Appendix.

SC-7.02., "Coordination"

The individuals or entities listed below have contracts with the City for the performance of other work at the Site:

Vendor	Scope of Work	Coordination Authority
TxDOT	I-35E Phase II Improvements	CITY
Birkhoff, Hendricks & Carter, L.L.P.	Project No. PMO 880010: U.S.. 380 Transmission Mains; AND Project No. PMO 880011: Scripture Street Transmission Main	CITY

SC-8.01, "Communications to Contractor"

TxDOT

SC-9.01., "City's Project Manager"

The City's Project Manager for this Contract is **Tracy L. Beck, P.E.**, or his/her successor pursuant to **written notification from the City Engineer.**

SC-13.03C., "Tests and Inspections"

None

SC-16.01C.1, "Methods and Procedures"

None

SC-17.01 – “BUY AMERICA” REQUIREMENTS

NOTICE TO CONTRACTORS and SUPPLIERS:

The **U.S. 380 16” Transmission Main (900 Service Area)** portion of this project (series 200 pay items) requires certification from the contractor’s suppliers that all manufacturing processes for steel and iron materials or for the application of coatings (epoxy, galvanizing, painting or any other coating that protects or enhances the value of the steel or iron metal) to these materials occurred in the United States of America. For the purpose of the certifications, manufacturing processes are defined as all processes required to change the raw ore or scrap metal into the finished in-place steel or iron product. The successful contractor will be required to complete the **Texas Department of Transportation Material Statement Certification Form 1818** with for each appropriate shop drawing submittal. TxDOT Form 1818 is included in the APPENDIX of this project manual.

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE
09-09-2020	SC-17.01	Added the TxDOT BUY AMERICA requirements for Series 200 Pay Items

SECTION 00 73 73
FORM 1295 - CERTIFICATE OF INTERESTED PARTIES

*[Contractor: Replace this page with Form 1295 for this Contract, which can be obtained at
www.ethics.state.tx.us/*

END OF SECTION

DIVISION 01
GENERAL REQUIREMENTS

SECTION 01 11 00
SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Summary of Work to be performed in accordance with the Contract Documents

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract
2. Division 1 - General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various items bid.
No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Work Covered by Contract Documents

1. Work is to include furnishing all labor, materials, and equipment, and performing all Work necessary for this construction project as detailed in the Drawings and Specifications.

B. Incidental Work

1. Any and all Work specifically governed by documentary requirements for the project, such as conditions imposed by the Contract Documents in which no specific item for bid has been provided for in the Proposal, then the item shall be considered as an incidental item of Work, the cost of which shall be included in the price bid in the Proposal for various bid items.

C. Use of Premises

1. Coordinate uses of premises under direction of the City.
2. Assume full responsibility for protection and safekeeping of materials and equipment stored on the Site.
3. Use and occupy only portions of the public streets and alleys, or other public places or other rights-of-way as provided for in the ordinances of the City, as shown in the Contract Documents, or as may be specifically authorized in writing by the City.
 - a. A reasonable amount of tools, materials, and equipment for construction purposes may be stored in such space, but no more than is necessary to avoid delay in the construction operations.

- b. Excavated and waste materials shall be stored in such a way as not to interfere with the use of spaces that may be designated to be left free and unobstructed and so as not to inconvenience occupants of adjacent property.
- c. If the street is occupied by railroad tracks, the Work shall be carried on in such manner as not to interfere with the operation of the railroad.
 - 1) All Work shall be in accordance with railroad requirements set forth in Division 0 as well as the railroad permit.

D. Work within Easements

1. Do not enter upon private property for any purpose without having previously obtained permission from the owner of such property.
2. Do not store equipment or material on private property unless and until the specified approval of the property owner has been secured in writing by the Contractor and a copy furnished to the City.
3. Unless specifically provided otherwise, clear all rights-of-way or easements of obstructions which must be removed to make possible proper prosecution of the Work as a part of the project construction operations.
4. Preserve and use every precaution to prevent damage to, all trees, shrubbery, plants, lawns, fences, culverts, curbing, and all other types of structures or improvements, to all water, sewer, and gas lines, to all conduits, overhead pole lines, or appurtenances thereof, including the construction of temporary fences and to all other public or private property adjacent to the Work.
5. Notify the proper representatives of the owners or occupants of the public or private lands of interest in lands which might be affected by the Work.
 - a. Such notice shall be made at least 48 hours in advance of the beginning of the Work.
 - b. Notices shall be applicable to both public and private utility companies and any corporation, company, individual, or other, either as owners or occupants, whose land or interest in land might be affected by the Work.
 - c. Be responsible for all damage or injury to property of any character resulting from any act, omission, neglect, or misconduct in the manner or method or execution of the Work, or at any time due to defective work, material, or equipment.
6. Fence
 - a. Restore all fences encountered and removed during construction of the Project to the original or a better than original condition.
 - b. Erect temporary fencing in place of the fencing removed whenever the Work is not in progress and when the site is vacated overnight, and/or at all times to provide site security.
 - c. The cost for all fence work within easements, including removal, temporary closures and replacement, shall be incidental to the various items bid in the project proposal, **unless a bid item is specifically provided in the proposal.**

- 1 **1.5 SUBMITTALS [NOT USED]**
- 2 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]**
- 3 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**
- 4 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**
- 5 **1.9 QUALITY ASSURANCE [NOT USED]**
- 6 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**
- 7 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**
- 8 **1.12 WARRANTY [NOT USED]**
- 9 **PART 2 - PRODUCTS [NOT USED]**
- 10 **PART 3 - EXECUTION [NOT USED]**

11 **END OF SECTION**

12

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

13

SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. The procedure for requesting the approval of substitution of a product that is not equivalent to a product which is specified by descriptive or performance criteria or defined by reference to 1 or more of the following:
 - a. Name of manufacturer
 - b. Name of vendor
 - c. Trade name
 - d. Catalog number
2. Substitutions are not "or-equals".

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various items bid.
No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Request for Substitution - General

1. Within 30 days after award of Contract (unless noted otherwise), the City will consider formal requests from Contractor for substitution of products in place of those specified.
2. Certain types of equipment and kinds of material are described in Specifications by means of references to names of manufacturers and vendors, trade names, or catalog numbers.
 - a. When this method of specifying is used, it is not intended to exclude from consideration other products bearing other manufacturer's or vendor's names, trade names, or catalog numbers, provided said products are "or-equals," as determined by City.
3. Other types of equipment and kinds of material may be acceptable substitutions under the following conditions:
 - a. Or-equals are unavailable due to strike, discontinued production of products meeting specified requirements, or other factors beyond control of Contractor;
or,

- b. Contractor proposes a cost and/or time reduction incentive to the City.

1.5 SUBMITTALS

A. See Request for Substitution Form (attached)

B. Procedure for Requesting Substitution

1. Substitution shall be considered only:
 - a. After award of Contract
 - b. Under the conditions stated herein
2. Submit one PDF copy via email to the Project Manager and their duly appointed representative, including:
 - a. Documentation
 - 1) Complete data substantiating compliance of proposed substitution with Contract Documents
 - 2) Data relating to changes in construction schedule, when a reduction is proposed
 - 3) Data relating to changes in cost
 - b. For products
 - 1) Product identification
 - a) Manufacturer's name
 - b) Telephone number and representative contact name
 - c) Specification Section or Drawing reference of originally specified product, including discrete name or tag number assigned to original product in the Contract Documents
 - 2) Manufacturer's literature clearly marked to show compliance of proposed product with Contract Documents
 - 3) Itemized comparison of original and proposed product addressing product characteristics including, but not necessarily limited to:
 - a) Size
 - b) Composition or materials of construction
 - c) Weight
 - d) Electrical or mechanical requirements
 - 4) Product experience
 - a) Location of past projects utilizing product
 - b) Name and telephone number of persons associated with referenced projects knowledgeable concerning proposed product
 - c) Available field data and reports associated with proposed product
 - 5) Samples
 - a) Provide at request of City.
 - b) Samples become the property of the City.
 - c. For construction methods:
 - 1) Detailed description of proposed method
 - 2) Illustration drawings

C. Approval or Rejection

1. Written approval or rejection of substitution given by the City
2. City reserves the right to require proposed product to comply with color and pattern of specified product if necessary to secure design intent.
3. In the event the substitution is approved, the resulting cost and/or time reduction will be documented by Change Order in accordance with the General Conditions.

4. No additional contract time will be given for substitution.
5. Substitution will be rejected if:
 - a. Submittal is not through the Contractor with his stamp of approval
 - b. Request is not made in accordance with this Specification Section
 - c. In the City's opinion, acceptance will require substantial revision of the original design
 - d. In the City's opinion, substitution will not perform adequately the function consistent with the design intent

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE

- A. In making request for substitution or in using an approved product, the Contractor represents that the Contractor:
1. Has investigated proposed product, and has determined that it is adequate or superior in all respects to that specified, and that it will perform function for which it is intended
 2. Will provide same guarantee for substitute item as for product specified
 3. Will coordinate installation of accepted substitution into Work, to include building modifications if necessary, making such changes as may be required for Work to be complete in all respects
 4. Waives all claims for additional costs related to substitution which subsequently arise

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION [NOT USED]

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

EXHIBIT A
REQUEST FOR SUBSTITUTION FORM:

TO: _____

PROJECT: _____ DATE: _____

We hereby submit for your consideration the following product instead of the specified item for the above project:

SECTION	PARAGRAPH	SPECIFIED ITEM
---------	-----------	----------------

Proposed Substitution: _____

Reason for Substitution: _____

Include complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

Fill in Blanks Below:

A. Will the undersigned contractor pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?

B. What effect does substitution have on other trades?

C. Differences between proposed substitution and specified item?

D. Differences in product cost or product delivery time?

E. Manufacturer's guarantees of the proposed and specified items are:

_____ Equal _____ Better (explain on attachment)

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Submitted By: _____ For Use by City

Signature _____ as noted _____ Recommended _____ Recommended

Firm _____ _____ Not recommended _____ Received late

Address _____ By _____

Date _____

Date _____ Remarks _____

Telephone _____

For Use by City:

_____ Approved _____ Rejected

City _____ Date _____

SECTION 01 31 19
PRECONSTRUCTION MEETING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provisions for the preconstruction meeting to be held prior to the start of Work to clarify construction contract administration procedures

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various items bid. No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination

1. Attend preconstruction meeting.
2. Representatives of Contractor, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
3. Meeting administered by City may be tape recorded.
 - a. If recorded, tapes will be used to prepare minutes and retained by City for future reference.
4. Project Manager will establish their duly authorized representative(s) authorized to make decisions as identified in the Contract Documents.

B. Preconstruction Meeting

1. A preconstruction meeting will be held within 14 days after the execution of the Agreement and before Work is started.
 - a. The meeting will be scheduled and administered by the City.
2. The Project Manager will preside at the meeting, prepare the notes of the meeting and distribute copies of same to all participants who so request by fully completing the attendance form to be circulated at the beginning of the meeting.
3. Attendance shall include:
 - a. Project Manager
 - b. Project Manager's duly authorized representative (if any)
 - c. Contractor's project manager
 - d. Contractor's superintendent

- 1 e. Any subcontractor or supplier representatives whom the Contractor may desire
- 2 to invite or the City may request
- 3 f. Other City representatives
- 4 g. Others as appropriate
- 5 4. Construction Schedule
- 6 a. Prepare baseline construction schedule in accordance with Section 01 32 16 and
- 7 provide at Preconstruction Meeting.
- 8 b. City will notify Contractor of any schedule changes upon Notice of
- 9 Preconstruction Meeting.
- 10 5. Preliminary Agenda may include:
- 11 a. Introduction of Project Personnel
- 12 b. General Description of Project
- 13 c. Status of right-of-way, utility clearances, easements or other pertinent permits
- 14 d. Contractor's work plan and schedule
- 15 e. Contract Time
- 16 f. Notice to Proceed
- 17 g. Construction Staking
- 18 h. Progress Payments
- 19 i. Extra Work and Change Order Procedures
- 20 j. Field Orders
- 21 k. Disposal Site Letter for Waste Material
- 22 l. Insurance Renewals
- 23 m. Payroll Certification
- 24 n. Material Certifications and Quality Control Testing
- 25 o. Public Safety and Convenience
- 26 p. Documentation of Pre-Construction Conditions
- 27 q. Weekend Work Notification
- 28 r. Legal Holidays
- 29 s. Trench Safety Plans
- 30 t. Confined Space Entry Standards
- 31 u. Coordination with the City's representative for operations of existing water
- 32 systems
- 33 v. Storm Water Pollution Prevention Plan
- 34 w. Coordination with other Contractors
- 35 x. Early Warning System
- 36 y. Contractor Evaluation
- 37 z. Special Conditions applicable to the project
- 38 aa. Damages Claims
- 39 bb. Submittal Procedures
- 40 cc. Substitution Procedures
- 41 dd. Correspondence Routing
- 42 ee. Record Drawings
- 43 ff. Temporary construction facilities
- 44 gg. Final Acceptance
- 45 hh. Final Payment
- 46 ii. Communications Plan
- 47 jj. Questions or Comments

- 1 **1.5 SUBMITTALS [NOT USED]**
- 2 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]**
- 3 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**
- 4 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**
- 5 **1.9 QUALITY ASSURANCE [NOT USED]**
- 6 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**
- 7 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**
- 8 **1.12 WARRANTY [NOT USED]**
- 9 **PART 2 - PRODUCTS [NOT USED]**
- 10 **PART 3 - EXECUTION [NOT USED]**

11 **END OF SECTION**

12

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

13

SECTION 01 31 20
PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provisions for project meetings throughout the construction period to enable orderly review of the progress of the Work and to provide for systematic discussion of potential problems

B. Deviations this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various items bid. No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination

1. Schedule, attend and administer as specified, periodic progress meetings, and specially called meetings throughout progress of the Work.
2. Representatives of Contractor, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
3. Meetings administered by City may be recorded.
4. Meetings, in addition to those specified in this Section, may be held when requested by the City, Engineer or Contractor.

B. Progress Meetings

1. Formal project coordination meetings will be held *Monthly*. Meetings will be scheduled and administered by Project Manager.
 - a. Additional meetings may be held at the request of the :
 - 1) City
 - 2) Engineer
 - 3) Contractor
2. Additional progress meetings to discuss specific topics will be conducted on an as-needed basis. Such additional meetings shall include, but not be limited to:
 - a. Coordinating shutdowns
 - b. Installation of piping and equipment
 - c. Coordination between other construction projects

- 1 d. Resolution of construction issues
- 2 e. Equipment approval
- 3 3. The Project Manager will preside at progress meetings, prepare the notes of the
- 4 meeting and distribute copies of the same to all participants who so request by fully
- 5 completing the attendance form to be circulated at the beginning of each meeting.
- 6 4. Attendance shall include:
- 7 a. Contractor's project manager
- 8 b. Contractor's superintendent
- 9 c. Any subcontractor or supplier representatives whom the Contractor may desire
- 10 to invite or the City may request
- 11 d. Engineer's representatives
- 12 e. City's representatives
- 13 f. Others, as requested by the Project Manager
- 14 5. Preliminary Agenda may include:
- 15 a. Review of Work progress since previous meeting
- 16 b. Field observations, problems, conflicts
- 17 c. Items which impede construction schedule
- 18 d. Review of off-site fabrication, delivery schedules
- 19 e. Review of construction interfacing and sequencing requirements with other
- 20 construction contracts
- 21 f. Corrective measures and procedures to regain projected schedule
- 22 g. Revisions to construction schedule
- 23 h. Progress, schedule, during succeeding Work period
- 24 i. Coordination of schedules
- 25 j. Review submittal schedules
- 26 k. Maintenance of quality standards
- 27 l. Pending changes and substitutions
- 28 m. Review proposed changes for:
- 29 1) Effect on construction schedule and on completion date
- 30 2) Effect on other contracts of the Project
- 31 n. Review Record Documents
- 32 o. Review monthly pay request
- 33 p. Review status of Requests for Information
- 34 6. Meeting Location
- 35 a. The City will establish a meeting location.
- 36 1) To the extent practicable, meetings will be held at the Site.

- 1 **1.5 SUBMITTALS [NOT USED]**
- 2 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]**
- 3 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**
- 4 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**
- 5 **1.9 QUALITY ASSURANCE [NOT USED]**
- 6 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**
- 7 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**
- 8 **1.12 WARRANTY [NOT USED]**
- 9 **PART 2 - PRODUCTS [NOT USED]**
- 10 **PART 3 - EXECUTION [NOT USED]**

11 **END OF SECTION**

12

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

13

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. General requirements for the preparation, submittal, updating, status reporting and management of the Construction Progress Schedule

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various items bid. No separate payment will be allowed for this Item.

1.3 REFERENCES

A. Definitions

1. **Baseline Schedule** - Initial schedule submitted before work begins that will serve as the baseline for measuring progress and departures from the schedule.
2. **Progress Schedule** - Monthly submittal of a progress schedule documenting progress on the project and any changes anticipated.
3. **Schedule Narrative** - Concise narrative of the schedule including schedule changes, expected delays, key schedule issues, critical path items, etc

B. Reference Standards

1. None

1.4 ADMINISTRATIVE REQUIREMENTS

A. Baseline Schedule

1. General

- a. Prepare a baseline Schedule using approved software and the Critical Path Method (CPM).
- b. Review the draft baseline Schedule with the City to demonstrate understanding of the work to be performed and known issues and constraints related to the schedule.
- c. Designate an authorized representative (Project Scheduler) responsible for developing and updating the schedule and preparing reports.

B. Progress Schedule

1. Update the progress Schedule monthly.

- 1 2. Prepare the Schedule Narrative to accompany the monthly progress Schedule.
- 2 3. Change Orders
- 3 a. Incorporate approved change orders, resulting in a change of contract time, in
- 4 the baseline Schedule.
- 5 C. Responsibility for Schedule Compliance
- 6 1. Whenever it becomes apparent from the current progress Schedule and CPM Status
- 7 Report that delays to the critical path have resulted and the Contract completion
- 8 date will not be met, or when so directed by the City, make some or all of the
- 9 following actions at no additional cost to the City
- 10 a. Submit a Recovery Plan to the City for approval revised baseline Schedule
- 11 outlining:
- 12 1) A written statement of the steps intended to take to remove or arrest the
- 13 delay to the critical path in the approved schedule
- 14 2) Increase construction manpower in such quantities and crafts as will
- 15 substantially eliminate the backlog of work and return current Schedule to
- 16 meet projected baseline completion dates
- 17 3) Increase the number of working hours per shift, shifts per day, working
- 18 days per week, the amount of construction equipment, or any combination
- 19 of the foregoing, sufficiently to substantially eliminate the backlog of work
- 20 4) Reschedule activities to achieve maximum practical concurrency of
- 21 accomplishment of activities, and comply with the revised schedule
- 22 2. If no written statement of the steps intended to take is submitted when so requested
- 23 by the City, the City may direct the Contractor to increase the level of effort in
- 24 manpower (trades), equipment and work schedule (overtime, weekend and holiday
- 25 work, etc.) to be employed by the Contractor in order to remove or arrest the delay
- 26 to the critical path in the approved schedule.
- 27 a. No additional cost for such work will be considered.
- 28 D. The Contract completion time will be adjusted only for causes specified in this
- 29 Contract.
- 30 a. Requests for an extension of any Contract completion date must be
- 31 supplemented with the following:
- 32 1) Furnish justification and supporting evidence as the City may deem
- 33 necessary to determine whether the requested extension of time is entitled
- 34 under the provisions of this Contract.
- 35 a) The City will, after receipt of such justification and supporting
- 36 evidence, make findings of fact and will advise the Contractor, in
- 37 writing thereof.
- 38 2) If the City finds that the requested extension of time is entitled, the City's
- 39 determination as to the total number of days allowed for the extensions
- 40 shall be based upon the approved total baseline schedule and on all data
- 41 relevant to the extension.
- 42 a) Such data shall be included in the next updating of the Progress
- 43 schedule.
- 44 b) Actual delays in activities which, according to the Baseline schedule,
- 45 do not affect any Contract completion date shown by the critical path in
- 46 the network will not be the basis for a change therein.
- 47 2. Submit each request for change in Contract completion date to the City within 30
- 48 days after the beginning of the delay for which a time extension is requested but
- 49 before the date of final payment under this Contract.

- a. No time extension will be granted for requests which are not submitted within the foregoing time limit.
- b. From time to time, it may be necessary for the Contract schedule or completion time to be adjusted by the City to reflect the effects of job conditions, weather, technical difficulties, strikes, unavoidable delays on the part of the City or its representatives, and other unforeseeable conditions which may indicate schedule adjustments or completion time extensions.
 - 1) Under such conditions, the City will direct the Contractor to reschedule the work or Contract completion time to reflect the changed conditions and the Contractor shall revise his schedule accordingly.
 - a) No additional compensation will be made to the Contractor for such schedule changes except for unavoidable overall contract time extensions beyond the actual completion of unaffected work, in which case the Contractor shall take all possible action to minimize any time extension and any additional cost to the City.
 - b) Available float time in the Baseline schedule may be used by the City as well as by the Contractor.
3. Float or slack time is defined as the amount of time between the earliest start date and the latest start date or between the earliest finish date and the latest finish date of a chain of activities on the Baseline Schedule.
 - a. Float or slack time is not for the exclusive use or benefit of either the Contractor or the City.
 - b. Proceed with work according to early start dates, and the City shall have the right to reserve and apportion float time according to the needs of the project.
 - c. Acknowledge and agree that actual delays, affecting paths of activities containing float time, will not have any effect upon contract completion times, providing that the actual delay does not exceed the float time associated with those activities.

E. Coordinating Schedule with Other Contract Schedules

1. Where work is to be performed under this Contract concurrently with or contingent upon work performed on the same facilities or area under other contracts, the Baseline Schedule shall be coordinated with the schedules of the other contracts.
 - a. Obtain the schedules of the other appropriate contracts from the City for the preparation and updating of Baseline schedule and make the required changes in his schedule when indicated by changes in corresponding schedules.
2. In case of interference between the operations of different contractors, the City will determine the work priority of each contractor and the sequence of work necessary to expedite the completion of the entire Project.
 - a. In such cases, the decision of the City shall be accepted as final.
 - b. The temporary delay of any work due to such circumstances shall not be considered as justification for claims for additional compensation.

1.5 SUBMITTALS

A. Baseline Schedule

1. Submit Schedule in native file format and pdf format.
 - a. Native file format shall be:
 - 1) Microsoft Project
2. Submit draft baseline Schedule to City prior to the pre-construction meeting and bring in hard copy to the meeting for review and discussion.

B. Progress Schedule

1. Submit progress Schedule in native file format and pdf format.
2. Submit progress Schedule monthly no later than the 25th day of the month.

C. Schedule Narrative

1. Submit the schedule narrative in pdf format.
2. Submit schedule narrative monthly no later than the 25th day of the month.

D. Submittal Process

- 1.
2. Contractor shall submit one (1) hard copy of documents to the Project Manager's duly appointed representative.
3. Contractor shall submit documents via email to the Project Manager and their duly appointed representative.
4. Once the project has been completed and Final Acceptance has been issued by the City, no further progress schedules are required.

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE

- A. The person preparing and revising the construction Progress Schedule shall be experienced in the preparation of schedules of similar complexity.
- B. Schedule and supporting documents addressed in this Specification shall be prepared, updated and revised to accurately reflect the performance of the construction.
- C. Contractor is responsible for the quality of all submittals in this section meeting the standard of care for the construction industry for similar projects.

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION [NOT USED]

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

SECTION 01 32 33
PRECONSTRUCTION VIDEO

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for:
 - a. Preconstruction Videos

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various items bid.
No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preconstruction Video

1. Produce a preconstruction video of the site/alignment, including all areas in the vicinity of and to be affected by construction.
 - a. Provide digital copy of video upon request by the City.
2. Retain a copy of the preconstruction video until the end of the maintenance surety period.

1.5 SUBMITTALS [NOT USED]

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE [NOT USED]

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS [NOT USED]

1 **PART 3 - EXECUTION [NOT USED]**

2 **END OF SECTION**

3

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

4

SECTION 01 33 00
SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. General methods and requirements of submissions applicable to the following Work-related submittals:
 - a. Shop Drawings
 - b. Product Data (including Project Material Submittal Checklist submittals)
 - c. Samples
 - d. Mock Ups

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various items bid. No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination

1. Notify the City in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents.
2. Coordination of Submittal Times
 - a. Prepare, prioritize and transmit each submittal sufficiently in advance of performing the related Work or other applicable activities, or within the time specified in the individual Work Sections, of the Specifications.
 - b. Contractor is responsible such that the installation will not be delayed by processing times including, but not limited to:
 - a) Disapproval and resubmittal (if required)
 - b) Coordination with other submittals
 - c) Testing
 - d) Purchasing
 - e) Fabrication
 - f) Delivery
 - g) Similar sequenced activities
 - c. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the Work.

- d. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other contractor.

B. Submittal Numbering

1. When submitting shop drawings or samples, utilize a submittal cross-reference identification numbering system in the following manner:
 - a. Use the applicable Specification Section Number.
 - b. For the next 2 digits number use numbers 01-99 to sequentially number each initial separate item or drawing submitted under each specific Section number.
 - c. Last use a letter, A-Z, indicating the resubmission of the same drawing (i.e. A=2nd submission, B=3rd submission, C=4th submission, etc.). A typical submittal number would be as follows:

303-02-B

- 1) 303 is the Specification Section for Portland Cement Concrete Pavement
- 2) 02 is the second initial submittal under this Specification Section
- 3) B is the third submission (second resubmission) of that particular shop drawing

C. Contractor Certification

1. Review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:
 - a. Field measurements
 - b. Field construction criteria
 - c. Catalog numbers and similar data
 - d. Conformance with the Contract Documents
2. Provide each shop drawing, sample and product data submitted by the Contractor with a Certification Statement affixed including:
 - a. The Contractor's Company name
 - b. Signature of submittal reviewer
 - c. Certification Statement
 - 1) "By this submittal, I hereby represent that I have determined and verified field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings."

D. Submittal Format

1. Fold shop drawings larger than 8 ½ inches x 11 inches to 8 ½ inches x 11 inches.
2. Bind shop drawings and product data sheets together.
3. Order
 - a. Cover Sheet
 - 1) Description of Packet
 - 2) Contractor Certification
 - b. List of items / Table of Contents
 - c. Product Data /Shop Drawings/Samples /Calculations

E. Submittal Content

1. The date of submission and the dates of any previous submissions
2. The Project title and number

3. Contractor identification
4. The names of:
 - a. Contractor
 - b. Supplier
 - c. Manufacturer
5. Identification of the product, with the Specification Section number, page and paragraph(s)
6. Field dimensions, clearly identified as such
7. Relation to adjacent or critical features of the Work or materials
8. Applicable standards, such as ASTM or Federal Specification numbers
9. Identification by highlighting of deviations from Contract Documents
10. Identification by highlighting of revisions on resubmittals
11. An 8-inch x 3-inch blank space for Contractor and City stamps

F. Shop Drawings

1. As specified in individual Work Sections includes, but is not necessarily limited to:
 - a. Custom-prepared data such as fabrication and erection/installation (working) drawings
 - b. Scheduled information
 - c. Setting diagrams
 - d. Actual shopwork manufacturing instructions
 - e. Custom templates
 - f. Special wiring diagrams
 - g. Coordination drawings
 - h. Individual system or equipment inspection and test reports including:
 - 1) Performance curves and certifications
 - i. As applicable to the Work
2. Details
 - a. Relation of the various parts to the main members and lines of the structure
 - b. Where correct fabrication of the Work depends upon field measurements
 - 1) Provide such measurements and note on the drawings prior to submitting for approval.

G. Product Data

1. For submittals of product data for products included on the City's Product Material Submittal Checklist, highlight each item selected for use on the Project.
2. For submittals of product data for products not included on the City's Product Material Submittal Checklist, submittal data may include, but is not necessarily limited to:
 - a. Standard prepared data for manufactured products (sometimes referred to as catalog data)
 - 1) Such as the manufacturer's product specification and installation instructions
 - 2) Availability of colors and patterns
 - 3) Manufacturer's printed statements of compliances and applicability
 - 4) Roughing-in diagrams and templates
 - 5) Catalog cuts
 - 6) Product photographs
 - 7) Standard wiring diagrams

- 8) Printed performance curves and operational-range diagrams
 - 9) Production or quality control inspection and test reports and certifications
 - 10) Mill reports
 - 11) Product operating and maintenance instructions and recommended spare-parts listing and printed product warranties
 - 12) As applicable to the Work
3. Submittals of product data for products not included on the City's Product Material Submittal Checklist may be considered a Substitution in accordance with Section 01 25 00.
 4. All deviations from City's Product Material Submittal Checklist shall require approval by the Engineer of Record for the Project.

H. Samples

1. As specified in individual Sections, include, but are not necessarily limited to:
 - a. Physical examples of the Work such as:
 - 1) Sections of manufactured or fabricated Work
 - 2) Small cuts or containers of materials
 - 3) Complete units of repetitively used products color/texture/pattern swatches and range sets
 - 4) Specimens for coordination of visual effect
 - 5) Graphic symbols and units of Work to be used by the City for independent inspection and testing, as applicable to the Work
- I. Do not start Work requiring a shop drawing, sample or product data nor any material to be fabricated or installed prior to the approval or qualified approval of such item.
 1. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data is at the Contractor's risk.
 2. The City will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
 3. Complete project Work, materials, fabrication, and installations in conformance with approved shop drawings, applicable samples, and product data.

J. Submittal Distribution

1. Electronic Distribution
 - a. Provide all submittals in electronic form via email to Project Manager and their duly appointed representative.
 - b. Shop Drawings
 - 1) Email submittal to Project Manager and their duly appointed representative.
 - 2) Hard Copies
 - a) Not required
 - c. Product Data
 - 1) Email submittal to Project Manager and their duly appointed representative.
 - 2) Hard Copies
 - a) Not required
 - d. Samples
 - 1) Distributed to the Project Manager

K. Submittal Review

1. The review of shop drawings, data and samples will be for general conformance with the design concept and Contract Documents. This is not to be construed as:

- a. Permitting any departure from the Contract requirements
 - b. Relieving the Contractor of responsibility for any errors, including details, dimensions, and materials
 - c. Approving departures from details furnished by the City, except as otherwise provided herein
2. The review and approval of shop drawings, samples or product data by the City does not relieve the Contractor from his/her responsibility with regard to the fulfillment of the terms of the Contract.
 - a. All risks of error and omission are assumed by the Contractor, and the City will have no responsibility, therefore.
 3. The Contractor remains responsible for details and accuracy, for coordinating the Work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly and for performing Work in a safe manner.
 4. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which City finds to be in the interest of the City and to be so minor as not to involve a change in Contract Price or time for performance, the City may return the reviewed drawings without noting an exception.
 5. Submittals will be returned to the Contractor under 1 of the following codes:
 - a. Code 1
 - 1) "NO EXCEPTIONS TAKEN" is assigned when there are no notations or comments on the submittal.
 - a) When returned under this code the Contractor may release the equipment and/or material for manufacture.
 - b. Code 2
 - 1) "EXCEPTIONS NOTED". This code is assigned when a confirmation of the notations and comments IS NOT required by the Contractor.
 - a) The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.
 - c. Code 3
 - 1) "EXCEPTIONS NOTED/RESUBMIT". This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the package.
 - a) This resubmittal is to address all comments, omissions and non-conforming items that were noted.
 - b) Resubmittal is to be received by the City within 15 Calendar Days of the date of the City's transmittal requiring the resubmittal.
 - d. Code 4
 - 1) "NOT APPROVED" is assigned when the submittal does not meet the intent of the Contract Documents.
 - a) The Contractor must resubmit the entire package revised to bring the submittal into conformance.
 - b) It may be necessary to resubmit using a different manufacturer/vendor to meet the Contract Documents.
 6. Resubmittals
 - a. Handled in the same manner as first submittals
 - 1) Corrections other than requested by the City
 - 2) Marked with revision triangle or other similar method

- a) At Contractor's risk if not marked
- b. Submittals for each item will be reviewed no more than twice at the City's expense.
 - 1) All subsequent reviews will be performed at times convenient to the City and at the Contractor's expense, based on the City's or City Representative's then prevailing rates.
 - 2) Provide Contractor reimbursement to the City within 30 Calendar Days for all such fees invoiced by the City.
- c. The need for more than 1 resubmission or any other delay in obtaining City's review of submittals, will not entitle the Contractor to an extension of Contract Time.

7. Partial Submittals

- a. City reserves the right to not review submittals deemed partial, at the City's discretion.
 - b. Submittals deemed by the City to be not complete will be returned to the Contractor, and will be considered "Not Approved" until resubmitted.
 - c. The City may at its option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.
8. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, then written notice must be provided thereof to the City at least 7 Calendar Days prior to release for manufacture.
 9. When the shop drawings have been completed to the satisfaction of the City, the Contractor may carry out the construction in accordance therewith and no further changes therein except upon written instructions from the City.
 10. Each submittal, appropriately coded, will be returned within 30 Calendar Days following receipt of submittal by the City.

L. Mock ups

1. Mock Up units as specified in individual Sections, include, but are not necessarily limited to, complete units of the standard of acceptance for that type of Work to be used on the Project. Remove at the completion of the Work or when directed.

M. Qualifications

1. If specifically required in other Sections of these Specifications, submit a P.E. Certification for each item required.

N. Request for Information (RFI)

1. Contractor Request for additional information
 - a. Clarification or interpretation of the contract documents
 - b. When the Contractor believes there is a conflict between Contract Documents
 - c. When the Contractor believes there is a conflict between the Drawings and Specifications
 - 1) Identify the conflict and request clarification
 - d. When the Contractor encounters an unknown condition in the field
2. Use the Request for Information (RFI) form provided by the City (attached).
3. Numbering of RFI
 - a. Prefix with "RFI" followed by series number, "-xxx", beginning with "01" and increasing sequentially with each additional transmittal.

4. Sufficient information shall be attached to permit a written response without further information.
5. The City will log each request and will review the request.
 - a. If review of the project information request indicates that a change to the Contract Documents is required, the City will issue a Field Order or Change Order, as appropriate.

1.5 SUBMITTALS [NOT USED]

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE [NOT USED]

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION [NOT USED]

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

REQUEST FOR INFORMATION

Project:	RFI #:
Engineering Project No.:	Date Sent:
Sender:	Receiver:
Copies To:	

Subject:
Request:
Sender's Proposed Answer/Solution:

THE PROPOSED ANSWER/SOLUTION ☐ IS, ☐ IS NOT, INCLUDED IN THE CONTRACT.

Receiver's Response:

Response By:	Company:	Date:
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DISTRIBUTION:

SECTION 01 35 13
SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. The procedures for special project circumstances that includes, but is not limited to:
 - a. Coordination with the Texas Department of Transportation
 - b. Work near High Voltage Lines
 - c. Confined Space Entry Program
 - d. Excavation Protection
 - e. Air Pollution Watch Days
 - f. Use of Explosives, Drop Weight, Etc.
 - g. Water Utilities Notification
 - h. Public Notification Prior to Beginning Construction
 - i. Coordination with United States Army Corps of Engineers
 - j. Coordination within Railroad permits areas
 - k. Dust Control
 - l. Employee Parking
 - m. Coordination with North Central Texas Council of Governments Clean Construction Specification

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

- ~~1. Coordination within Railroad permit areas~~
 - ~~a. Measurement~~
 - ~~1) Measurement for this Item will be by lump sum.~~
 - ~~b. Payment~~
 - ~~1) The work performed and materials furnished in accordance with this Item will be paid for at the lump sum price bid for Railroad Coordination.~~
 - ~~c. The price bid shall include:~~
 - ~~1) Mobilization~~
 - ~~2) Inspection~~
 - ~~3) Safety training~~
 - ~~4) Additional Insurance~~
 - ~~5) Insurance Certificates~~
 - ~~6) Other requirements associated with general coordination with Railroad, including additional employees required to protect the right of way and property of the Railroad from damage arising out of and/or from the construction of the Project.~~

- 2. ~~Railroad Flagmen~~
 - a. ~~Measurement~~
 - 1) ~~Measurement for this Item will be per working day.~~
 - b. ~~Payment~~
 - 1) ~~The work performed and materials furnished in accordance with this Item will be paid for each working day that Railroad Flagmen are present at the Site.~~
 - e. ~~The price bid shall include:~~
 - 1) ~~Coordination for scheduling flagmen~~
 - 2) ~~Flagmen~~
 - 3) ~~Other requirements associated with Railroad~~
- 3. Excavation Protection (Trench Safety)
 - a. Measurement
 - 1) Measured per linear foot of excavation for all trenches that require trench safety in accordance with OSHA excavation safety standards (29 CFR Part 1926 Subpart P Safety and Health regulations for Construction)
 - b. Payment
 - 1) The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid per linear foot of excavation to comply with OSHA excavation safety standards (29 CFR Part 1926.650 Subpart P), including, but not limited to, all submittals, labor and equipment.
- 4. All other items
 - a. Work associated with these Items is considered incidental to the various Items bid. No separate payment will be allowed for this Item.

1.3 REFERENCES

A. Reference Standards

- 1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date logged at the end of this Specification, unless a date is specifically cited.
- 2. Health and Safety Code, Title 9. Safety, Subtitle A. Public Safety, Chapter 752. High Voltage Overhead Lines.
- 3. North Central Texas Council of Governments (NCTCOG) – Clean Construction Specification
- 4. Occupational Health and Safety Administration (OSHA) Standards – 29 CFR Part 1910.146 – Permit-Required Confined Spaces

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination with the Texas Department of Transportation

- 1. When work in the right-of-way which is under the jurisdiction of the Texas Department of Transportation (TxDOT):
 - a. Notify the Texas Department of Transportation prior to commencing any work therein in accordance with the provisions of the permit
 - b. All work performed in the TxDOT right-of-way shall be performed in compliance with and subject to approval from the Texas Department of Transportation

B. Work near High Voltage Lines

1. Regulatory Requirements
 - a. All Work near High Voltage Lines (more than 600 volts measured between conductors or between a conductor and the ground) shall be in accordance with Health and Safety Code, Title 9, Subtitle A, Chapter 752.
 2. Warning sign
 - a. Provide sign of sufficient size meeting all OSHA requirements.
 3. Equipment operating within 10 feet of high voltage lines will require the following safety features
 - a. Insulating cage-type of guard about the boom or arm
 - b. Insulator links on the lift hook connections for back hoes or dippers
 - c. Equipment must meet the safety requirements as set forth by OSHA and the safety requirements of the owner of the high voltage lines
 4. Work within 6 feet of high voltage electric lines
 - a. Notification shall be given to:
 - 1) The power company (example: Denton Municipal Electric)
 - a) Maintain an accurate log of all such calls to power company and record action taken in each case.
 - b. Coordination with power company
 - 1) After notification coordinate with the power company to:
 - a) Erect temporary mechanical barriers, de-energize the lines, or raise or lower the lines
 - c. No personnel may work within 6 feet of a high voltage line before the above requirements have been met.
- C. Confined Space Entry Program
1. Provide and follow approved Confined Space Entry Program in accordance with OSHA requirements.
 2. Confined Spaces include:
 - a. Manholes
 - b. All other confined spaces in accordance with OSHA's Permit Required for Confined Spaces
- D. Excavation Protection
1. Excavation protection shall be in strict compliance with OSHA excavation safety standards (29 CFR Part 1926 Subpart P Safety and Health regulations for Construction).
 2. Submit three (3) copies of a site-specific trench safety plan prepared by a licensed Professional Engineer in the State of Texas to the City prior to construction in accordance with Section 01 33 00.
 - a. The City will not review the submittal. Receipt of submittal is confirmation that the Contractor has prepared a trench safety plan as required by state and federal law.
 - b. The City assumes no responsibility for trench safety and shall be held harmless under the indemnification clause of the General Conditions.
 3. Any changes in the trench excavation plan after initiation of construction will not be cause for an extension of time and will require a new submittal to the City.
 4. The Contractor accepts sole responsibility for compliance with all applicable safety requirements.
- E. Air Pollution Watch Days

1. General
 - a. Observe the following guidelines relating to working on City construction sites on days designated as “AIR POLLUTION WATCH DAYS”.
 - b. Typical Ozone Season
 - 1) May 1 through October 31.
 - c. Critical Emission Time
 - 1) 6:00 a.m. to 10:00 a.m.
 2. Watch Days
 - a. The Texas Commission on Environmental Quality (TCEQ), in coordination with the National Weather Service, will issue the Air Pollution Watch by 3:00 p.m. on the afternoon prior to the WATCH day.
 - b. Requirements
 - 1) Begin work after 10:00 a.m. whenever construction phasing requires the use of motorized equipment for periods in excess of 1 hour.
 - 2) However, the Contractor may begin work prior to 10:00 a.m. if:
 - a) Use of motorized equipment is less than 1 hour, or
 - b) If equipment is new and certified by EPA as “Low Emitting”, or equipment burns Ultra Low Sulfur Diesel (ULSD), diesel emulsions, or alternative fuels such as CNG.
- F. TCEQ Air Permit
1. Obtain TCEQ Air Permit for construction activities per requirements of TCEQ.
- G. Use of Explosives, Drop Weight, Etc.
1. When Contract Documents permit on the project the following will apply:
 - a. Public Notification
 - 1) Submit notice to City and proof of adequate insurance coverage, 24 hours prior to commencing.
 - 2) Minimum 24-hour public notification in accordance with Section 01 31 13
- H. Water Utilities Coordination
1. During the construction of this project, it may be necessary to deactivate, for a period of time, existing lines. The Contractor shall be required to coordinate with Water Utilities to determine the best times for deactivating and activating those lines.
 2. Coordinate any event that will require connecting to or the operation of an existing City water line system with the City’s representative.
 - a. If needed, obtain a hydrant water meter from Water Utilities for use during the life of named project.
 - b. In the event that a water valve on an existing live system be turned off and on to accommodate the construction of the project is required, coordinate this activity through the appropriate City representative.
 - 1) Do not operate water line valves of existing water system.
 - a) Failure to comply will render the Contractor in violation of Texas Penal Code Title 7, Chapter 28.03 (Criminal Mischief) and the Contractor will be prosecuted to the full extent of the law.
 - b) In addition, the Contractor will assume all liabilities and responsibilities as a result of these actions.
- I. Public Notification Prior to Beginning Construction

1. Prior to beginning construction on any block in the project, on a block-by-block basis, prepare and deliver a notice or flyer of the pending construction to the front door of each residence or business that will be impacted by construction. The notice shall be prepared as follows:
 - a. Post notice or flyer 7 days prior to beginning any construction activity on each block in the project area.
 - 1) Prepare flyer on the Contractor's letterhead and include the following information:
 - a) Name of Project
 - b) Engineering Project Number (EPN)
 - c) Scope of Project (i.e. type of construction activity)
 - d) Actual construction duration within the block
 - e) Name of the contractor's foreman and phone number
 - f) Name of the City's inspector and phone number
 - g) City's after-hours phone number
 - 2) A sample of the 'pre-construction notification' flyer is attached as Exhibit A.
 - 3) Submit schedule showing the construction start and finish time for each block of the project to the inspector.
 - 4) Deliver flyer to the City Inspector for review prior to distribution.
 - b. No construction will be allowed to begin on any block until the flyer is delivered to all residents of the block.

J. Public Notification of Temporary Water Service Interruption during Construction

1. In the event it becomes necessary to temporarily shut down water service to residents or businesses during construction, prepare and deliver a notice or flyer of the pending interruption to the front door of each affected resident.
2. Prepared notice as follows:
 - a. The notification or flyer shall be posted 24 hours prior to the temporary interruption.
 - b. Prepare flyer on the contractor's letterhead and include the following information:
 - 1) Name of the project
 - 2) Engineering Project Number (EPN)
 - 3) Date of the interruption of service
 - 4) Period the interruption will take place
 - 5) Name of the contractor's foreman and phone number
 - 6) Name of the City's inspector and phone number
 - c. A sample of the temporary water service interruption notification is attached as Exhibit B.
 - d. Deliver a copy of the temporary interruption notification to the City inspector for review prior to being distributed.
 - e. No interruption of water service can occur until the flyer has been delivered to all affected residents and businesses.
 - f. Electronic versions of the sample flyers can be obtained from the Project Construction Inspector.

K. Coordination with United States Army Corps of Engineers (USACE)

1. At locations in the Project where construction activities occur in areas where USACE permits are required, meet all requirements set forth in each designated permit.

L. Coordination within Railroad Permit Areas

1. At locations in the project where construction activities occur in areas where railroad permits are required, meet all requirements set forth in each designated railroad permit. This includes, but is not limited to, provisions for:
 - a. Flagmen
 - b. Inspectors
 - c. Safety training
 - d. Additional insurance
 - e. Insurance certificates
 - f. Other employees required to protect the right-of-way and property of the Railroad Company from damage arising out of and/or from the construction of the project. Proper utility clearance procedures shall be used in accordance with the permit guidelines.
2. Obtain any supplemental information needed to comply with the railroad's requirements.
3. Railroad Flagmen
 - a. Submit receipts to City for verification of working days that railroad flagmen were present on Site.

M. Dust Control

1. Use acceptable measures to control dust at the Site.
 - a. If water is used to control dust, capture and properly dispose of wastewater.
 - b. If wet saw cutting is performed, capture and properly dispose of slurry.

N. Employee Parking

1. Provide parking for employees at locations approved by the City.

O. Coordination with North Central Texas Council of Governments (NCTCOG) Clean Construction Specification

1. Equipment Requirements
 - a. All construction equipment being used to perform work on the Contract shall meet EPA emissions standards of Tier 3 or equivalent, or cleaner. Model Form A.14. Schedule for Phase-In of Tier 1-Tier 4 Non-Road Engines is included in Appendix A. Compliance may be achieved through the use of equipment powered by an EPA-certified engine, through engine repowers, or through the use of retrofits which have been verified by the EPA and/or California Air Resources Board. A list of available retrofits is available online at EPA's website "Verified Technologies List for Clean Diesel."
 - b. Equipment that meets one or more of the following conditions may be exempt from these requirements:
 - 1) Equipment powered by an engine that is less than or equal to ten (10) years old.
 - 2) Equipment that must be used to fulfill use or reporting requirements for a grant program or other clean air initiative. Documentation of such obligations must be submitted to City for verification.
 - 3) Equipment that is designated as low-use equipment, which is defined as any piece of construction equipment which is used for less than ten (10) hours per week on a single public works contract. A Low-Use Exemption Weekly Reporting Form will be required for all equipment for which this exemption is claimed.

- 4) Equipment that is being used to address a critical or emergency public works need, including, but not limited to, broken water mains or sanitary sewer lines. This exemption is limited to work performed in a situation in which the procurement of construction services is performed on an emergency basis, as provided for by State law.

2. Operational Requirements

- a. All diesel fuel used to perform work on the public works contract shall be Ultra-Low Sulfur Diesel (ULSD) fuel which also complies with Texas Low Emission Diesel (TxLED) program requirements. This may include TxLED-compliant Biodiesel blends.
- b. The Contractor shall limit idling of equipment to no more than five (5) minutes, unless the idling is applicable to one or more of the following exceptions:
 - 1) is being used for emergency response purposes;
 - 2) is idling as a necessary component of mechanical operation, maintenance, or diagnostic purposes; or
 - 3) is idling for the health or safety of the equipment operator.
- c. To the greatest extent possible, Contractor shall stage equipment away from, and minimize operation near, sensitive receptors including, but not limited to, fresh air intakes, hospitals, schools, licensed day care facilities, and residences.

3. Reporting Requirements

- a. On or before the day construction activity commences, the Contractor shall submit to the City an inventory report containing identifying data for each piece of equipment to be used on the worksite. A form for submitting such information will be provided by the City. This inventory may be used by the City to conduct site inspections and/or verify compliance with specification elements.
- b. If additional equipment is brought on-site after construction begins, the Contractor shall provide this same inventory information to the City for the new equipment on or before the day it begins work on-site.
- c. Reports shall be provided for all equipment used on-site.

4. Enforcement Requirements

- a. All construction equipment used at the Site is subject to inspection by the City at random. Contractor is responsible for ensuring that all subcontractors meet the requirements of this specification.

1.5 SUBMITTALS

- A. Submittals shall be in accordance with Section 01 33 00.
- B. All submittals shall be approved by the City prior to delivery.

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

- A. Construction Notice Flyer
- B. Notice of Temporary Water Service Interruption

- 1 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**
2 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**
3 **1.9 QUALITY ASSURANCE [NOT USED]**
4 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**
5 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**
6 **1.12 WARRANTY [NOT USED]**

7 **PART 2 - PRODUCTS [NOT USED]**

8 **PART 3 - EXECUTION [NOT USED]**

9 **END OF SECTION**

10

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

11

EXHIBIT A

(To be printed on Contractor's Letterhead)

Date: _____

EPN No.: _____

Project Name:

Limits of Construction:

NOTICE OF CONSTRUCTION

THIS IS TO INFORM YOU THAT UNDER A CONTRACT WITH THE CITY OF DENTON, OUR COMPANY WILL WORK ON UTILITY LINES ON OR AROUND YOUR PROPERTY.

CONSTRUCTION WILL BEGIN APPROXIMATELY SEVEN DAYS FROM THE DATE OF THIS NOTICE.

IF YOU HAVE QUESTIONS ABOUT ACCESS, SECURITY, SAFETY OR ANY OTHER ISSUE, PLEASE CALL:

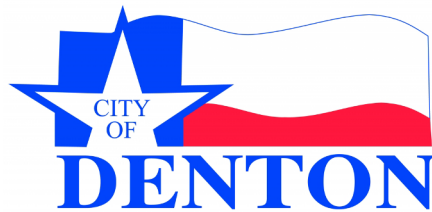
<CONTRACTOR'S SUPERINTENDENT> AT <TELEPHONE NO.>

OR

<CITY INSPECTOR> AT < TELEPHONE NO.>

PLEASE KEEP THIS FLYER HANDY WHEN YOU CALL

EXHIBIT B



Date: _____

EPN No.: _____

Project Name: _____

NOTICE OF TEMPORARY WATER SERVICE INTERRUPTION

**Due to utility improvements in your neighborhood, your water service will be
interrupted on _____
between the hours of _____ and _____.**

IF YOU HAVE QUESTIONS ABOUT THIS DISRUPTION, PLEASE CALL:

<CONTRACTOR'S SUPERINTENDENT> AT <TELEPHONE NO.>

OR

<CITY INSPECTOR> AT < TELEPHONE NO.>

THIS SERVICE INTERRUPTION WILL BE AS SHORT AS POSSIBLE

**Thank you,
_____, Contractor**

SECTION 01 45 23
TESTING AND INSPECTION SERVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Testing and inspection services procedures and coordination

B. Deviations from this City of Denton Standard Specification

1. None

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various Items bid.
No separate payment will be allowed for this Item.
 - a. In accordance with Article 13 of the General Conditions, Contractor is responsible for performing, coordinating, and payment of all inspections, tests, re-tests, or approvals.
 - b. In accordance with Article 13 of the General Conditions, City is responsible for performing and payment for first set additional independent testing chosen by the City to be performed.
 - 1) If the first independent test performed by the City fails, the Contractor is responsible for payment of subsequent testing until a passing test occurs.
 - a) Final acceptance will not be issued by City until all required payments for testing by Contractor have been paid in full.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Testing

1. Complete testing in accordance with the Contract Documents.
2. Coordination
 - a. When testing is required to be performed by the City, notify City, sufficiently in advance, when testing is needed.
 - b. When testing is required to be completed by the Contractor, notify City, sufficiently in advance, that testing will be performed.
3. Distribution of Testing Reports
 - a. Electronic Distribution
 - 1) Provide all reports to Project Manager and their duly appointed representative electronically via email.
4. Provide Project Manager's duly appointed representative with trip tickets for each delivered load of Concrete or Lime material including the following information:

- 1 a. Name of pit
2 b. Date of delivery
3 c. Material delivered
4 B. Inspection
5 1. Inspection or lack of inspection does not relieve the Contractor from obligation to
6 perform work in accordance with the Contract Documents.

7 **1.5 SUBMITTALS**

- 8 A. Submittals shall be in accordance with Section 01 33 00.

9 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS**

- 10 A. Materials Testing Reports sealed by a Professional Engineer or Professional
11 Geoscientist licensed in the State of Texas.

12 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**

13 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**

14 **1.9 QUALITY ASSURANCE [NOT USED]**

15 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**

16 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

17 **1.12 WARRANTY [NOT USED]**

18 **PART 2 - PRODUCTS [NOT USED]**

19 **PART 3 - EXECUTION [NOT USED]**

20 **END OF SECTION**

21

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

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SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide temporary facilities and controls needed for the Work including, but not necessarily limited to:
 - a. Temporary utilities
 - b. Sanitary facilities
 - c. Storage Sheds and Buildings
 - d. Dust control
 - e. Temporary fencing of the construction site

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various Items bid.
No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Temporary Utilities

1. Obtaining Temporary Service

- a. Make arrangements with utility service companies for temporary services.
- b. Abide by rules and regulations of utility service companies or authorities having jurisdiction.
- c. Be responsible for utility service costs until Work is approved for Final Acceptance.
 - 1) Included are fuel, power, light, heat and other utility services necessary for execution, completion, testing and initial operation of Work.

2. Water

- a. Contractor to provide water required for and in connection with Work to be performed and for specified tests of piping, equipment, devices or other use as required for the completion of the Work.
- b. Provide and maintain adequate supply of potable water for domestic consumption by Contractor personnel and Project Manager and Project Manager's duly authorized representative.
- c. Coordination

- 1) Contact City 1 week before water for construction is desired
- d. Contractor Payment for Construction Water
 - 1) Obtain construction water meter from City for payment as billed by City's established rates.
3. Electricity and Lighting
 - a. Provide and pay for electric powered service as required for Work, including testing of Work.
 - 1) Provide power for lighting, operation of equipment, or other use.
 - b. Electric power service includes temporary power service or generator to maintain operations during scheduled shutdown.
4. Telephone
 - a. Provide emergency telephone service at Site for use by Contractor personnel and others performing work or furnishing services at Site.
5. Temporary Heat and Ventilation
 - a. Provide temporary heat as necessary for protection or completion of Work.
 - b. Provide temporary heat and ventilation to assure safe working conditions.
- B. Sanitary Facilities
 1. Provide and maintain sanitary facilities for persons on Site.
 - a. Comply with regulations of State and local departments of health.
 2. Enforce use of sanitary facilities by construction personnel at job site.
 - a. Enclose and anchor sanitary facilities.
 - b. No discharge will be allowed from these facilities.
 - c. Collect and store sewage and waste so as not to cause nuisance or health problem.
 - d. Haul sewage and waste off-site at no less than weekly intervals and properly dispose in accordance with applicable regulation.
 3. Locate facilities near Work Site and keep clean and maintained throughout Project.
 4. Remove facilities at completion of Project
- C. Storage Sheds and Buildings
 1. Provide adequately ventilated, watertight, weatherproof storage facilities with floor above ground level for materials and equipment susceptible to weather damage.
 2. Storage of materials not susceptible to weather damage may be on blocks off ground.
 3. Store materials in a neat and orderly manner.
 - a. Place materials and equipment to permit easy access for identification, inspection and inventory.
 4. Equip building with lockable doors and lighting, and provide electrical service for equipment space heaters and heating or ventilation as necessary to provide storage environments acceptable to specified manufacturers.
 5. Fill and grade site for temporary structures to provide drainage away from temporary and existing buildings.
 6. Remove building from site prior to Final Acceptance.
- D. Temporary Fencing
 1. Provide and maintain for the duration or construction when required in contract documents

E. Dust Control

1. Contractor is responsible for maintaining dust control through the duration of the project.

a. Contractor remains on-call at all times

b. Must respond in a timely manner

F. Temporary Protection of Construction

1. Contractor or subcontractors are responsible for protecting Work from damage due to weather.

1.5 SUBMITTALS [NOT USED]

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE [NOT USED]

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION [NOT USED]

3.1 INSTALLERS [NOT USED]

3.2 EXAMINATION [NOT USED]

3.3 PREPARATION [NOT USED]

3.4 INSTALLATION

A. Temporary Facilities

1. Maintain all temporary facilities for duration of construction activities as needed.

1 3.5 [REPAIR] / [RESTORATION]

2 3.6 RE-INSTALLATION

3 **3.7 FIELD [OR] SITE QUALITY CONTROL [NOT USED]**

4 3.8 SYSTEM STARTUP [NOT USED]

5 **3.9 ADJUSTING [NOT USED]**

6 **3.10 CLEANING [NOT USED]**

7 3.11 CLOSEOUT ACTIVITIES

8 A. Temporary Facilities

9 1. Remove all temporary facilities and restore area after completion of the Work, to a
10 condition equal to or better than prior to start of Work.

11 **3.12 PROTECTION [NOT USED]**

12 **3.13 MAINTENANCE [NOT USED]**

13 **3.14 ATTACHMENTS [NOT USED]**

14 **END OF SECTION**

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

SECTION 01 57 13
STORM WATER POLLUTION PREVENTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Procedures for Storm Water Pollution Prevention Plans

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Storm Water Pollution Prevention Plan

- a. Measurement for this Item shall be by lump sum.

- b. Payment

- 1) The work performed and the materials furnished in accordance with this Item shall be paid for at the lump sum price bid for “Storm Water Pollution Prevention Plan”.

- c. The price bid shall include:

- 1) Preparation of Storm Water Pollution Prevention Plan
- 2) Implementation
- 3) Permitting fees
- 4) Installation
- 5) Maintenance
- 6) Removal

1.3 REFERENCES

A. Abbreviations and Acronyms

1. Notice of Intent: NOI
2. Notice of Termination: NOT
3. Storm Water Pollution Prevention Plan: SWPPP
4. Texas Commission on Environmental Quality: TCEQ
5. Notice of Change: NOC

A. Reference Standards

1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date logged at the end of this Specification, unless a date is specifically cited.

2. Integrated Storm Management (iSWM) Technical Manual for Construction Controls

1.4 ADMINISTRATIVE REQUIREMENTS

A. General

1. Contractor is responsible for resolution and payment of any fines issued associated with compliance to Stormwater Pollution Prevention Plan.
2. As a condition of approval, applicants conducting land disturbing activities will complete the online construction site survey. This survey can be found at <https://www.surveymonkey.com/r/HT2BDHZ>

B. Construction Activities resulting in:

1. Less than 1 acre of disturbance
 - a. Provide erosion and sediment control in accordance with Drawings.
2. 1 to less than 5 acres of disturbance
 - a. Texas Pollutant Discharge Elimination System (TPDES) General Construction Permit is required
 - b. Complete SWPPP in accordance with TCEQ requirements
 - 1) TCEQ Small Construction Site Notice Required under general permit TXR150000
 - a) Sign and post at job site
 - b) Prior to Preconstruction Meeting, send 1 copy to City Watershed Protection Department, Joetta Dailey (940) 349-7153 or David Hunter (940) 349-7123.
 - 2) Provide erosion and sediment control in accordance with:
 - a) Drawings
 - b) TXR150000 General Permit
 - c) SWPPP
 - d) TCEQ requirements
3. 5 acres or more of Disturbance
 - a. Texas Pollutant Discharge Elimination System (TPDES) General Construction Permit is required
 - b. Complete SWPPP in accordance with TCEQ requirements
 - 1) Prepare a TCEQ NOI form and submit to TCEQ along with required fee
 - a) Sign and post at job site
 - b) Send copy to City Watershed Protection Department, Joetta Dailey (940) 349 7153 or David Hunter (940) 349 7123.
 - 2) TCEQ Notice of Change required if making changes or updates to NOI
 - 3) Provide erosion and sediment control in accordance with:
 - a) Drawings
 - b) TXR150000 General Permit
 - c) SWPPP
 - d) TCEQ requirements
 - 4) Once the project has been completed and all the closeout requirements of TCEQ have been met a TCEQ Notice of Termination can be submitted.
 - a) Send copy to City Watershed Protection Department, Joetta Dailey (940) 349-7153 or David Hunter (940) 349-7123.

1.5 SUBMITTALS

A. SWPPP

1. Submit in accordance with Section 01 33 00, except as stated herein.
 - a. Prior to the Preconstruction Meeting, submit a draft copy of SWPPP to the City as follows:
 - 1) 1 copy to the Project Manager
 - a) Project Manager will forward to the City Watershed Protection Department, Joetta Dailey (940) 349-7153 or David Hunter (940) 349-7123 for review.

B. Modified SWPPP

1. If the SWPPP is revised during construction, resubmit modified SWPPP to the City in accordance with Section 01 33 00.

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE [NOT USED]

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION [NOT USED]

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

SECTION 01 58 13
TEMPORARY PROJECT SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Temporary Project Signage Requirements

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Temporary Project Sign

- a. Measurement

- 1) Measurement for this Item will be per each project sign installed.

- b. Payment

- 1) The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” shall be paid for at the unit price bid per each “Temporary Project Sign.”

- c. The price bid shall include:

- 1) Installation of Temporary Project Sign
 - 2) Excavation
 - 3) Hauling
 - 4) Disposal of excess Materials
 - 5) Maintenance and Repair of Signs During Construction
 - 6) Removal and Disposal of Temporary Project Sign

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

1.5 SUBMITTALS [NOT USED]

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE [NOT USED]

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

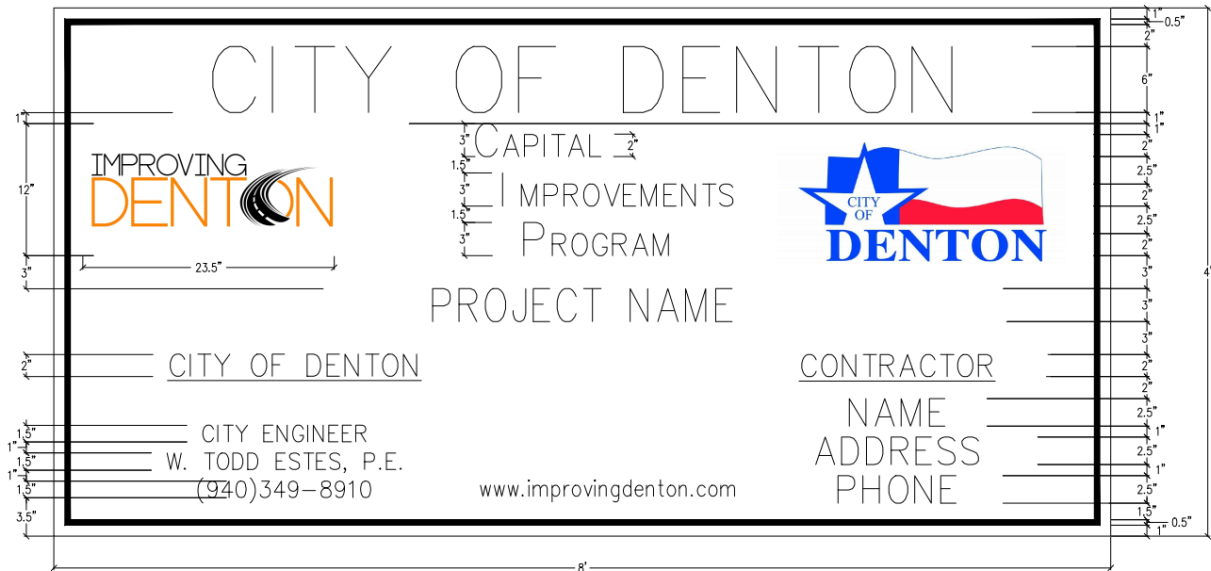
PART 2 - PRODUCTS

2.1 OWNER-FURNISHED [or] OWNER-SUPPLIED PRODUCTS [NOT USED]

2.2 EQUIPMENT, PRODUCT TYPES, AND MATERIALS

A. Design Criteria

1. Provide free standing Project Designation Sign as indicated below:



The flag shall resemble the Texas Flag. The background of the stars and the “City of Denton” lettering shall be blue. The lower bar of the flag shall be red, and the upper bar shall be white. The dimensions, from the farthest ends, shall be 12-inches vertically and 23.5-inches horizontally. The flag shall appear in the dimensions shown. The contractor may request a digital copy in either .jpg or .tif format.

2. The Project Designation Sign shall be placed at strategic points with lettering as needed to adequately describe the work.
3. Signs shall be painted white with blue letters and symbols. Letter size shall conform to dimensions shown on sign drawing. Exceptions or variations from the sign shown above shall not be allowed.

B. Materials

1. Sign
 - a. Constructed of 3/4-inch fir plywood, grade A-C (exterior) or better

1 **2.3 ACCESSORIES [NOT USED]**

2 **2.4 SOURCE QUALITY CONTROL [NOT USED]**

3 **PART 3 - EXECUTION**

4 **3.1 INSTALLERS [NOT USED]**

5 **3.2 EXAMINATION [NOT USED]**

6 **3.3 PREPARATION [NOT USED]**

7 **3.4 INSTALLATION**

8 A. General

- 9 1. Provide vertical installation at extents of project.
- 10 2. Signs shall be placed prior to beginning the Work and maintained until the end of
- 11 the project.
- 12 3. Relocate sign as needed, upon request of the City.

13 B. Mounting options

- 14 a. Skids
- 15 b. Posts
- 16 c. Barricade

17 **3.5 -- 3.12 [NOT USED]**

18 **3.6 MAINTENANCE**

19 A. General

- 20 1. Maintenance will include painting and repairs as needed or directed by the City.

21 **3.7 ATTACHMENTS [NOT USED]**

22 **END OF SECTION**

23

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

24

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. References for Product Requirements and Product Material Submittal Checklist

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES [NOT USED]

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. A list of City approved products for use is located online as follows:

<https://www.cityofdenton.com/CoD/media/City-of-Denton/Business/Development%20Review/Alternative-Construction-Materials-Alternative-Material-Request-Form.pdf>

B. Only products specifically included on City's Product Material Submittal Checklist in these Contract Documents shall be allowed for use on the Project.

1. Any subsequently approved products will only be allowed for use upon specific approval by the City.

C. Any specific product requirements in the Contract Documents supersede similar products included on the Product Material Submittal Checklist.

1. The City reserves the right to not allow products to be used for certain projects even though the product is listed on the Product Material Submittal Checklist.

D. Although a specific product is included on Product Material Submittal Checklist, not all products from that manufacturer are approved for use, including but not limited to, that manufacturer's standard product.

E. See Section 01 33 00 for submittal requirements of Product Data included on Product Material Submittal Checklist.

1.5 SUBMITTALS [NOT USED]

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

- 1 **1.9 QUALITY ASSURANCE [NOT USED]**
2 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**
3 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**
4 **1.12 WARRANTY [NOT USED]**

5 **PART 2 - PRODUCTS [NOT USED]**

6 **PART 3 - EXECUTION [NOT USED]**

7 **END OF SECTION**

8

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

9

SECTION 01 66 00
PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Scheduling of product delivery
2. Packaging of products for delivery
3. Protection of products against damage from:
 - a. Handling
 - b. Exposure to elements or harsh environments

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various Items bid.
No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

1.5 SUBMITTALS [NOT USED]

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE [NOT USED]

1.10 DELIVERY AND HANDLING

A. Delivery Requirements

1. Schedule delivery of products or equipment as required to allow timely installation and to avoid prolonged storage.
2. Provide appropriate personnel and equipment to receive deliveries.
3. Delivery trucks will not be permitted to wait extended periods of time on the Site for personnel or equipment to receive the delivery.
4. Deliver products or equipment in manufacturer's original unbroken cartons or other containers designed and constructed to protect the contents from physical or environmental damage.

5. Clearly and fully mark and identify as to manufacturer, item and installation location.

6. Provide manufacturer's instructions for storage and handling.

B. Handling Requirements

1. Handle products or equipment in accordance with these Contract Documents and manufacturer's recommendations and instructions.

C. Storage Requirements

1. Store materials in accordance with manufacturer's recommendations and requirements of these Specifications.

2. Make necessary provisions for safe storage of materials and equipment.

a. Place loose soil materials and materials to be incorporated into Work to prevent damage to any part of Work or existing facilities and to maintain free access at all times to all parts of Work and to utility service company installations in vicinity of Work.

3. Keep materials and equipment neatly and compactly stored in locations that will cause minimum inconvenience to other contractors, public travel, adjoining owners, tenants and occupants.

a. Arrange storage to provide easy access for inspection.

4. Restrict storage to areas available on construction site for storage of material and equipment as shown on Drawings, or approved by Project Manager or their duly authorized representative.

5. Provide off-site storage and protection when on-site storage is not adequate.

a. Provide addresses of and access to off-site storage locations for inspection by Project Manager or their duly authorized representative.

6. Do not use lawns, grass plots or other private property for storage purposes without written permission of owner or other person in possession or control of premises.

7. Store in manufacturers' unopened containers.

8. Neatly, safely and compactly stack materials delivered and stored along line of Work to avoid inconvenience and damage to property owners and general public and maintain at least 3 feet from fire hydrant.

9. Keep public and private driveways and street crossings open.

10. Repair or replace damaged lawns, sidewalks, streets or other improvements to satisfaction of Project Manager or their duly authorized representative.

a. Total length which materials may be distributed along route of construction at one time is 1,000 linear feet, unless otherwise approved in writing by Project Manager.

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION

3.1 -3.6 [NOT USED]

3.2 FIELD [or] SITE QUALITY CONTROL

A. Tests and Inspections

1. Inspect all products or equipment delivered to the site prior to unloading.

B. Non-Conforming Work

1. Reject all products or equipment that are damaged, used or in any other way unsatisfactory for use on the project.

3.3 SYSTEM STARTUP [NOT USED]

3.4 ADJUSTING [NOT USED]

3.5 CLEANING [NOT USED]

3.6 CLOSEOUT ACTIVITIES [NOT USED]

3.7 PROTECTION

- A. Protect all products or equipment in accordance with manufacturer's written directions.

- B. Store products or equipment in location to avoid physical damage to items while in storage.

- C. Protect equipment from exposure to elements and keep thoroughly dry if required by the manufacturer.

3.8 MAINTENANCE [NOT USED]

3.9 ATTACHMENTS [NOT USED]

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

SECTION 01 70 00
MOBILIZATION AND REMOBILIZATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Mobilization and Demobilization

a. Mobilization

- 1) Transportation of Contractor's personnel, equipment, and operating supplies to the Site
- 2) Establishment of necessary general facilities for the Contractor's operation at the Site
- 3) Premiums paid for performance and payment bonds
- 4) Transportation of Contractor's personnel, equipment, and operating supplies to another location within the designated Site
- 5) Relocation of necessary general facilities for the Contractor's operation from 1 location to another location on the Site.

b. Demobilization

- 1) Transportation of Contractor's personnel, equipment, and operating supplies away from the Site including disassembly
- 2) Site Clean-up
- 3) Removal of all buildings and/or other facilities assembled at the Site for this Contract

c. Mobilization and Demobilization do not include activities for specific items of work that are for which payment is provided elsewhere in the contract.

2. Remobilization

a. Remobilization for Suspension of Work specifically required in the Contract Documents or as required by City includes:

1) Demobilization

- a) Transportation of Contractor's personnel, equipment, and operating supplies from the Site including disassembly or temporarily securing equipment, supplies, and other facilities as designated by the Contract Documents necessary to suspend the Work.
- b) Site Clean-up as designated in the Contract Documents

2) Remobilization

- a) Transportation of Contractor's personnel, equipment, and operating supplies to the Site necessary to resume the Work.
- b) Establishment of necessary general facilities for the Contractor's operation at the Site necessary to resume the Work.

3) No Payments will be made for:

- a) Mobilization and Demobilization from one location to another on the Site in the normal progress of performing the Work.
- b) Stand-by or idle time
- c) Lost profits

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Mobilization and Demobilization

a. Measurement

- 1) This Item will be measured by the lump sum as the work progresses.

b. Payment

- 1) For this Item, the adjusted Contract amount will be calculated as the total Contract amount less the lump sum for mobilization. Mobilization shall be made in partial payments as follows:

a) When 1% of the adjusted Contract amount for construction Items is earned, 50% of the mobilization lump sum bid will be paid.

b) When 5% of the adjusted Contract amount for construction Items is earned, 75% of the mobilization lump sum bid will be paid. Previous payments under the Item will be deducted from this amount.

c) When 10% of the adjusted Contract amount for construction Items is earned, 100% of the mobilization lump sum bid will be paid. Previous payments under the Item will be deducted from this amount.

d) A bid containing a total for “Mobilization” in excess of 10% of total contract shall be considered unbalanced and a cause for consideration of rejection.

c. The price bid shall include:

- 1) Mobilization of equipment to Site
- 2) Performance Bond
- 3) Payment Bond
- 4) Maintenance Bond
- 5) Remobilization as identified in the Contract Documents
- 6) Demobilization

d. No payments will be made for standby, idle time, or lost profits associated this Item.

2. Remobilization for suspension of Work not identified in the Contract Documents, as required by City

a. Measurement and Payment

- 1) This shall be submitted as a Contract Claim in accordance with Article 10 of Section 00 72 00.
- 2) No payments will be made for standby, idle time, or lost profits associated with this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

1.5 SUBMITTALS [NOT USED]

1.6 INFORMATIONAL SUBMITTALS [NOT USED]

- 1 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**
2 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**
3 **1.9 QUALITY ASSURANCE [NOT USED]**
4 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**
5 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**
6 **1.12 WARRANTY [NOT USED]**

7 **PART 2 - PRODUCTS [NOT USED]**

8 **PART 3 - EXECUTION [NOT USED]**

9 **END OF SECTION**

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DATE	NAME	SUMMARY OF CHANGE

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SECTION 01 71 23
CONSTRUCTION STAKING AND SURVEY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Requirements for construction staking to be provided by the Contractor.
2. Requirements for coordination with City to allow performance of as-built survey at the Site.

B. Deviations from this City of Denton Standard Specification

1. None

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Construction Staking

a. Measurement and Payment

- 1) Work associated with this Item is considered incidental to the various Items bid. No separate payment will be allowed for this Item.

2. As-Built Survey

a. Measurement and Payment

- 1) Work associated with this Item is considered incidental to the various Items bid. No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

1.5 SUBMITTALS

A. Submittals, if required, shall be in accordance with Section 01 33 00.

B. All submittals shall be approved by the City prior to delivery.

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

A. Certificates

1. Provide certificate certifying that elevations and locations of improvements are in conformance or non-conformance with requirements of the Contract Documents.
 - a. Certificate must be sealed by a registered professional land surveyor in the State of Texas.

B. Field Quality Control Submittals

1. Documentation verifying accuracy of field engineering work.

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE

A. Construction Staking

1. Construction staking will be performed by the Contractor.
2. Coordination
 - a. It is the Contractor's responsibility to coordinate staking such that construction activities are not delayed or negatively impacted.
3. General
 - a. Contractor is responsible for preserving and maintaining staking.
 - b. If in the opinion of the City, a sufficient number of stakes or markings have been lost, destroyed or disturbed, by Contractor's neglect, such that the contracted Work cannot take place, then the Contractor will be required to re-stake the deficient areas.

B. As-built Survey

1. As-built Survey will be performed by the City.
2. Coordination
 - a. Contractor to verify that control data established in the design survey remains intact.
 - b. It is the Contractor's responsibility to coordinate As-built Survey such that construction activities are not delayed or negatively impacted.
 - c. Contractor shall coordinate construction operations with City sufficiently in advance and make provisions for City to perform as-built survey on various items indicated in Paragraph B.3.b.
 - d. Contractor shall restore or replace all necessary control data damaged during construction operations.
 - 1) Contractor shall perform replacements and/or restorations.
3. General
 - a. As-built survey will be performed in order to maintain complete and accurate logs of control and survey work as it progresses for Project Records.
 - b. The Contractor will ensure coordination is maintained with the City to allow performance of as-built survey to obtain construction features including, but not limited to, the following:
 - 1) All Utility Lines
 - a) Rim and flowline elevations and coordinates for each manhole or junction structure
 - 2) Water Lines
 - a) Top of pipe elevations and coordinates for waterlines at the following locations:
 - (1) Every 250 linear feet
 - (2) Horizontal and vertical points of inflection, curvature, etc. (All Fittings)
 - (3) Cathodic protection test stations
 - (4) Sampling stations
 - (5) Meter boxes/vaults (All sizes)
 - (6) Fire lines
 - (7) Fire hydrants and valves
 - (8) Gate valves and Butterfly Valves

- (9) Plugs, stubouts, dead-end lines
- (10) Air Release valves (Manhole rim and vent pipe)
- (11) Blow off valves (Manhole rim and valve lid)
- (12) Pressure plane valves
- (13) Cleaning wyes
- (14) Casing pipe (each end)
- b) Storm Sewer
 - (1) Top of pipe elevations and coordinates at the following locations:
 - (a) Every 250 linear feet
 - (b) Horizontal and vertical points of inflection, curvature, etc.
- c) Sanitary Sewer
 - (1) Top of pipe elevations and coordinates for sanitary sewer lines at the following locations:
 - (a) Every 250 linear feet
 - (b) Horizontal and vertical points of inflection, curvature, etc.
 - (c) Cleanouts
- c. As-built survey will be performed in order to maintain complete and accurate logs of control and survey work associated with meeting or exceeding the line and grade required by these Specifications.
- d. The Contractor will ensure coordination is maintained with the City to allow performance of as-built survey and verify control data including, but not limited to, the following:
 - 1) Verification that established benchmarks and control are accurate.
 - 2) Use of Benchmarks to furnish and maintain all reference lines and grades for tunneling.
 - 3) Use of lines and grades to establish the location of the pipe.
 - 4) Submit to the City copies of field notes, if requested, used to establish all lines and grades and allow the City to check guidance system setup prior to beginning each tunneling drive.
 - 5) Provide access for the City, when requested, to verify the guidance system and the line and grade of the carrier pipe on a daily basis.
 - 6) The Contractor remains fully responsible for the accuracy of the work and the correction of it, as required.
 - 7) Monitor line and grade continuously during construction.
 - 8) Record deviation with respect to design line and grade once at each pipe joint and submit daily records to City.
 - 9) If the installation does not meet the specified tolerances, immediately notify the City and correct the installation in accordance with the Contract Documents.

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION

3.1 INSTALLERS [NOT USED]

3.2 EXAMINATION [NOT USED]

3.3 PREPARATION [NOT USED]

3.4 APPLICATION

3.5 REPAIR / RESTORATION [NOT USED]

3.6 RE-INSTALLATION [NOT USED]

3.7 FIELD [or] SITE QUALITY CONTROL

A. It is the Contractor's responsibility to maintain all stakes and control data in accordance with this Specification.

B. Do not change or relocate stakes or control data without approval from the City.

3.8 SYSTEM STARTUP [NOT USED]

3.9 ADJUSTING [NOT USED]

3.10 CLEANING [NOT USED]

3.11 CLOSEOUT ACTIVITIES [NOT USED]

3.12 PROTECTION [NOT USED]

3.13 MAINTENANCE [NOT USED]

3.14 ATTACHMENTS [NOT USED]

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE
8/31/2012	D. Johnson	

SECTION 01 74 23
CLEANING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Intermediate and final cleaning for Work not including special cleaning of closed systems specified elsewhere

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various Items bid. No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Scheduling

1. Schedule cleaning operations so that dust and other contaminants disturbed by cleaning process will not fall on newly painted surfaces.
2. Schedule final cleaning upon completion of Work and immediately prior to final inspection.

1.5 SUBMITTALS [NOT USED]

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE [NOT USED]

1.10 STORAGE, AND HANDLING

A. Storage and Handling Requirements

1. Store cleaning products and cleaning wastes in containers specifically designed for those materials.

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED [or] OWNER-SUPPLIED PRODUCTS [NOT USED]

2.2 MATERIALS

A. Cleaning Agents

1. Compatible with surface being cleaned
2. New and uncontaminated
3. For manufactured surfaces
 - a. Material recommended by manufacturer

2.3 ACCESSORIES [NOT USED]

2.4 SOURCE QUALITY CONTROL [NOT USED]

PART 3 - EXECUTION

3.1 INSTALLERS [NOT USED]

3.2 EXAMINATION [NOT USED]

3.3 PREPARATION [NOT USED]

3.4 APPLICATION [NOT USED]

3.5 REPAIR / RESTORATION [NOT USED]

3.6 RE-INSTALLATION [NOT USED]

3.7 FIELD [or] SITE QUALITY CONTROL [NOT USED]

3.8 SYSTEM STARTUP [NOT USED]

3.9 ADJUSTING [NOT USED]

3.10 CLEANING

A. General

1. Prevent accumulation of wastes that create hazardous conditions.
2. Conduct cleaning and disposal operations to comply with laws and safety orders of governing authorities.
3. Do not dispose of volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary drains or sewers.
4. Dispose of degradable debris at an approved solid waste disposal site.
5. Dispose of nondegradable debris at an approved solid waste disposal site or in an alternate manner approved by City and regulatory agencies.

6. Transport and deposit vegetative material removed as a result of work operations off-site at a legal site in accordance with all applicable federal, state, and local laws and regulations.
 - a. Removed vegetation will not be allowed to remain in piles or mounds on the easement or surrounding property.
7. Handle materials in a controlled manner with as few handlings as possible.
8. Thoroughly clean, sweep, wash and polish all Work and equipment associated with this project.
9. Remove all signs of temporary construction and activities incidental to construction of required permanent Work.
10. If project is not cleaned to the satisfaction of the City, the City reserves the right to have the cleaning completed at the expense of the Contractor.
11. Do not burn on-site.

B. Intermediate Cleaning during Construction

1. Keep Work areas clean so as not to hinder health, safety or convenience of personnel in existing facility operations.
2. At maximum weekly intervals, dispose of waste materials, debris and rubbish.
3. Confine construction debris daily in strategically located container(s):
 - a. Cover to prevent blowing by wind
 - b. Store debris away from construction or operational activities
 - c. Haul from site at a minimum of once per week
4. Vacuum clean interior areas when ready to receive finish painting.
 - a. Continue vacuum cleaning on an as-needed basis, until Final Acceptance.
5. Prior to storm events, thoroughly clean site of all loose or unsecured items, which may become airborne or transported by flowing water during the storm.

C. Interior Final Cleaning

1. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels and other foreign materials from sight-exposed surfaces.
2. Wipe all lighting fixture reflectors, lenses, lamps and trims clean.
3. Wash and shine glazing and mirrors.
4. Polish glossy surfaces to a clear shine.
5. Ventilating systems
 - a. Clean permanent filters and replace disposable filters if units were operated during construction.
 - b. Clean ducts, blowers and coils if units were operated without filters during construction.
6. Replace all burned out lamps.
7. Broom clean process area floors.
8. Mop office and control room floors.

D. Exterior (Site or Right of Way) Final Cleaning

1. Remove trash and debris containers from site.
 - a. Re-seed areas disturbed by location of trash and debris containers.
2. Sweep roadway to remove all rocks, pieces of asphalt, concrete or any other object that may hinder or disrupt the flow of traffic along the roadway.

3. Clean any interior areas including, but not limited to, vaults, manholes, structures, junction boxes and inlets.
4. If no longer required for maintenance of erosion facilities, and upon approval by City, remove erosion control from site.
5. Clean signs, lights, signals, etc.

3.11 CLOSEOUT ACTIVITIES [NOT USED]

3.12 PROTECTION [NOT USED]

3.13 MAINTENANCE [NOT USED]

3.14 ATTACHMENTS [NOT USED]

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE

SECTION 01 77 19
CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. The procedure for closing out a contract

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various Items bid.
No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Guarantees, Bonds and Affidavits

1. No application for final payment will be accepted until all guarantees, bonds, certificates, licenses and affidavits required for Work or equipment as specified are satisfactorily filed with the City.

B. Release of Liens or Claims

1. No application for final payment will be accepted until satisfactory evidence of release of liens has been submitted to the City.

1.5 SUBMITTALS

A. Submit all required documentation to Project Manager.

1.6 INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION

3.1 INSTALLERS [NOT USED]

3.2 EXAMINATION [NOT USED]

3.3 PREPARATION [NOT USED]

3.4 CLOSEOUT PROCEDURE

A. Prior to requesting Final Inspection, submit:

1. Project Record Documents in accordance with Section 01 78 39
2. Operation and Maintenance Data, if required, in accordance with Section 01 78 23

B. Prior to requesting Final Inspection, perform final cleaning in accordance with Section 01 74 23.

C. Final Inspection

1. After final cleaning, provide notice to the Project Manager and their duly appointed representative that the Work is completed.
 - a. City reserves the right to deny request for Final Inspection if City determines that the entire Work is not sufficiently complete to warrant a Final Inspection
 - b. The City will make an initial Final Inspection with the Contractor present.
 - c. Upon completion of this inspection, the City will notify the Contractor, in writing within 10 business days, of any particulars in which this inspection reveals that the Work is defective or incomplete.
2. Upon receiving written notice from the City, immediately undertake the Work required to remedy deficiencies and complete the Work to the satisfaction of the City.
3. Upon completion of Work associated with the items listed in the City's written notice, inform the City, that the required Work has been completed. Upon receipt of this notice, the City, in the presence of the Contractor, will make a subsequent Final Inspection of the project.
4. Provide all special accessories required to place each item of equipment in full operation. These special accessory items include, but are not limited to:
 - a. Specified spare parts
 - b. Adequate oil and grease as required for the first lubrication of the equipment
 - c. Initial fill up of all chemical tanks and fuel tanks
 - d. Light bulbs
 - e. Fuses
 - f. Vault keys
 - g. Handwheels
 - h. Other expendable items as required for initial start-up and operation of all equipment

D. Notice of Project Completion

1. Once the City Project Representative finds the Work subsequent to Final Inspection to be satisfactory, the City will issue a Notice of Project Completion.

E. Supporting Documentation

1. Coordinate with the City Project Representative to complete the following additional forms:
 - a. Final Payment Request
 - b. Statement of Contract Time
 - c. Affidavit of Payment and Release of Liens
 - d. Consent of Surety to Final Payment

F. Letter of Final Acceptance

1. Upon review and acceptance of Notice of Project Completion and Supporting Documentation, in accordance with General Conditions, City will issue Letter of Final Acceptance and release the Final Payment Request for payment.

G. Warranty Inspection for Wastewater Mains

1. A second television inspection conforming to the standards laid out in NCTCOG Item 507.5.2 shall be started by the Contractor no sooner than 630 calendar days and finished no later than 690 calendar days after the date of acceptance for the project by the City of Denton.
2. The second inspection shall include a complete televised inspection of each manhole interior constructed or installed on the project (including cored manholes).
 - a. Should the second inspection indicate repairs that need to be made, these will be performed by the Contractor at no cost to the City.
3. Failure of the Contractor to perform the second inspection or to make repairs indicated by the second inspection shall be sufficient grounds for the City to take action through the terms of the Maintenance Bond for the project to perform the second inspection and make any repairs indicated.

3.5 REPAIR / RESTORATION [NOT USED]

3.6 RE-INSTALLATION [NOT USED]

3.7 FIELD [or] SITE QUALITY CONTROL [NOT USED]

3.8 SYSTEM STARTUP [NOT USED]

3.9 ADJUSTING [NOT USED]

3.10 CLEANING [NOT USED]

3.11 CLOSEOUT ACTIVITIES [NOT USED]

3.12 PROTECTION [NOT USED]

3.13 MAINTENANCE [NOT USED]

3.14 ATTACHMENTS [NOT USED]

END OF SECTION

1

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SECTION 01 78 23
OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Product data and related information appropriate for City's maintenance and operation of products furnished under Contract
2. Such products may include, but are not limited to:
 - a. Traffic Controllers
 - b. Irrigation Controllers (to be operated by the City)
 - c. Butterfly Valves

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various Items bid. No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS

A. Schedule

1. Submit manuals in final form to the City within 30 calendar days of product shipment to the project site.

1.5 SUBMITTALS

- A. Submittals shall be in accordance with Section 01 33 00. All submittals shall be approved by the City prior to delivery.

1.6 INFORMATIONAL SUBMITTALS

A. Submittal Form

1. Prepare data in form of an instructional manual for use by City personnel.
2. Format
 - a. Size: 8 ½ inches x 11 inches
 - b. Paper
 - 1) 40 pound minimum, white, for typed pages
 - 2) Holes reinforced with plastic, cloth or metal
 - c. Text: Manufacturer's printed data, or neatly typewritten

- d. Drawings
 - 1) Provide reinforced punched binder tab, bind in with text
 - 2) Reduce larger drawings and fold to size of text pages.
 - e. Provide fly-leaf for each separate product, or each piece of operating equipment.
 - 1) Provide typed description of product, and major component parts of equipment.
 - 2) Provide indexed tabs.
 - f. Cover
 - 1) Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS".
 - 2) List:
 - a) Title of Project
 - b) Identity of separate structure as applicable
 - c) Identity of general subject matter covered in the manual
 3. Binders
 - a. Commercial quality 3-ring binders with durable and cleanable plastic covers
 - b. When multiple binders are used, correlate the data into related consistent groupings.
 4. If available, provide an electronic form of the O&M Manual.
- B. Manual Content
1. Neatly typewritten table of contents for each volume, arranged in systematic order
 - a. Contractor, name of responsible principal, address and telephone number
 - b. A list of each product required to be included, indexed to content of the volume
 - c. List, with each product:
 - 1) The name, address and telephone number of the subcontractor or installer
 - 2) A list of each product required to be included, indexed to content of the volume
 - 3) Identify area of responsibility of each
 - 4) Local source of supply for parts and replacement
 - d. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
 2. Product Data
 - a. Include only those sheets which are pertinent to the specific product.
 - b. Annotate each sheet to:
 - 1) Clearly identify specific product or part installed
 - 2) Clearly identify data applicable to installation
 - 3) Delete references to inapplicable information
 3. Drawings
 - a. Supplement product data with drawings as necessary to clearly illustrate:
 - 1) Relations of component parts of equipment and systems
 - 2) Control and flow diagrams
 - b. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
 - c. Do not use Project Record Drawings as maintenance drawings.
 4. Written text, as required to supplement product data for the particular installation:
 - a. Organize in consistent format under separate headings for different procedures.
 - b. Provide logical sequence of instructions of each procedure.

- 1 5. Copy of each warranty, bond and service contract issued
- 2 a. Provide information sheet for City personnel giving:
- 3 1) Proper procedures in event of failure
- 4 2) Instances which might affect validity of warranties or bonds
- 5 C. Manual for Materials and Finishes
- 6 1. Submit 5 copies of complete manual in final form.
- 7 2. Content, for architectural products, applied materials and finishes:
- 8 a. Manufacturer's data, giving full information on products
- 9 1) Catalog number, size, composition
- 10 2) Color and texture designations
- 11 3) Information required for reordering special manufactured products
- 12 b. Instructions for care and maintenance
- 13 1) Manufacturer's recommendation for types of cleaning agents and methods
- 14 2) Cautions against cleaning agents and methods which are detrimental to
- 15 product
- 16 3) Recommended schedule for cleaning and maintenance
- 17 3. Content, for moisture protection and weather exposure products:
- 18 a. Manufacturer's data, giving full information on products
- 19 1) Applicable standards
- 20 2) Chemical composition
- 21 3) Details of installation
- 22 b. Instructions for inspection, maintenance and repair
- 23 D. Manual for Equipment and Systems
- 24 1. Submit 5 copies of complete manual in final form.
- 25 2. Content, for each unit of equipment and system, as appropriate:
- 26 a. Description of unit and component parts
- 27 1) Function, normal operating characteristics and limiting conditions
- 28 2) Performance curves, engineering data and tests
- 29 3) Complete nomenclature and commercial number of replaceable parts
- 30 b. Operating procedures
- 31 1) Start-up, break-in, routine and normal operating instructions
- 32 2) Regulation, control, stopping, shut-down and emergency instructions
- 33 3) Summer and winter operating instructions
- 34 4) Special operating instructions
- 35 c. Maintenance procedures
- 36 1) Routine operations
- 37 2) Guide to "trouble shooting"
- 38 3) Disassembly, repair and reassembly
- 39 4) Alignment, adjusting and checking
- 40 d. Servicing and lubrication schedule
- 41 1) List of lubricants required
- 42 e. Manufacturer's printed operating and maintenance instructions
- 43 f. Description of sequence of operation by control manufacturer
- 44 1) Predicted life of parts subject to wear
- 45 2) Items recommended to be stocked as spare parts
- 46 g. As installed control diagrams by controls manufacturer
- 47 h. Each contractor's coordination drawings
- 48 1) As installed color coded piping diagrams

- i. Charts of valve tag numbers, with location and function of each valve
- j. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage
- k. Other data as required under pertinent Sections of Specifications
3. Content, for each electric and electronic system, as appropriate:
 - a. Description of system and component parts
 - 1) Function, normal operating characteristics, and limiting conditions
 - 2) Performance curves, engineering data and tests
 - 3) Complete nomenclature and commercial number of replaceable parts
 - b. Circuit directories of panelboards
 - 1) Electrical service
 - 2) Controls
 - 3) Communications
 - c. As installed color coded wiring diagrams
 - d. Operating procedures
 - 1) Routine and normal operating instructions
 - 2) Sequences required
 - 3) Special operating instructions
 - e. Maintenance procedures
 - 1) Routine operations
 - 2) Guide to "trouble shooting"
 - 3) Disassembly, repair and reassembly
 - 4) Adjustment and checking
 - f. Manufacturer's printed operating and maintenance instructions
 - g. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage
 - h. Other data as required under pertinent Sections of Specifications
4. Prepare and include additional data when the need for such data becomes apparent during instruction of City's personnel.

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE

- A. Provide operation and maintenance data by personnel with the following criteria:
 1. Trained and experienced in maintenance and operation of described products
 2. Skilled as technical writer to the extent required to communicate essential data
 3. Skilled as draftsman competent to prepare required drawings

1 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**

2 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

3 **1.12 WARRANTY [NOT USED]**

4 **PART 2 - PRODUCTS [NOT USED]**

5 **PART 3 - EXECUTION [NOT USED]**

6 **END OF SECTION**

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DATE	NAME	SUMMARY OF CHANGE

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SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Work associated with the documenting the project and recording changes to project documents, including:
 - a. Record Drawings

B. Deviations from this City of Denton Standard Specification

1. None.

C. Related Specification Sections include, but are not necessarily limited to:

1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Work associated with this Item is considered incidental to the various Items bid. No separate payment will be allowed for this Item.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

1.5 SUBMITTALS

- A. Prior to submitting a request for Final Inspection, deliver Project Record Documents to Project Manager.

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE

A. Accuracy of Records

1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly.
2. Accuracy of records shall be such that future search for items shown in the Contract Documents may rely reasonably on information obtained from the approved Project Record Documents.
3. To facilitate accuracy of records, make entries within 24 hours after receipt of information that the change has occurred.

4. Provide factual information regarding all aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive site measurement, investigation and examination.

1.10 STORAGE AND HANDLING

A. Storage and Handling Requirements

1. Maintain the job set of Record Documents, which shall include the Drawings and the Project Manual, completely protected from deterioration and from loss and damage until completion of the Work and transfer of all recorded data to the final Project Record Documents.
2. In the event of loss of recorded data, use means necessary to again secure the data to the City's approval.
 - a. In such case, provide replacements to the standards originally required by the Contract Documents.

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS [NOT USED]

2.2 RECORD DOCUMENTS

A. Job set

1. Promptly following receipt of the Notice to Proceed, secure from the City, at no charge to the Contractor, 1 complete set of all Documents comprising the Contract.

B. Final Record Documents

1. At a time nearing the completion of the Work and prior to Final Inspection, provide the City 1 complete set of all Final Record Drawings in the Contract.

2.3 ACCESSORIES [NOT USED]

2.4 SOURCE QUALITY CONTROL [NOT USED]

PART 3 - EXECUTION

3.1 INSTALLERS [NOT USED]

3.2 EXAMINATION [NOT USED]

3.3 PREPARATION [NOT USED]

3.4 MAINTENANCE DOCUMENTS

A. Maintenance of Job Set

1. Immediately upon receipt of the job set, identify each of the Documents with the title, "RECORD DOCUMENTS - JOB SET". The Job set shall include the Drawings and the Project Manual.

2. Preservation
 - a. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set.
 - b. Do not use the job set for any purpose except entry of new data and for review by the City, until start of transfer of data to final Project Record Documents.
 - c. Maintain the job set at the site of work.
3. Coordination with Construction Survey
 - a. At a minimum, in accordance with the intervals set forth in Section 01 71 23, clearly mark any deviations from Contract Documents associated with installation of the infrastructure.
4. Making entries on Drawings and Specifications
 - a. Record any deviations from Contract Documents on Drawings and in the Specifications if applicable.
 - b. Use an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.
 - c. Date all entries.
 - d. Call attention to the entry by a "cloud" drawn around the area or areas affected.
 - e. In the event of overlapping changes, use different colors for the overlapping changes.
5. Conversion of schematic layouts
 - a. In some cases on the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items, are shown schematically and are not intended to portray precise physical layout.
 - 1) Final physical arrangement is determined by the Contractor, subject to the City's approval.
 - 2) However, design of future modifications of the facility may require accurate information as to the final physical layout of items which are shown only schematically on the Drawings.
 - b. Show on the job set of Record Drawings, by dimension accurate to within 1 inch, the centerline of each run of items.
 - 1) Final physical arrangement is determined by the Contractor, subject to the City's approval.
 - 2) Show, by symbol or note, the vertical location of the Item ("under slab", "in ceiling plenum", "exposed", and the like).
 - 3) Make all identification sufficiently descriptive that it may be related reliably to the Specifications.
 - c. The City may waive the requirements for conversion of schematic layouts where, in the City's judgment, conversion serves no useful purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the City.

B. Final Project Record Documents

1. Transfer of data to Drawings and Specifications
 - a. Carefully transfer change data shown on the job set of Record Drawings and Project Manual if applicable, to the corresponding final documents, coordinating the changes as required.
 - b. Clearly indicate at each affected detail and other Drawing a full description of changes made during construction, and the actual location of items.

- c. Call attention to each entry by drawing a "cloud" around the area or areas affected.
 - d. Make changes neatly, consistently and with the proper media to assure longevity and clear reproduction.
2. Transfer of data to other Documents
- a. If the Documents, other than Drawings, have been kept clean during progress of the Work, and if entries thereon have been orderly to the approval of the City, the job set of those Documents, other than Drawings, will be accepted as final Record Documents.
 - b. If any such Document is not so approved by the City, secure a new copy of that Document from the City at the City's usual charge for reproduction and handling, and carefully transfer the change data to the new copy to the approval of the City.

3.5 REPAIR / RESTORATION [NOT USED]

3.6 RE-INSTALLATION [NOT USED]

3.7 FIELD [OR] SITE QUALITY CONTROL [NOT USED]

3.8 SYSTEM STARTUP [NOT USED]

3.9 ADJUSTING [NOT USED]

3.10 CLEANING [NOT USED]

3.11 CLOSEOUT ACTIVITIES [NOT USED]

3.12 PROTECTION [NOT USED]

3.13 MAINTENANCE [NOT USED]

3.14 ATTACHMENTS [NOT USED]

END OF SECTION

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TECHNICAL SPECIFICATIONS

**NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS FOR
PUBLIC WORKS CONSTRUCTION – FOURTH EDITION, DIVISION 200-800**

AMENDMENTS

The following specifications and definitions are intended to amend The October 2004 edition of the North Central Texas Council of Governments Standard Specifications for Public Works Construction, and where conflicts exist these notes shall rule:

<u>Item</u>	<u>Description</u>
201	Temporary Erosion Control
201.11	Stabilized Construction Entrance
202.5	Sodding
202.6	Seeding Turf Grass
203.3	General Site Preparation
203.7	Embankment
301.2	Lime Treatment
301.5	Flexible Sub-base or Base
302.9	Asphalt Pavement (Materials Only)
303	Portland Cement Concrete Pavement
305.1	Concrete Curb & Gutter
305.2	Concrete Sidewalks
501.1	Underground Conduit Materials
501.7	Ductile Iron Pressure Pipe
501.7.4	Ductile Iron Fittings
501.14	Polyvinyl Chloride (PVC) Water Pipe
501.15	Polyvinyl Chloride (PVC) Pressure Rate Pipe & Fittings for Wastewater
501.17	Polyvinyl Chloride (PVC) Wastewater Pipe & Fittings
501.24	Fiberglass Wastewater Pipe & Fittings
502.1-A	Concrete Manholes (Cast-in-Place)
502.1-B	Concrete Manholes (Precast)
502.1-C	Fiberglass Manholes
502.3	Fire Hydrant Assembly
502.6.2	Resilient Seated Gate Valve
502.6.3	Air Valves
502.8	Polyethylene Wrap for Metal Pipe and Fittings
502.10.3-A	Water Service Connections (Small Diameter)
502.10.4	Sanitary Sewer Services
502.12.4	Core into Existing Manhole
503.2	Tunnel/Casing Pipe Spacers
503.3	Boring and Tunneling
507.4.5	Sewer Pipe Coupling
507.5.2	Television Inspection
801	Barricades, Detours, and Warning Signs
SS01	Cut and Plug Existing Sewer Lines
SS02	Abandon Existing Manhole
SS03	Remove Existing Manhole

Item 201 Temporary Erosion Control

General: This item shall govern the control measures required to prevent and control soil erosion from the work site.

Construction Requirements: The contractor shall be responsible for providing temporary erosion control during the construction process according to the specifications and procedures outlined under NCTCOG Item 201. An erosion control plan must be submitted by the contractor and approved by the project engineer prior to beginning construction. The erosion control plan must specify the type and location of all erosion control devices and methods. The contractor is free to use any of the erosion control options specified under NCTCOG Item 201 to control erosion. Erosion control devices and methods must follow the specifications outlined under NCTCOG Item 201 and the corresponding detail drawings in Division 1000. All erosion control devices must be maintained and inspected through the construction process. All erosion control devices shall be inspected every 7 calendar days during construction. In the event that silt or construction debris does escape the immediate construction areas, the contractor shall be responsible for cleaning it up within 24 hours of the incident. This includes soil tracked out of the construction areas by the contractor's vehicles. If the project inspector sees that a certain erosion control method or location is not working, he may direct the contractor to correct the erosion control devices accordingly.

Duration: All erosion control devices must remain in place until the disturbed soil in the work site is stabilized. Stabilization may be obtained through one of the following options: Seeding of the work zone until 70% of the disturbed area has vegetative coverage, sodding the disturbed area, placement of an erosion blanket over the disturbed area, or the application of organic mulching material to cover the disturbed area. All erosion control devices will require removal once approval is provided by Watershed Protection.

NCTCOG Reference: Item 201

Payment: Payment will be at the contract unit price per linear foot of pipe installation protected by temporary erosion control measures. Removal of temporary erosion control measures is considered incidental.

Item 201.11 Stabilized Construction Entrance

General: This item shall govern the construction of a stabilized construction entrance to the work site to minimize the tracking of soil from the work site to City streets and roads.

Materials: Stone and filter fabric shall meet the requirements of NCTCOG Item 201.11.2.

Construction: The construction entrance shall be constructed according to NCTCOG Drawings 1070A and 1070B and in accordance with the provisions of NCTCOG Item 201.11.3.

NCTCOG Reference: Item 201

Payment: Separate payment for stabilized construction entrances shall not be made. This shall be considered a subsidiary cost of Item 203.3 General Site Preparation.

Item 202.5 Sodding

General: This item provides for the preparation and placement of turf grass blocks or plugs upon all areas where vegetation is removed or damaged due to the construction of public service lines, facilities, roads or sidewalks.

Installation: Sod grass shall be placed according to the specifications listed under NCTCOG Item 202.5 and to the extents listed on the plans if so indicated. City approval on the location, amount and type of sod is required prior to placement. Failure to obtain City approval prior to placement may be cause for the City to reject payment. This item includes labor, material, equipment, water, and fertilizer necessary to establish the sod grass prior to acceptance.

NCTCOG Reference: Item 202.5

Payment: Payment for this item shall be at the contract unit price for each square yard of sod grass placed. Price shall be full compensation for furnishing of all materials and labor, including water and fertilizer required to establish the sod grass.

Item 202.6 Seeding Turf Grass

General: This item provides for the preparation and seeding of turf grass of all areas where vegetation is removed or damaged due to the construction of public service lines, facilities, roads or sidewalks.

Installation: Turf grass shall be seeded on areas that have been stripped of vegetative cover due to construction activities. City approval on the location, amount and type of seed grass is required prior to placement. Failure to obtain City approval prior to placement may be cause for the City to reject payment. Turf grass may be seeded according to any of the methods listed under NCTCOG Item 202.6. This item includes labor, material, equipment, water, and fertilizer necessary to establish the broadcast seed prior to acceptance. Seed plantings must be sprouted prior to project acceptance and the Contractor must maintain the seeded area until 70% cover is achieved.

NCTCOG Reference: Item 202.6

Measurement: Measurement and payment for seeding shall be based on the square yardage of seeded area.

Payment: Payment for this item shall be at the contract unit price for seeding per square yard. Price should be full compensation for furnishing of all materials including water for seeding fertilizer slurry and maintaining growth.

Item 203.3 General Site Preparation

General: This item shall consist of preparing the right-of-way or public easements for construction operations by the removal of all obstructions and disposal of the materials by the contractor. Disposal of removed materials is the responsibility of the contractor. Obstructions to be removed under this item are listed in NCTCOG Item 203.3.1. Exceptions to the obstructions list shall be noted on the plans or in the Special Contract Requirements. The contractor shall keep tree removal within the permanent utility easement or right-of-way to a minimum, only removing trees necessary to install the improvements unless otherwise noted on the construction plans. All properties shall be restored to the same or better condition than prior to the construction. Existing fencing, railing, gates and barriers that require removal during construction will be replaced with equal or better fencing, railing, gates and barriers at the end of the project. Payment for replacement fencing, railing, gates and barriers is considered subsidiary to this line item.

NCTCOG Reference: Item 203.3

Payment: Payment for this item shall be at the contract lump sum for General Site Preparation.

Item 203.7 Embankment

General: This item shall consist of the placement and compaction of approved soils to the standards and surface grades as indicated by the construction plans or Special Contract Requirements.

Construction: Embankment shall be constructed in accordance to NCTCOG Item 203.7.2. The base soil surface on which the embankment will be constructed shall be scarified or plowed to a minimum depth of 6 inches prior to the placement of any embankment layers. Embankment shall be compacted in layers not to exceed 8 inches in depth. Embankment shall be compacted to the requirements specified in the Special Contract Requirements.

NCTCOG Reference: Item 203.7

Payment: Payment for this item shall be at the contract unit price for each cubic yard of embankment material placed and compacted. Payment shall include all labor, equipment and materials required to place the embankment material and to establish the surface grades indicated on the construction plans.

Item 301.2 Lime Treatment

General: This item establishes the requirements for the treatment of pavement subgrades with hydrated lime. General requirements are found in NCTCOG section 301.2 with modifications listed below.

Materials: Dry hydrated lime or slurry lime (commercial Grade 2 or Grade 3). Quicklime will be allowed upon City approval.

Construction: All subgrade surfaces shall be shaped within 0.2 feet of finished grade before liming operations start. Soft areas of the subgrade shall be removed and replaced with suitable soil prior to lime treatment. Lime shall be mixed at the minimum rate and to the minimum subgrade depth indicated on the plans or in the specifications. The final lime treated mixture shall pass the gradation requirements in the table below:

Sieve Size	Passing
1 ¾-in	100%
¾-in	85%
No. 4	60%

The mixed material shall be compacted to the density specified in NCTCOG Item 301.2.3.6. A minimum of 72 hours of curing time after the initial mixing of the subgrade will be required before remixing is allowed and the placement of base courses or other construction activities are permitted. The treated subgrade shall be kept moist during the curing process to prevent cracking of the treated surface. If the pavement or other base courses are not to be placed within 14 days of final mixing, a seal coat conforming to NCTCOG Item 302.3.5.1 and NCTCOG Tables 302.3.5.1.(a) and 302.3.5.1.(b) shall be applied to the treated subgrade surface.

Payment: Payment shall be at the contract unit price per square yard of subgrade treated.

Item 301.5 Flexible Subbase or Base (Crushed Stone/Concrete)

General: This item shall govern the composition and placement of flexible base for use as a foundation course for other pavement courses or as a surface course. Flexible base may be used in lieu of treated subgrade if approved by the City Engineer and confirmed by the geotech report. At a minimum, depth of compacted flexible base shall meet minimum treated subgrade depth as shown on the City of Denton standard details.

Material: The material shall be crushed stone, naturally occurring gravel or crushed concrete. The material shall adhere to the Grade 1 material requirements of Table 301.5.2.(a) of the NCTCOG specifications. Any material source shall be approved by the City before any work occurs.

Construction: Preparation of the subgrade, course applications, density, and finish shall be in accordance with NCTCOG Item 301.5.2. If the existing subgrade is unsuitable, the subgrade material shall be removed and replaced with suitable subgrade material from the work site or with select backfill specified by the Owner's Representative.

Payment: Payment shall be at the contract unit price per square yard of flexible base or subbase constructed in place to the full depth specified on the plans.

Item 302.9 Asphalt Pavement (Materials Only)

General: This item shall govern the use of allowable asphalt pavement materials required for the construction of asphalt pavement.

Aggregate Composition: Coarse aggregate, fine aggregate, sand and mineral filler shall adhere to the standards of NCTCOG Item 302.2. Aggregate gradation requirements shall conform to the asphalt mix design indicated on the plans or in the Special Contract Requirements.

Bituminous Materials: Unless the plans or Special Contract Requirements specify otherwise, the asphaltic binder for asphalt pavement shall be PG 64-22 asphalt cement.

Fibrous Reinforcement: Unless the plans or Special Contract Requirements specify otherwise, fibrous reinforcement of asphalt pavement will not be allowed.

Paving Mixture: The paving mix design shall conform to the standard plan details or Special Contract Requirements. In general, only Type B, C, and D mix designs shall be allowed.

Prime Coat: A priming coat is not required between pavement courses unless specifically called for on the plans or in the Special Contract Requirements.

Tack Coat: Tack coat shall be a slow setting emulsified asphalt conforming to Type CSS-1h in NCTCOG Table 302.3.4.(c) unless otherwise specified in the plans or Special Contract Requirements.

Item 303 Portland Cement Concrete Pavement

General: This item shall govern the composition and construction of Portland cement concrete pavement to the standards and dimensions required by the plans and specifications.

Materials:

Aggregate Composition: Coarse and fine aggregates for concrete shall conform to the provisions of NCTCOG Item 303.2.1.

Portland Cement: Portland cement shall conform to the provisions of NCTCOG Item 303.2.2.

Chemical Admixtures: Chemical admixtures shall conform to the provisions of NCTCOG Item 303.2.3. Air entrainment admixtures shall be utilized to ensure total air content of the concrete between 4% and 6%. Water reducing and set retarding admixtures shall be approved on a project by project basis.

Mineral Admixtures: Mineral admixtures shall conform to the provisions of NCTCOG Item 303.2.4. Maximum fly ash amount shall not exceed 25% by weight per cubic yard of concrete.

Mineral Filler: Mineral filler will be allowed under the provisions of NCTCOG Item 303.2.5 and Table 303.2.5.(a).

Fibrous Reinforcement: Fiber reinforcement is required for concrete sidewalk. Fiber shall be Fibermesh® 300 Synthetic Fiber as produced by Propex Concrete Systems or an approved equivalent. Application shall be 1.5 lbs of fiber per cubic yard of concrete with 1.5-inch long strands. Application shall follow the manufacturer's guidelines.

Steel Reinforcement: Steel reinforcement shall be of the size and quantity as shown on the City of Denton standard details unless called for on the plans or in the Special Contract Requirements. Steel reinforcement shall conform to the standards of NCTCOG Item 303.2.9.

Curing Materials: Curing material shall be a ASTM 309 Type 2, white pigmented curing compound unless otherwise noted on the plans or in the Special Contract Requirements. The use of mats, paper or film shall not be permitted for curing purposes. The compound and its application shall conform to NCTCOG Item 303.2.13. The compound shall be applied per the manufacturer's guidelines.

Mix Design: Mix design shall be as called for on the plans or in the Special Contract Requirements.

Construction: Concrete shall be mixed, delivered and placed per the requirements of NCTCOG Items 303.3, 303.4 and 303.5. Concrete shall not be placed if the temperature is less than 40 degrees F and falling but may be placed if the temperature is above 35 degrees F and rising. Contractor is responsible for any adverse impacts on the quality and strength of concrete placed due to weather related conditions. Under no circumstances shall concrete be placed upon frozen subgrade. Concrete must be placed within the time limits prescribed by NCTCOG Table 303.5.5.(a). Hand finishing of concrete pavement is only allowed in areas inaccessible to a finishing machine. See Section 3.1.A of the City of Denton Transportation Criteria Manual regarding placement method. Curing compound shall be applied immediately upon conclusion of finishing per NCTCOG Item 303.5.7. Curing compound shall be applied to the side pavement edge after the forms are removed and before the placement of soil. Excessive voids or honeycombing of the pavement edge may be cause for the rejection of the pavement section. When required, contraction or dummy joints shall be sawed into the concrete per the plans within 24 hours of placement. Unless otherwise noted in the plans or Special Contract Requirements, all vehicle traffic shall be excluded from the new concrete pavement for a minimum of 14 days.

Payment: Payment shall be at the contract unit price per square yard of concrete placed at the design pavement thickness. Price shall include all concrete, steel reinforcement, form work, finishing work, jointing, sawing, sealing, and cleaning. Integral or monolithic concrete curb placed with the pavement shall not be included; it shall be paid for separately.

Item 305.1 Concrete Curb & Gutter

General: This item shall consist of Portland Cement Concrete Curb and Gutter installed separately from new concrete pavement.

Materials: Concrete shall conform to the class called for on the plans or in the current City standard detail drawings. Steel reinforcement dowels, where required, shall be as called for on the plans or in the current City standard detail drawings.

Construction: No concrete shall be placed if the temperature is less than 35 degrees F. Concrete curb and gutter shall be installed per the plans and according to the provisions of NCTCOG Item 305.1.3. Expansion joints shall be required every 200 feet of curb length per NCTCOG Item 305.1.3.4. One longitudinal dowel bar of #4 reinforcing steel two feet in length shall be required at every expansion joint.

Backfilling: The curb and gutter shall be backfilled within seventy-two (72) hours of pouring. The backfill shall be of suitable material and compacted in a manner acceptable to the City. All backfill material shall be free of clods and rocks and compacted to a level even with the top of curb.

Payment: Payment shall be at the contract unit price for concrete curb and gutter complete and in place. The unit price shall include backfilling of soil behind the curb. The unit price does not include the excavation or disposal of material required to install the curb and gutter.

Item 305.2 Concrete Sidewalks

General: This item governs the composition and construction of new concrete sidewalks.

References: The contractor shall refer to Item 305.2 of the NCTCOG Specifications, and the Texas Accessibility Standards Section 4, Accessible Elements and Spaces: Scope and Technical Requirements for details not specifically called out in this specification, the plans, or the Special Contract Requirements.

Construction: Sidewalk shall be installed per the plans and the most current City standard sidewalk details. Unless otherwise noted on the plans or Special Contract Requirements, the Contractor shall be responsible for identifying the extent of the public right-of-way or easements in which the sidewalk will be installed. Where a permanent obstruction is encountered and existing right-of-way or easement is insufficient for the full width of the proposed sidewalk, the sidewalk width may be reduced to thirty-six inches for the length of the obstruction. The path of the sidewalk around an obstruction shall utilize a gradual curve so as not to create a sharp bend around the obstruction. Where new concrete sidewalk adjoins an existing concrete sidewalk, curb and gutter, or driveway approach, an expansion joint shall be placed at the interface and the new sidewalk shall be connected to the existing concrete item with 6 inch long, #3 steel reinforcement dowel bars placed every 24 inches into mechanically drilled holes.

The completed sidewalk must have an unobstructed vertical clearance of eighty inches for the entire length and width of the sidewalk. Trees, shrubs and brush that must be trimmed to complete this task must be cut and removed in a professional manner.

Materials: Concrete mix design and steel reinforcement shall be as called for on the plans, in the current City standard detail drawings, or in the Special Contract Requirements. Fiber Reinforcement and curing compound shall conform to the provisions of Item 303 Portland Cement Concrete Pavement.

Payment: Payment shall be made at the contract unit price per square yard of concrete sidewalk complete in place. Price shall include concrete, fiber reinforcement, reinforcing steel, joint material, and backfilling of soil along sidewalk. Contract unit price does not include the removal and disposal of any material required to install the new concrete sidewalk, including existing sidewalk.

Item 501.1 Underground Conduit Materials

General: This item establishes the permissible conduit material types and size restrictions for water, sanitary sewer and drainage applications. No other conduit types shall be permitted unless specifically called for in the plans or Special Contract Requirements.

Water: Conduit shall be either AWWA C900 PVC pipe, AWWA C151 Ductile Iron pipe, AWWA C303 Bar-wrapped Concrete Steel Cylinder pipe, or AWWA C200 Steel Water pipe. Size and thickness restrictions for each pipe material type are given in the table below:

<u>Pipe Material</u>	<u>Diameter Range (in)</u>	<u>Min. Thickness Class</u>
AWWA C900	6 – 12	DR-14
AWWA C151	16 – 24	Special Thickness Class 52
AWWA C303	16 and larger	Design Specific
AWWA C200	36 and larger	Design Specific

Sanitary Sewer: Conduit shall be either AWWA C900/C905 PVC pipe (pressure rated applications only), ASTM D3034 PVC pipe, ASTM F679 PVC pipe, ASTM D3262 Fiberglass pipe, or ASTM F714 Solid Wall Polyethylene Plastic pipe (pipe-bursting applications only). Size and thickness restrictions for each pipe material type are given in the table below:

<u>Pipe Material</u>	<u>Diameter Range (in)</u>	<u>Min. Thickness Class</u>
AWWA C900	6 - 12	DR-18
AWWA C905	14 and larger	DR-18
ASTM D3034	6 – 15	SDR-35
ASTM F679	18 and larger	PS 46
ASTM D3262	18 and larger	PS 46
ASTM F714	6 and larger	DR-11h

Drainage: Conduit shall be either ASTM C76 Reinforced Concrete pipe, ASTM A760 Corrugated Aluminized Type 2 Steel pipe, or ASTM C789 and ASTM C850 Precast Reinforced Concrete Box Sections. Size and thickness restrictions for each pipe material type are given in the table below:

<u>Pipe Material</u>	<u>Diameter Range (in)</u>	<u>Min. Thickness Class</u>
ASTM C76	18 and larger	Class III
ASTM A760	18 - 42	Design Specific
ASTM C789 or C850	As manufactured	Application Specific

Item 501.7 Ductile Iron Pressure Pipe

General: This item shall govern the materials of construction and installation of Ductile Iron Pressure Pipe for use in potable water distribution.

Material: Unless otherwise noted on the plans or in the Special Contract Requirements, ductile iron pressure pipe shall conform to AWWA C-151 standards and have push-on joints conforming to AWWA C111 standards. Where a pipe joint requires a mechanical joint connection or a flanged joint connection, an appropriately jointed pipe segment shall be furnished conforming to AWWA C111 or AWWA C110 standards. Pipe shall have a bituminous exterior coating and be exterior corrosion protected using an inner encasement of 8 mil "V-bio" enhanced polyethylene and an outer encasement of 4 mil cross linked polyethylene encasement per AWWA C-105. Pipe shall be interior corrosion protected using a cement mortar lining per AWWA C-104.

Installation: Pipe and fittings shall be installed at the locations and in the quantities indicated on the plans or in the Special Contract Requirements. Pipe without a design profile shall be installed at the minimum depths required by the current City of Denton Water Criteria Manual. Pipe shall be installed according to the provisions of NCTCOG Items 505 "General Conduit Installation" and 506 "Water Conduit Installation". Trench width and depth shall be governed by the appropriate trench detail drawing in the plans or the current City trench detail drawing. Installation under existing pavement shall require a pavement saw cut conforming to NCTCOG Item 402.3 "Sawing". The ductile iron pressure pipe and fittings shall be wrapped in two layers of polyethylene encasement prior to installation. The inner encasement shall be 8 mil "V-bio" enhanced polyethylene and the outer encasement shall be 4 mil cross linked polyethylene. Embedment and backfill shall be as required by the appropriate trench detail drawing in the plans or the current City trench detail drawing.

All fittings shall utilize mechanical joint restraints. All fittings shall include concrete thrust blocking for full design thrust. For 16 inch diameter and greater water lines, the water lines shall be restrained at the ductile iron fittings for full design thrust requirements. For 16 inch diameter and greater water lines the Contractor shall provide lay schedules developed by the pipe manufacturer showing the required restraint at fittings and at additional joints based on the design calculations for full thrust design. The lay schedule and design calculations from the pipe manufacturer shall be a part of the pipe submittal. Unless the plans or Special Contract Requirements indicate otherwise, thrust restraint shall be as follows:

- 1.) For pipe diameters greater than 12 inches but less than 30 inches, both concrete thrust blocking and mechanical joints restraints. Calculations for the mechanical joint restraints shall be determined by the pipe supplier and furnished for review by the City prior to installation.
- 2.) For pipe diameters equal or greater than 30 inches, mechanical joints restraints only. Calculations for the mechanical joint restraints shall be determined by the pipe supplier and furnished for review by the City prior to installation.

The concrete thrust blocking shall be installed at all pipe bends, tees, or pipe ends according to the thrust blocking details in the plans or the current City standard thrust blocking details. The maximum length of open trench at all time shall be 200 feet. Open trench at the end of the working day must be plated or barricaded from public access.

Testing and Disinfection: Pipe shall be hydrostatically tested according to the provisions of NCTCOG Item 506.5 "Hydrostatic Test" and NCTCOG Table 506.5.(a). Pipe shall be purged and disinfected according to the provisions of NCTCOG Item 506.7 "Purging and Disinfection of Water Conduits" and AWWA C651. Disinfection may be accomplished by either the continuous feed or slug feed methods. Interior surface of pipe shall be swabbed with a 1 to 5 percent hypochlorite disinfecting solution. Contractor shall submit a plan for flushing and disinfection for review and approval or make modifications to the plan.

Payment: Payment for this item shall be at the contract unit price per linear foot of water pipe installed. Unit price shall include pavement cut and repair, trench excavation, embedment, pipe and fitting, installation, backfill, thrust blocking, testing and disinfection, and temporary and permanent pavement repair if required, including but not limited to curb and gutter, driveway approach, sidewalks, and asphalt or concrete pavement repair. A separate unit price may be utilized to differentiate pipe installed under pavement from pipe installed in unpaved areas. Asphalt or concrete saw cut and removal shall be included in the unit price for water pipe installed under pavement.

Item 501.7.4 Ductile Iron Fittings

General: This item shall govern the material requirements of ductile iron fittings for use in water service supply. Installation of ductile iron fittings is described under the ductile iron and PVC pipe installation specifications.

Materials: Unless otherwise noted on the plans or in the Special Contract Requirements fittings shall be made of ductile iron and conform to either AWWA C110 for standard fitting sizes 16" and larger or AWWA C153 for compact fitting only for 12" and smaller. Fitting sizes and dimensions shall be as called for on the plans. Fittings shall have a bituminous seal coating and a cement interior lining in accordance with AWWA C104. Fittings shall be wrapped in an inner encasement 8 mil "V-bio" enhanced polyethylene and an outer encasement 4 mil cross linked polyethylene after installation. Fitting connection types shall be as called for on the plans or where unspecified, mechanical joint by mechanical joint. Bolting hardware shall conform to NCTCOG Item 501.7.4. Mechanical joints shall utilize T style bolts only. Flange connections shall utilize hex bolts only.

Payment: There is no separate pay item for ductile iron fittings as they are considered a subsidiary cost of water or wastewater line pipe installation unless specified otherwise in the plans or Special Contract Requirements..

Item 501.14 Polyvinyl Chloride (PVC) Water Pipe

General: This item shall govern the materials of construction and installation of PVC pipe for use in potable water distribution.

Material: Unless otherwise noted on the plans or in the Special Contract Requirements, pipe shall meet AWWA specification C-900 for diameter sizes 4" through 12" with a minimum wall thickness of DR 14. PVC pipe shall be blue in color. Any discoloration in the pipe shall be sufficient cause for rejection.

Installation: Pipe and fittings shall be installed at the locations and in the quantities indicated on the plans or in the Special Contract Requirements. Pipe without a design profile shall be installed at the minimum depths required by the current City of Denton Water Criteria Manual. Pipe shall be installed according to the provisions of NCTCOG Items 505 "General Conduit Installation" and 506 "Water Conduit Installation". Trench width and depth shall be governed by the appropriate trench detail drawing in the plans or the current City trench detail drawing. Installation under existing pavement shall require a pavement saw cut conforming to NCTCOG Item 402.3 "Sawing". Embedment and backfill shall be as required by the appropriate trench detail drawing in the plans or the current City trench detail drawing. Unless the plans or Special Contract Requirements indicate otherwise, thrust restraint shall be concrete thrust blocking only. The concrete thrust blocking shall be installed at all pipe bends, tees, or pipe ends according to the thrust blocking details in the plans or the current City standard thrust blocking details. The maximum length of open trench at any time shall be 200 feet. Open trench at the end of the working day must be plated or barricaded from public access.

Testing and Disinfection: Water pipe shall be hydrostatically tested according to the provisions of NCTCOG Item 506.5 "Hydrostatic Test" and NCTCOG Table 506.5.(a). Pipe shall be purged and disinfected according to the provisions of NCTCOG Item 506.7 "Purging and Disinfection of Water Conduits" and AWWA C651. Disinfection may be accomplished by either the continuous feed or slug feed methods. Interior surface of pipe shall be swabbed with a 1 to 5 percent hypochlorite disinfecting solution. Contractor shall submit a plan for flushing and disinfection for review and approval or make modifications to the plan.

Payment: Payment for this item shall be at the contract unit price per linear foot of water pipe installed. Unit price shall include pavement cut and repair, trench excavation, embedment, pipe and fitting, installation, backfill, thrust blocking, testing and disinfection, and temporary and permanent pavement repair if required, including but not limited to curb and gutter, driveway approach, sidewalks, and asphalt or concrete pavement repair. A separate unit price may be utilized to differentiate pipe installed under pavement from pipe installed in unpaved areas. Asphalt or concrete saw cut and removal shall be included in the unit price for water pipe installed under pavement.

Item 501.15 Polyvinyl Chloride (PVC) Pressure Rated Pipe & Fittings for Wastewater

General: This item shall govern the materials of construction and installation of PVC pipe and fittings for use in pressurized wastewater applications.

Material: Unless otherwise noted on the plans or in the Special Contract Requirements, pipe shall meet AWWA specification C-900 for diameter sizes 4" through 12" and AWWA specification C-905 for diameter sizes 14" and greater. Minimum wall thickness shall be DR 18. PVC pipe shall be green in color if the application is for raw wastewater and purple if the application is for reuse. Any discoloration in the pipe shall be sufficient cause for rejection. Fittings shall be AWWA C907 PVC or AWWA C110/C153 ductile iron with Protecto 401 protective coating.

Installation: Pipe and fittings shall be installed at the locations and in the quantities indicated on the plans or in the Special Contract Requirements. Pipe without a design profile shall be installed at the minimum depths required by the current City of Denton Wastewater Criteria Manual. Pipe shall be installed according to the provisions of NCTCOG Items 505 "General Conduit Installation" and 507 "Wastewater Conduit Installation". Trench width and depth shall be governed by the appropriate trench detail drawing in the plans or the current City trench detail drawing. Installation under existing pavement shall require a pavement saw cut conforming to NCTCOG Item 402.3 "Sawing". Embedment and backfill shall be as required by the appropriate trench detail drawing in the plans or the current City trench detail drawing. The Contractor shall provide lay schedules developed by the pipe manufacturer showing the required restraint at fittings and at additional joints based on the design calculations for full thrust design. The lay schedule and design calculations from the pipe manufacturer shall be a part of the pipe submittal. Unless the plans or Special Contract Requirements indicate otherwise, thrust restraints shall be as follows:

- 1.) For pipe diameters less than or equal to 12 inches, concrete thrust blocking only.
- 2.) For pipe diameters greater than 12 inches but less than 30 inches, both concrete thrust blocking and mechanical joints restraints. Calculations for the mechanical joint restraints shall be determined by the pipe supplier and furnished for review by the City prior to installation.
- 3.) For pipe diameters equal or greater than 30 inches, mechanical joints restraints only. Calculations for the mechanical joint restraints shall be determined by the pipe supplier and furnished for review by the City prior to installation.

The concrete thrust blocking shall be installed at all pipe bends, tees, or pipe ends according to the thrust blocking details in the plans or the current City standard thrust blocking details. The maximum length of open trench at any time shall be 200 feet. Open trench at the end of the working day must be plated or barricaded from public access.

Testing and Disinfection: Pipe shall be hydrostatically tested according to the provisions of NCTCOG Item 506.5 "Hydrostatic Test" and NCTCOG Table 506.5.(a).

Payment: Payment for this item shall be at the contract unit price per linear foot of pressure rated wastewater pipe installed. Unit price shall include pavement cut and repair, trench excavation, embedment, pipe and fitting, installation, backfill, thrust blocking, testing, and temporary and permanent pavement repair if required, including but not limited to curb and gutter, driveway approach, sidewalks, and asphalt or concrete pavement repair. A separate unit price may be utilized to differentiate pipe installed under pavement from pipe installed in unpaved areas. Asphalt or concrete saw cut and removal shall be included in the unit price for water pipe installed under pavement.

Item 501.17 Polyvinyl Chloride (PVC) Wastewater Pipe & Fittings

General: This item describes the materials of construction and installation of solid wall unplasticized polyvinyl chloride (PVC) wastewater pipe and fittings for gravity flow applications.

Submittals: Submittals shall demonstrate that the solid wall PVC wastewater pipe and fittings meet all of the required standards of this item.

Materials:

- A. Pipe and fittings shall meet the requirements of ASTM D3034 for pipe and fittings up through 15 inches in diameter. For diameters greater than 15 inches pipe and fittings shall meet the requirements of ASTM F679 with a pipe stiffness of 46 psi at 5% deflection.
- B. Wall thickness shall be SDR-35 unless otherwise noted on the plans or in the Special Contract Requirements.
- C. Fitting wall thickness shall match the main line pipe wall thickness.
- D. Pipe and fittings shall be green in color. Any discoloration in the pipe shall be sufficient cause for rejection.

Installation: Pipe and fittings shall be installed at the locations and in the quantities indicated on the plans or in the Special Contract Requirements. Pipe without a design profile shall be installed at the minimum depths required by the current City of Denton Wastewater Criteria Manual. Pipe shall be installed according to the provisions of NCTCOG Items 505 “General Conduit Installation” and 507 “Wastewater Conduit Installation”. Trench width and depth shall be governed by the appropriate trench detail drawing in the plans or the current City trench detail drawing. Installation under existing pavement shall require a pavement saw cut conforming to NCTCOG Item 402.3 “Sawing”. Embedment and backfill shall be as required by the appropriate trench detail drawing in the plans or the current City trench detail drawing.

Testing and Inspection: Pipe shall be air tested according to the provisions of NCTCOG Item 507.5.1.3 “Low Pressure air Testing”. Pipe shall be deflection tested according to the provisions of NCTCOG Item 507.5.1.4 “Flexible Pipe (Deflection) Testing”. Pipe shall be inspected by television in accordance with City of Denton Amendment Item 507.5.2.

Payment: Payment for this item shall be at the contract unit price for each linear foot of solid wall PVC wastewater pipe installed. Unit price shall include pavement cut and repair, trench excavation, embedment, pipe and fitting, installation, backfill, testing, and temporary and permanent pavement repair if required, including but not limited to curb and gutter, driveway approach, sidewalks, and asphalt or concrete pavement repair. A separate unit price may be utilized to differentiate pipe installed under pavement from pipe installed in unpaved areas. Asphalt or concrete saw cut and removal shall be included in the unit price for sanitary sewer pipe installed under pavement.

Item 501.24 Fiberglass Wastewater Pipe & Fittings

General: This item describes the materials of construction and installation of fiberglass (glass-fiber reinforced thermosetting-resin) pipe and fittings for use in wastewater applications.

Submittals: Submittals shall demonstrate that the fiberglass wastewater pipe and fittings meet all of the required standards of this item.

Materials:

- A. Pipe intended for gravity flow applications shall meet the requirements of ASTM D3262 for pipe stiffness of 46 psi at 5% deflection. Fittings shall conform to ASTM D3840 standards and match the pipe stiffness.
- B. Pipe intended for pressure flow applications shall meet the requirements of ASTM D3754 for pipe stiffness of 46 psi at 5% deflection. Fittings shall conform to ASTM D5685 standards and match the pipe stiffness.
- C. Minimum wall thickness shall conform to Class PN25/SN46 for gravity flow pipe and Class PN150/SN46 for pressure flow pipe unless otherwise noted on the plans or in the Special Contract Requirements.

- D. Joints shall utilize a gasketed coupling capable of spanning both ends of the pipe to be joined and conforming to ASTM D4161. The coupling pressure class shall match or exceed the pipe pressure class.

Installation: Pipe and fittings shall be installed at the locations and in the quantities indicated on the plans or in the Special Contract Requirements. Pipe without a design profile shall be installed at the minimum depths required by the current City of Denton Wastewater Criteria Manual. Pipe shall be installed according to the provisions of NCTCOG Items 505 “General Conduit Installation” and 507 “Wastewater Conduit Installation”. Trench width and depth shall be governed by the appropriate trench detail drawing in the plans or the current City trench detail drawing. Installation under existing pavement shall require a pavement saw cut conforming to NCTCOG Item 402.3 “Sawing”. Embedment and backfill shall be as required by the appropriate trench detail drawing in the plans or the current City trench detail drawing.

Testing and Inspection: Pipe shall be air tested according to the provisions of NCTCOG Item 507.5.1.3 “Low Pressure air Testing”. Pipe shall be deflection tested according to the provisions of NCTCOG Item 507.5.1.4 “Flexible Pipe (Deflection) Testing”. Pipe shall be inspected by television in accordance with City of Denton Amendment Item 507.5.2.

Payment: Payment for this item shall be at the contract unit price for each linear foot of fiberglass wastewater pipe installed. Unit price shall include pavement cut and repair, trench excavation, embedment, pipe and fitting, installation, backfill, testing, and temporary and permanent pavement repair if required, including but not limited to curb and gutter, driveway approach, sidewalks, and asphalt or concrete pavement repair. A separate unit price may be utilized to differentiate pipe installed under pavement from pipe installed in unpaved areas. Asphalt or concrete saw cut and removal shall be included in the unit price for sanitary sewer pipe installed under pavement.

Item 502.1-A Concrete Manhole (Cast-in-Place)

General: This item governs the construction of monolithic poured concrete manholes used in the wastewater collection system.

References: NCTCOG Item 502.1 “Manholes”
NCTCOG Item 702 “Concrete Structures”

Submittals: Submittals are required for the pipe-to-manhole connector, concrete mix design, bitumastic gaskets, grout, frame and cover, grade adjustment riser (if required), drop fittings and pipe (if required), and interior liner (if required).

Material:

- A. Concrete - Concrete shall conform to the strength requirements called for on the plans or in the current City standard manhole detail.
- B. Pipe-to-Manhole Connector - Connector shall be elastomeric PVC or rubber that meets ASTM C923 standards.
- C. Bitumastic Gasket - Bitumastic gasket shall be O-ring or preformed plastic or butyl rubber conforming to NCTCOG Item 502.7 “Preformed Flexible Conduit Joint Sealant”.
- D. Grout - Grout shall be non-shrink, high strength grout that meets ASTM C1107 standards.
- E. Frame and Cover - Frame and cover shall be grey or ductile iron castings conforming to the requirements of NCTCOG Table 806.4.1.2.(a) “Iron Castings Standards”. Workmanship shall adhere to NCTCOG Item 806.4.2. The frame and cover shall have a minimum clear opening of 30 inches and conform to the current City standard frame and cover detail for dimensions and style.
- F. Grade Adjustment Riser – Grade adjustment riser shall be precast concrete manufactured in accordance to ASTM C478, HDPE or polypropylene. HDPE and polypropylene risers shall have a minimum traffic loading of AASHTO HS-25. HDPE and polypropylene risers shall only be used for manholes under existing or proposed pavement. Riser shall have a minimum clear opening of 30 inches and be free of defects.
- G. Drop Manhole Pipe and Fittings – Pipe and fittings for drop manholes shall conform to the same standards as those for the mainline pipe material. Fitting and pipe dimensions shall match the size of the incoming pipe and shall conform to the current City standard drop manhole detail.

- H. Interior Lining – Acceptable interior lining systems for concrete manholes are SpectraShield by CCI Spectrum, Inc., and SprayWall by Sprayroq, Inc. No other products are allowed.

Installation:

- A. Manholes shall be constructed at the locations and to the dimensions indicated on the construction plans. Manholes shall be constructed according to the plan details or the current City standard manhole detail for the relevant manhole type.
- B. Rock foundation for concrete manholes shall be Aggregate Grade 4 crushed rock as described in NCTCOG Item 504.2.2.1. Thickness shall be as called for on the plans or in the current City standard detail.
- C. Manhole construction shall follow the guidelines of NCTCOG Item 502.1.4 and NCTCOG Item 702.4 except where indicated below.
- D. Construction joints are not allowed for cast-in-place concrete manholes. If a construction joint is required due to delays in concrete delivery, weather or any other cause the City Inspector or Engineer shall direct the type of construction joint to be installed before proceeding with the remaining concrete placement. Cost for the creation of the construction joint and any associated delay in the construction of the manhole shall be solely the responsibility of the Contractor.
- E. Concrete placement is only permitted if the temperature is equal to or greater than 40 degrees F and rising.
- F. Cast-in-Place manholes shall not be backfilled for at least 12 hours after the forms have been removed.
- G. The final elevation of the frame and cover shall conform to the elevation called for on the plans with the following allowable modifications.
Manholes installed in existing pavement shall have the top of the frame cover match as closely as possible the pavement elevation.
Manhole covers in parkway, lawns, or other improved lands shall be at an elevation of not more than 1 inch nor less than one half 1/2 inch above the surrounding ground unless otherwise specified by the plans. Backfill shall provide a uniform slope from the top of the manhole casting for not less than 3 feet each direction to finished grade of the ground. Manholes in open fields, unimproved land, or drainage courses shall be at an elevation of not more than 12 inches or less than 6 inches above the surrounding ground unless otherwise specified by the plans. Manholes in proposed paved areas shall have grade stakes with the finish elevation of the street. The final elevation of the frame cover shall conform to the final elevation of the street.
- H. Frame and cover shall be placed with a minimum of one layer of bitumastic gasket between the manhole cone/grade adjustment riser and the frame. No gaps will be allowed in the bitumastic gasket. Where concrete grade adjustment risers are required, bitumastic gaskets shall be placed between each riser layer, the frame bottom and the cone top. Where HDPE or polypropylene grade adjustment risers are utilized, the riser shall be installed and sealed per the manufacturer's specification. Gasket's and/or sealants shall provide a watertight seal between the adjoining elements.
- I. Interior and exterior grouting is required for all construction joints, between grade adjustment riser layers, and between the frame and manhole cone. Grouting shall have a smooth finish and provide a watertight seal capable of permitting the manhole to pass the low pressure air test.
- J. Drop manholes and vented manholes shall be constructed as shown on the plans or in accordance with the current City standard detail.
- K. Backfilling requirements around the manhole shall conform to the standard trench detail relevant to the location of the manhole.
- L. Interior lining of a manhole shall be conducted only after the manhole has passed the low pressure air test described in NCTCOG Item 502.1.5.2. Lining shall be performed by a contractor certified by the manufacturer to field apply their product.

Field Quality Control:

- A. No water shall be allowed to stand in the channel or on the shelf of a new manhole.
- B. The manhole shall be visually inspected inside and on the exterior portions above ground. Any form lines or honey combing shall be smoothed and grouted.

- C. The manhole shall be vacuum tested according to NCTCOG Item 502.1.5.2.

Payment: Payment for this item shall be made at the contract unit price for each concrete manhole constructed or installed. The unit price shall include all labor, equipment, and materials necessary to construct, install and backfill around the manhole as indicated on the plans. The unit price shall also include any pavement, curb, sidewalk or driveway cut and repair required to install the manhole. Drop, Vented or Lined manholes shall be separate pay items also covered under this specification. The Drop, Vented or Lined Manhole shall be at the contract unit price for that item and include all labor, equipment, and materials necessary to construct the Drop, Vented or Lined Manhole, including all pipe and fittings necessary to make the drop or vent outlet.

Item 502.1-B Concrete Manholes (Precast)

General: This item governs the installation of precast concrete manholes used in the wastewater collection system.

References: NCTCOG Item 502.1 “Manholes”
NCTCOG Item 702 “Concrete Structures”

Submittals: Dimensioned submittals are required for the precast manhole sections. Material submittals are required for the pipe-to-manhole connector, bitumastic gaskets, wall wrap, grout, frame and cover, grade adjustment riser (if required), drop fittings and pipe (if required), and interior liner.

Material:

- A. Concrete – Precast concrete sections shall conform to ASTM C478 standards.
- B. Pipe-to-Manhole Connector - Connector shall be elastomeric PVC or rubber that meets ASTM C923 standards.
- C. Bitumastic Gasket - Bitumastic gasket shall be O-ring or preformed plastic or butyl rubber conforming to NCTCOG Item 502.7 “Preformed Flexible Conduit Joint Sealant”.
- D. Grout - Grout shall be non-shrink, high strength grout that meets ASTM C1107 standards.
- E. Frame and Cover - Frame and cover shall be grey or ductile iron castings conforming to the requirements of NCTCOG Table 806.4.1.2.(a) “Iron Castings Standards”. Workmanship shall adhere to NCTCOG Item 806.4.2. The frame and cover shall have a minimum clear opening of 30 inches and conform to the current City standard frame and cover detail for dimensions and style.
- F. Grade Adjustment Riser – Grade adjustment riser shall be precast concrete manufactured in accordance to ASTM C478, HDPE or polypropylene. HDPE and polypropylene risers shall have a minimum traffic loading of AASHTO HS-25. HDPE and polypropylene risers shall only be used for manholes under existing or proposed pavement. Riser shall have a minimum clear opening of 30 inches and be free of defects.
- G. Drop Manhole Pipe and Fittings – Pipe and fittings for drop manholes shall conform to the same standards as those for the mainline pipe material. Fitting and pipe dimensions shall match the size of the incoming pipe and shall conform to the current City standard drop manhole detail.
- H. Interior Lining – Acceptable interior lining systems for concrete manholes are SpectraShield by CCI Spectrum, Inc., and SprayWall by Sprayroq, Inc. No other products are allowed. An interior liner is always required on precast concrete manholes.
- I. Wall Wrap – Wrap shall be 6” wide extruded butyl adhesive tape, with a minimum 30 mil thickness and either an EPDM or HDPE plastic backing.

Installation:

- A. Manholes shall be installed at the locations and to the dimensions indicated on the construction plans. Manholes shall be installed according to the plan details or the current City standard manhole detail for the relevant manhole type.
- B. Rock foundation for manholes shall be Aggregate Grade 4 crushed rock as described in NCTCOG Item 504.2.2.1. Thickness shall be as called for on the plans or in the current City standard detail.

- C. Manhole installation shall follow the guidelines of NCTCOG Item 502.1.4 and NCTCOG Item 702.4 except where indicated below.
- D. One layer of bitumastic gasket is required between each precast concrete manhole section.
- E. The final elevation of the frame and cover shall conform to the elevation called for on the plans with the following allowable modifications.
 Manholes installed in existing pavement shall have the top of the frame cover match as closely as possible the pavement elevation.
 Manhole covers in parkway, lawns, or other improved lands shall be at an elevation of not more than 1 inch nor less than one half 1/2 inch above the surrounding ground unless otherwise specified by the plans. Backfill shall provide a uniform slope from the top of the manhole casting for not less than 3 feet each direction to finished grade of the ground. Manholes in open fields, unimproved land, or drainage courses shall be at an elevation of not more than 12 inches or less than 6 inches above the surrounding ground unless otherwise specified by the plans. Manholes in proposed paved areas shall have grade stakes with the finish elevation of the street. The final elevation of the frame cover shall conform to the final elevation of the street.
- F. Frame and cover shall be placed with a minimum of one layer of bitumastic gasket between the manhole cone/grade adjustment riser and the frame. No gaps will be allowed in the bitumastic gasket. Where concrete grade adjustment risers are required, bitumastic gaskets shall be placed between each riser layer, the frame bottom and the cone top. Where HDPE or polypropylene grade adjustment risers are utilized, the risers shall be installed and sealed per the manufacturer's specification. Gaskets and/or sealants shall provide a watertight seal between the adjoining elements.
- G. Interior and exterior grouting is required at each manhole section joint, around the pipe penetration holes, between grade adjustment riser layers, and between the frame and manhole cone. Grouting shall have a smooth finish and provide a watertight seal capable of permitting the manhole to pass the low pressure air test.
- H. Wall wrap is required to cover each external manhole section joint. The manhole exterior shall be cleaned and any chips or protrusions removed. A general purpose liquid or spray adhesive shall be applied to the exterior manhole wall 3 inches on either side of the section joint. The butyl wall wrap shall then be pressed or rolled over the section joint.
- I. Drop manholes and vented manholes shall be constructed as shown on the plans or in accordance with the current City standard detail.
- J. Backfilling requirements around the manhole shall conform to the standard trench detail relevant to the location of the manhole.
- K. Interior lining of a manhole shall be conducted only after the manhole has passed the low pressure air test described in NCTCOG Item 502.1.5.2. Lining shall be performed by a contractor certified by the manufacturer to field apply their product in accordance with the manufacturer's specifications.

Field Quality Control:

- A. No water shall be allowed to stand in the channel or on the shelf of a new manhole.
- B. The manhole shall be visually inspected inside and on the exterior portions above ground. Any form lines or honey combing shall be smoothed and grouted.
- C. The manhole shall be vacuum tested according to NCTCOG Item 502.1.5.2.

Payment: Payment for this item shall be made at the contract unit price for each precast concrete manhole installed. The unit price shall include all labor, equipment, and materials necessary to construct, install and backfill around the manhole as indicated on the plans. The unit price shall also include any pavement, curb, sidewalk or driveway cut and repair required to install the manhole. Drop, Vented or Lined manholes shall be separate pay items also covered under this specification. The Drop, Vented or Lined Manhole shall be at the contract unit price for that item and include all labor, equipment, and materials necessary to construct the Drop, Vented or Lined Manhole, including all pipe and fittings necessary to make the drop or vent outlet.

Item 502.1-C Fiberglass Manhole

General: This item governs the material of construction and installation of fiberglass manholes used in the wastewater collection system. Fiberglass manholes are to have prefabricated inverts and stubouts and be watertight.

References: NCTCOG Item 502.1 “Manholes”

Submittals: Dimensioned submittals are required for each fiberglass manhole. Material submittals are required for each fiberglass manhole. Material submittals are required for the concrete base mix design, bitumastic gaskets, grout, frame and cover, grade adjustment riser, and drop fittings and pipe (if required).

Material:

- A. Concrete – Concrete shall conform to the strength requirements called for on the plans or in the current City standard fiberglass manhole detail.
- B. Bitumastic Gasket – Bitumastic gasket shall be O-ring or preformed plastic or butyl rubber conforming to NCTCOG Item 502.7 “Preformed Flexible Conduit Joint Sealant”.
- C. Fiberglass Manhole – Manhole shell shall conform to ASTM D3753 standards and NCTCOG Item 502.1.1.2 requirements. Each manhole submittal shall be dimensioned and show all stubouts.
- D. Grout – Grout shall be non-shrink, high strength grout that meets ASTM C1107 standards.
- E. Frame and Cover – Frame and cover shall be grey or ductile iron castings conforming to the requirements of NCTCOG Table 806.4.1.2.(a) “Iron Castings Standards”. Workmanship shall adhere to NCTCOG Item 806.4.2. The frame and cover shall have a minimum clear opening of 30 inches and conform to the current City standard frame and cover detail for dimensions style.
- F. Grade Adjustment Riser – Grade adjustment riser shall be HDPE or polypropylene. HDPE and polypropylene risers shall have a minimum traffic loading of AASHTO HS-25. No other material is allowed. Riser shall have a minimum clear opening of 30 inches and be free of defects.
- G. Drop Manhole Pipe and Fittings – Pipe and fittings for drop manholes shall conform to the same standards as those for the mainline pipe material. Fitting and pipe dimensions shall match the size of the incoming pipe and shall conform to the current City standard drop manhole detail.

Installation:

- A. Fiberglass manholes are only permitted where specifically called for on the plans or in the Special Contract Requirements.
- B. Fiberglass manholes shall be installed at the locations and to the dimensions indicated on the construction plans. Manholes shall be manufactured according to the plan details or the current City fiberglass manhole detail for the relevant manhole type.
- C. Rock foundation for manholes shall be Aggregate Grade 4 crushed rock as described in NCTCOG Item 504.2.2.1. Thickness shall be as called for on the plans or in the current City standard detail.
- D. Fiberglass manhole installation shall follow the guidelines of NCTCOG Item 502.1.4.
- E. Field joining of fiberglass manhole sections is only permitted when necessary to repair or adjust the manhole shell or invert. Joining shall be performed using a repair kit provided by the manhole manufacturer specifically for fiberglass repair.
- F. Concrete placement is only permitted if the temperature is equal to or greater than 40 degrees F and rising.
- G. Frame and cover shall not be directly placed on the fiberglass cone section, A grade adjustment riser is required between the frame casting and the cone.
- H. The final elevation of the frame and cover shall conform to the elevation called for on the plans with the following allowable modifications:
Manholes installed in existing pavement shall have the top of the frame cover match as closely as possible the pavement elevation.

Manhole covers in parkway, lawns, or other improved lands shall be at an elevation of not more than 1 inch not less than one half 1/2 inch above the surrounding ground unless otherwise specified by the plans. Backfill shall provide a uniform slope from the top of the manhole casting for not less than 3 feet each direction to finished grade of the ground. Manholes in open fields, unimproved land, or drainage courses shall be at an elevation of not more than 12 inches and or less than 6 inches above the surrounding ground unless otherwise specified by the plans.

Manholes in proposed paved areas shall have grade stakes with the finish elevation of the street. The final elevation of the frame cover shall conform to the final elevation of the street. No portion of the fiberglass manhole shell shall be left exposed above ground.

- I. Frame and cover shall be placed with one layer of bitumastic gasket between the manhole cone/grade adjustment riser and the frame. No gaps will be allowed in the bitumastic gasket. Where HDPE or polypropylene grade adjustment risers are utilized, the risers shall be installed and sealed per the manufacturer's specification. Gaskets and/or sealants shall provide a watertight seal between the adjoining elements.
- J. Interior and exterior grouting is required between each grade adjustment riser layer, between the frame and riser, and between the riser and manhole cone. Grouting shall have a smooth finish and provide a watertight seal capable of permitting the manhole to pass the low pressure air test.
- K. Drop manholes and vented manholes shall be constructed as shown on the plans or in accordance with the current City standard detail.
- L. Backfilling requirements around the manhole shall conform to the standard trench detail relevant to the location of the manhole.

Field Quality Control:

- A. No water shall be allowed to stand in the channel or on the shelf of a new manhole.
- B. The manhole shall be vacuum tested according to NCTCOG Item 502.1.5.2. If the fiberglass manhole is indicated as being a watertight manhole on the plans it must be able to pass the vacuum test with no measurable loss in air pressure to be accepted.

Payment: Payment for this item shall be made at the contract unit price for each fiberglass manhole installed. The unit price shall include all labor, equipment, and materials necessary to construct, install and backfill around the manhole as indicated on the plans. The unit price shall also include any pavement, curb, sidewalk or driveway cut and repair required to install the manhole. Drop or Vented manholes shall be separate pay items also covered under this specification. The Drop or Vented Manhole shall be at the contract unit price for that item and include all labor, equipment, and materials necessary to construct the Drop or Vented Manhole, including all pipe and fittings necessary to make the drop or vented outlet.

Item 502.3 Fire Hydrant Assembly

General: This item shall govern the manufacture and installation of fire hydrants and the associated fittings, appurtenances and valves for water supply service.

Materials: Fire hydrants shall be Dry-Barrel type manufactured in compliance with AWWA standard C-502 and NCTCOG Item 502.3.1. Shut-off shall be with the flow. Operating nut shall be industry standard 1 1/2" pentagon (five-sided) that opens left (counter-clockwise). The main pumper nozzle shall be 4 1/2" in size and the two side nozzles shall be 2 1/2" in size. Fire hydrant color is to be blue caps and silver body. Lead pipe to the main shall be 6-inch AWWA C900 PVC water pipe conforming to Item 501.14 unless otherwise called for on the plans. Gate valve shall be a 6-inch resilient wedge gate valve (refer to City of Denton approved material checklist) conforming to Item 502.6.2 unless otherwise called for on the plans.

Installation: Fire hydrants and their associated lead line assemblies shall be installed at the locations and to the dimensions indicated on the plans or in the Special Contract Requirements. Fire hydrant assemblies shall be installed per the plan details or the current City standard detail. Installation shall follow the guidelines of NCTCOG Item 502.3.2 except where those guidelines conflict with the plans, details or Special Contract Requirements.

Payment: Payment shall be at the contract unit price for each fire hydrant assembly installed, complete in place. Unit price shall include excavation, backfill, the fire hydrant, the lead line, the gate valve, all appurtenances and fittings, and the valve box installation.

Item 502.6.2 Resilient Seated Gate Valves

General: This item shall govern the materials of construction and installation of resilient seated gate valves and their associated housings and appurtenances for water supply service.

Material: Gate valves shall conform to AWWA C509 standards for valve sizes 3 inches through 12 inches. Gate valves shall conform to AWWA C515 standards for valve sizes 14 inches through 24 inches. Fittings, concrete mix design, valve box housing, vault frame and cover, and appurtenances shall be as indicated on the plans or in the Special Contract Requirements. Gate valve components shall conform to the provisions of NCTCOG Item 502.6.2, where applicable. Each valve shall have the manufacturer's name plate cast into the body or bonnet showing the pressure rating, serial, model number, and the year manufactured. The year manufactured shall be equal to or one year less than the year of installation. The wedge encapsulation rubber shall be EPDM. Valve body and bonnet shall be epoxy coated, inside and out, with fusion bonded epoxy conforming to AWWA C550. Valve ends shall be as called for on the plans. Valve gear operators shall be as indicated on the plans, in the Special Contract Requirements or in the current City standard detail drawing. Valve boxes shall be three-piece screw type, cast or ductile iron conforming to ASTM A48 Class 35B strength requirements.

Installation: Gate valves shall be installed at the locations and to the depths indicated on the plans or Special Contract Requirements. Gate valves shall be installed per the detail drawing on the plans or the current City standard detail drawing. Gate valves shall be installed in the vertical position unless otherwise noted on the plans or in the Special Contract Requirements. Gate valves shall be installed in accordance to NCTCOG Item 502.6.6 "Line Valve Installation". Gate valves shall be wrapped in shall be wrapped in an inner encasement 8 mil "V-bio" enhanced polyethylene and an outer encasement 4 mil cross linked polyethylene prior to burial.

Payment: Payment shall be at the contract unit price for each gate valve installed, complete in place. Unit price shall include excavation and backfill for vaults, fittings and appurtenances, valve box installation and vault construction (if required per the plans).

Item 502.6.3 Air Valves

General: This item shall govern the manufacture and installation of air release, air/vacuum, and combination air valves and their associated housings and appurtenances for use in water distribution or wastewater collection systems.

Material: Air valves shall meet the material requirements of AWWA C512 and NCTCOG Item 502.6.3.3 except that rubber shall be EPDM instead of Buna-N. Unless otherwise noted on the plans or in the Special Contract Requirements the air valve inlets and outlets shall conform to the provisions of NCTCOG Item 502.6.3.4. Air valves shall be rated for a minimum operating pressure of 200 psi. Air outlet piping, fittings, concrete mix design, valve box housing, vault frame and cover, and appurtenances shall be as indicated on the plans or in the Special Contract Requirements.

Wastewater Air Valves: Air valves for use in wastewater collection systems must be designed specifically for that purpose. Unless otherwise noted on the plans or in the Special Contract Requirements, wastewater air valves must be A.R.I. Model D-025 Combination Air valves for 2 inch size and A.R.I. Model D-023 Combination Air valves for 3 inch or greater size. The model D-025 shall have a nylon body while the model D-023 shall have a stainless steel body. The D-023 models shall also have a non-slam valve.

Installation: Air valves shall be installed at the locations and to the dimensions shown on the plans or in the Special Contract Requirements. The plans shall indicate the type of air valve to be installed. Air valves shall be installed per the detail drawing on the plans or the current City standard detail drawing. Air valves shall be installed in accordance to NCTCOG Item 502.6.6 "Line Valve Installation". Payment: Payment shall be at the contract unit price for each air valve installed, complete in place. Unit price shall include excavation, all appurtenances and fittings, valve box installation, and vault construction (if required per the plans).

Item 502.8 Polyethylene Wrap for Metal Pipe and Fittings

General: This item governs the installation of protective film wrap required for metal pipe, fittings and appurtenances.

Material: Polyethylene wrap sheets shall conform to AWWA C105 standards and be a minimum of shall be wrapped in an inner encasement 8 mil "V-bio" enhanced polyethylene and an outer encasement 4 mil cross linked polyethylene.

Installation: Installation shall be per NCTCOG Item 502.8 except that every metal pipe or fitting shall be double-wrapped. The inner layer shall be wrapped in an inner encasement 8 mil "V-bio" enhanced polyethylene and an outer layer 4 mil cross linked polyethylene.

Payment: There is no separate payment for polyethylene wrap, it is considered a subsidiary cost to the bid item for which it is required.

Item 502.10.3-A Water Service Connections (Small Diameter)

General: This item shall govern the materials of manufacture and installation of water service connections up to 2 inches in size on new water distribution lines. Water Service connections for service lines in excess of 2 inches are handled under Item 502.10.3-B "Water Service Connections (Large Diameter)". Connections to existing or "live" water distribution lines shall not be covered by this item and are typically performed by City forces

Materials: Material items for water service connections shall conform to the plans or current City standard details in dimension and type. Specific item requirements are listed below:

Tapping Saddle: Saddle shall be a double strap brass/bronze saddle with a tapered (CC) tap thread conforming to AWWA C800.

Corporation Valve: Corporation valve shall be a ball type valve made of brass conforming to AWWA C800 with a tapered (CC) inlet thread and a pack joint outlet connection.

Service Line Tubing: Service line tubing shall Type K copper for 1" service lines and SDR-9 HDPE conforming to AWWA C901 standards for 2" service lines.

Meter Valve: Meter valve shall be a 90-degree angled ball valve made of brass conforming to AWWA C800 with a pack joint inlet connection and a locking wing on the valve operator. Water Meter Cans: Can size shall be based on water meter size, not service line size. Water meter cans shall have a galvanized steel or cast-iron body with a notched meter outlet opening. Lids shall be cast iron with a key lock. Minimum can depth shall be 18 inches. ¾" and 1" meter cans shall have minimum inside diameter of 24 inches. 1 ½" and 2" meter cans shall have a minimum inside diameter of 27.5 inches.

Installation: Tapping saddle, corporation valve, service line tubing, meter valve and water meter can shall be installed per the plans or current City standard detail. Construction of the service connection shall conform to NCTCOG Item 502.10.3 for the appropriate main line pipe material type except that direct tapping of PVC pipe is not allowed, it must be done with a service saddle. Service line installation under existing pavement shall be performed by directional drilling unless otherwise noted on the plans or Special Contract Requirements. The meter can shall be located in public right-of-way between the curb or pavement edge and the sidewalk. In cases where there is no sidewalk the can shall be installed with the outlet side at the right-of-way line. Meter cans shall be installed in unpaved surfaces only. Water meter installation is performed by the City.

Payment: Payment for this item shall be at the contract unit price for each service connection installed. Payment shall include excavation, backfill and the installation of all items listed above.

Item 502.10.4 Sanitary Sewer Services

General: This item describes the materials, construction and installation of sanitary sewer service lines and fittings.

References: NCTCOG Item 502.10.4

Submittals: Submittals shall contain enough information to show that the service line pipe and fittings meet the corresponding main line pipe specification standards and that the cleanout housing meets the dimensional standards of the standard detail.

Materials:

- A. Service line pipe and fittings shall meet the requirements of the corresponding main line pipe to which it is connected.
- B. Cleanout box shall be as indicated on the plans or in the current City standard details.
- C. All pipe and fittings shall be green in color. Any pipe that is discolored may be rejected.
- D. Each joint of pipe shall have the manufacture's name, applicable ASTM standard, the nominal diameter, standard dimension ratio, and the extrusion date printed on the pipe. Submittal shall contain explanation of how to read manufacturer's date codes.

Installation:

1. Wastewater service lines shall be installed at the locations and to the sizes indicated on the plans. In the event that the plans do not indicate this information, the service lines shall be installed following the current service line standards indicated in the Denton Wastewater Criteria Manual and the current City service line location detail.
2. Service line and fittings shall be installed according to the details on the plans or the current City standard service line detail.
3. Service lines shall be installed per NCTCOG Item 502.10.4 where applicable, and in accordance with the specifications governing mainline pipe installation.
4. Trench width shall be a minimum of the outside diameter of the pipe plus 8 inches. The maximum trench width for any service line size shall be 18 inches.
5. Embedment and backfill shall be as required on the standard service line detail drawing.
6. Service lines installed under existing pavement shall require temporary pavement repair in accordance to the trench detail for existing pavement unless otherwise noted on the plans or in the Special Contract Requirements.
7. The service line shall be pressure tested in accordance with NCTCOG Item 507.5.1.3 up to and including the new cleanout riser.

Payment: Payment for this item shall be at the contract unit price for each service line installed including embedment and backfill. All labor, equipment, and materials needed to properly install the sewer service shall be included in the contract price.

Item 502.12.4 Core into Existing Manhole

General: This item describes the procedure for coring into an existing manhole in order to install a new pipe connection.

Submittals: Submittals shall demonstrate that the pipe-to-manhole connector and grout meet the required standards of this item.

Material:

- A. Pipe-to-Manhole Connector – Connector shall be elastomeric PVC or rubber that meets ASTM C923 standards.
- B. Grout – Grout shall be non-shrink, high strength grout that meets ASTM C1107 standards.

Execution:

- A. The new pipe connection shall be made using a coring method that utilizes a mechanical saw or drill. The use of pipe hammers or jackhammers is not allowed.
- B. The manhole wall shall be cored or cut to the elevation indicated on the plans. The cut or cored area shall be of sufficient size to allow the insertion of the new pipe and the pipe-to-manhole connector. If required, the bench area shall also be cut or cored to the width of the new conduit to ensure a continuous grade from the new conduit invert into the manhole invert. Care should be taken to minimize the hole size so that the amount of grouting is kept to a minimum.
- C. The Contractor shall keep debris from entering the wastewater flow stream in the existing manhole. This shall be done by either using a flow-through plug on the existing manhole pipe connections or by bypass pumping around the manhole.
- D. A pipe-to-manhole connector shall be attached to the sanitary sewer pipe where the sanitary sewer pipe and the manhole meet.
- E. The new sanitary sewer shall not protrude more than one inch into the manhole.
- F. The core hole and bench cut (if required) shall be thoroughly cleaned before the application of grout around the new pipe connection.
- G. Grout shall be applied to the full thickness of the manhole wall all around the new pipe connection to produce a watertight seal. The pipe-to-manhole connector shall be completely encapsulated within the grouted area. If a bench cut was required, the cut area shall be smoothed with grout.
- H. The excavated area shall be backfilled in accordance with the standard trench detail appropriate to the surface condition.

Payment: Payment for this item shall be at the contract unit price for each cored pipe connection created in an existing manhole, including excavation, backfill, patching grout, connection materials furnished and cleanup of grout around and in the manhole.

Item 503.2 Tunnel/Casing Pipe Spacers

General: This item shall govern the manufacture and installation of pipe spacers for pipe installation in or casings.

Material: Casing spacers shall be either high density polyethylene (HDPE) spacers conforming to ISO 9001:2000 strength and quality standards, or two-piece carbon or stainless-steel shell spacers. Spacers shall be completely circumferential in shape and coverage of the carrier pipe. Steel shell for steel spacers shall be a minimum 14-gauge thickness. Steel casing spacer runners shall be made of a dielectrically inert material. Carbon steel spacers shall have a corrosion resistant coating.

Installation: Spacer placement shall be in accordance with the plans or the current City standard detail for casing pipe installation. Spacers shall be fastened onto the carrier pipe following the manufacturer's recommendation and/or guidelines.

Payment: There is no separate payment for tunnel or casing pipe spacers or their installation. This is considered a subsidiary cost of the carrier pipe installation.

Item 503.3 Boring and Tunneling

General: This item shall govern the materials of construction and installation of underground conduit by boring or tunneling. Installation of underground conduit by jacking is not allowed unless specifically called for in the plans or Special Contract Requirements.

Casing Pipe Material: The casing pipe material, its dimensions and coating/lining shall conform to the specifications indicated on the plans or in the Special Contract Requirements.

Tunnel Liner Plate: Steel liner plate shall be allowed for tunnel diameters equal to or greater than 48 inches. Liner shall be 2-Flange type meeting AASHTO M218 or ASTM A1011. Thickness of the linear plate shall be determined by the linear plate manufacturer for the specific application and copies of the calculations provided to the City for review. Regardless of calculation the minimum plate thickness shall be 12 gauge. Coating/lining shall conform to the specifications indicated on the plans or in the Special Contract Requirements.

Casing Pipe or Tunnel End Seal: Casing pipe or tunnels shall be sealed with non-shrink, high strength grout that meets ASTM C1107 standards. Alternatively, rubber end seals with stainless steel tightening bands are also permitted.

Installation by Boring: Boring shall conform to all relevant portions of NCTCOG Item 503.3.3 "Construction Methods for Jacking, Boring or Tunneling". Vertical and horizontal alignment tolerance levels shall be as follows unless otherwise indicated on the plans or in the Special Contract Requirements:

Horizontal: 1% of bore length for both water and sewer.

Vertical: +/- 0.5% of indicated grade for water; +/- 0.2% of indicated grade for sewer with minimum allowable grade being 0.1% in the direction of flow.

A 2-inch pilot hole bore shall be required prior to the casing pipe bore to establish alignment and grade. If the pilot bore exceeds the horizontal or vertical tolerance levels then the pilot hole shall be filled with grout and a new pilot hole bored. The casing pipe shall be advanced behind the auger bore utilizing the pilot hole as a guide. Disposal of excavated material is the responsibility of the contractor per Item 107.25.

Installation by Tunneling: Tunneling shall conform to all relevant portions of NCTCOG Item 503.3.3 "Construction Methods for Jacking, Boring or Tunneling". Vertical and horizontal alignment tolerance levels shall be as follows unless otherwise indicated on the plans or in the Special Contract Requirements:

Horizontal: 1% of bore length for both water and sewer.

Vertical: +/- 0.5% of indicated grade for water; +/- 0.2% of indicated grade for sewer with minimum allowable grade being 0.1% in the direction of flow.

A pilot hole is not required in advance of tunneling. Tunneling shall utilize a guided tunnel boring machine (TBM) or shielded hand tunneling with a grade and alignment steering control mechanism. The casing pipe shall be advanced behind the tunneling operations as close as possible to minimize the area of unprotected excavation. Disposal of excavated material is the responsibility of the contractor per Item 107.25.

Welding: Casing pipe joints shall be welded in accordance to AWWA C-206 standards and shall utilize full circumferential butt welds. After welding, the pipe liner and coating shall be repaired by using a field applied coating of an approved lining material.

Field weld joints shall be visually inspected by a certified independent weld inspector for quality of welds in accordance with AWWA C-206.

Payment: Payment shall be made at the contract unit price per linear foot of casing pipe installed by boring or tunneling. The installation of the carrier pipe shall not be included in this bid item. Casing spacer placement and end seals shall not be included in this bid item; those items shall be subsidiary to the carrier pipe installation cost. Payment shall include all excavation, backfill, and welding required to install the encasement pipe or tunnel.

Item 507.4.5 Sewer Pipe Coupling

General: This item describes the materials and installation of pipe couplings to join plain end sewer pipes of the same or different pipe material together. The use of couplings is not allowed for a connection greater than 48 inches in diameter.

Submittals:

- A. Only those manufacturers whose sewer pipe couplings have been approved by the City of Denton will be allowed for use in the City's wastewater collection system.
- B. Submittals shall contain enough information to show that the sewer pipe coupling is the same as what has been approved by the City of Denton and meets or exceeds all standards listed within this specification.

Products:**Acceptable Manufacturers and Products**

- A. Onset Pipe Products, Inc., Shear Guard® Coupling, sizes 4" through 12", for both similar and dissimilar pipe materials and O.D.s.
- B. Straub Pipe Couplings, Inc., Flex model with EPDM gaskets, sizes 15" through 48", for similar pipe materials only.
- C. Multi Fittings Corporation, Plastic Trends Inc., or the Pipe Manufacturer, Manufactured Gasketed Coupling with rigid housing, sizes 15" through 48", for dissimilar pipe materials or pipe O.D.s.

Installation:

- A. Pipe ends to be joined shall be thoroughly cleaned to remove all dirt or foreign material.
- B. The pipe coupling shall be installed per the manufacturer's guidelines. The coupling shall not be tightened to the extent that it causes deformation of either pipe end.
- C. Pipe couplings shall be encased in Class B concrete, according to the standard detail drawing.
- D. The Inspector shall inspect the installed coupling for tightness of fit prior to covering with concrete.

Payment: Payment for this item shall be included in the unit price for pipe installation.

Item 507.5.2 Television Inspection

General: This item describes televised inspection of all new sanitary sewer lines and sanitary sewer services prior to final acceptance and at the end of the warranty period.

Execution:

- A. The Contractor or a third party hired by the Contractor shall perform the televised inspection of the new sanitary sewer line.
- B. The person performing the inspection must be PACP (Pipeline Assessment & Certification Program) certified.
- C. The City of Denton Inspector shall be present during the television inspection, unless otherwise authorized in writing.
- D. The televised inspection shall commence only after the line has passed both air and mandrel test and the line has been thoroughly cleaned and vacuumed.
- E. Televised Inspection shall follow the procedures outlined in NCTCOG Item 507.5.2.
- F. The camera shall be centered in the middle of the pipe throughout the inspection. Inspection that is excessively off-centered may be cause for rejection.
- G. The camera shall proceed at a rate no faster than 30 feet per minute. Inspections that proceed at a greater rate may be rejected.
- H. The camera shall be stopped at each lateral connection and the camera head shall be rotated to inspect each lateral connection fully.

Submittal:

- A. Video and log sheet information must comply with NCTCOG Item 507.5.2.1.
- B. Log sheet report must utilize PACP reporting standards.
- C. Video submittal shall be a digital mpeg file unless otherwise directed by the City's representative.

Criteria for Repair:

The Contractor shall make repairs or clean the line if the City notes problems, including but not limited to the following:

- A. Pulled or slipped joints.
- B. Rolled gaskets.
- C. Water infiltration.
- D. Cracked or damaged pipe.
- E. In pipes with gradients less than 0.7 percent, a maximum one-half inch of standing water will be allowed in 6" through 24" diameter pipes. In pipes with gradients 0.7 percent or greater, no standing water is allowed. The depths of standing water allowable for mains that are greater than 24" in diameter will be evaluated by the City.
- F. Structural damage to the pipe.

G. Services coming into the main at an angle other than according to the details.

H. Services not installed on lots indicated by plans.

I. Pipe has debris, soil or residue.

Another televised inspection run at no additional cost is required after any repairs.

Warranty Inspection: A second television inspection by the Contractor shall be started no sooner than 630 calendar days and finished no later than 690 calendar days after the date of acceptance for this project by the City of Denton. Should the Contractor fail to turn in a second original television inspection video with proper documentation to the City by the 690th calendar day, written notice to perform a second television inspection shall be given by the City to the Contractor and the Surety. If the Contractor or Surety fail to perform a second televised inspection within 10 calendar days of notification, then the City shall have the right with or without further notice, to perform a second television inspection or cause the same to be done, either by contract or otherwise at its option, and to pay for the cost of the second television inspection. If such cost of repairs, so made, shall not be paid by the Contractor or Surety upon receipt of notice of the amount thereof, the said City shall have the right of action on the Performance Bond; or in case the second television inspection shall not actually be made by the City after such failure on the part of the Contractor or Surety, the City shall have the right to ascertain and determine the cost of such repairs and to maintain an action against the said Contractor or Surety, or both under said bond, to recover the amount so determined in any court of competent jurisdiction, and the amount so determined shall be conclusive upon the Contractor and Surety in any action upon said bond.

Payment: Payment for both the final acceptance and final warranty televised inspection of sanitary sewer and services shall be included in the price of new sanitary sewer pipe and services installed.

Item 801 Barricade, Detours, and Warning Signs

General: This item provides for the cost of necessary barricading, warning signs and detours for the Contractor to perform public improvement work. A traffic control plan prepared by a civil engineer licensed in the State of Texas, conforming to the M.U.T.C.D., is to be submitted to the City prior to the start of construction. Barricading will conform to the M.U.T.C.D. At no time shall any property's access be completely blocked. The contractor will be required to notify by written notice all affected property owners or tenants at least 48 hours in advance of construction adjacent to each property. While driveways are closed due to utility construction, signage must be placed indicating the alternate driveway location. Signs marking temporary or alternate driveway locations should state the name of the business in block letters at least 4 inches high and include an arrow indicating the entrance. Driveway indicator signs may be mounted on T-posts. Traffic must be allowed to continue with as little interruption as possible. Street closings must be scheduled at least one week in advance so they may be advertised in the Denton Record-Chronicle. The Inspector must be supplied with a phone number that may be used if barricading becomes unsafe during non-working hours. Refer to the requirements listed under the General Provisions.

NCTCOG Reference: Items 107.19 and 801

Payment: Payment for this item shall be at the contract lump sum for all work, equipment and signage necessary to completely barricade the project.

Item SS01 Cut and Plug Existing Sewer Lines

General: This item describes the cutting and plugging of abandoned sections of sanitary sewer.

Materials:

- A. Concrete shall be Class "B" as defined by NCTCOG Item 702.2.4.2.
- B. Grout shall conform to ASTM C1107 standards.
- C. Manufactured cap or plug shall be PVC or HDPE conforming to the material standards of the pipe to be abandoned.

Execution:

- A. Wherever indicated on the plans, the existing line to be abandoned shall be exposed and a two foot section of pipe shall be removed. If the cut and plug location is adjacent to a manhole that is to remain in service the pipe cut shall be no closer than two feet from the manhole wall.

- B. The removed section of abandoned pipe shall be filled with concrete until both ends of the abandoned pipe are effectively sealed.
- C. Concrete shall be prevented from entering the manhole invert through the use of a pipe plug or some other suitable blocking agent.
- D. If the pipe to be abandoned is greater than 24 inches in diameter a manufactured cap or plug may be utilized to seal the abandoned pipe ends in lieu of concrete. The manufactured cap or plug must be grouted onto the abandoned pipe end to ensure a watertight seal.
- E. The excavation hole shall be backfilled per the standard trench detail appropriate for the surface condition.

Payment: Payment for this item shall be at the contract unit price for each location where an abandoned sanitary sewer is cut and plugged. The unit price shall include excavation, backfill, cutting and plugging of pipe and all material required.

Item SS02 Abandon Existing Manhole

General: This item describes the procedures for the abandonment of existing manholes.

Materials:

- A. Concrete - Concrete shall conform to all sections of NCTCOG Item 702.2.4.2 for Class B concrete.
- B. Sand - Sand shall conform to Item 504.2.2.6 of the NCTCOG standards.

Execution:

- A. Removal items or sections shall be indicated on the standard manhole abandonment detail. Removed items and sections shall be the property of the Contractor and must be disposed of in accordance to NCTCOG Item 107.25.
- B. Manhole outlets shall be plugged and the manhole filled according to the standard manhole abandonment detail.
- C. The area above the abandoned manhole shall be compacted with backfill according to the standard manhole abandonment detail.

Payment: Payment shall be at the contract unit price for each existing manhole abandonment completed. The unit price shall include all the necessary labor, equipment, and materials needed to properly abandon the manhole. Excavation and backfill are included in the unit price.

Item SS03 Remove Existing Manhole

General: This item describes the procedures for the removal of existing manholes.

Execution:

- A. Excavation shall be made around the manhole to be removed to a depth equivalent to the concrete base of the manhole.
- B. Connecting sewer lines shall be cut or broken where they enter the existing manhole.
- C. All parts of the manhole shall be removed and disposed of by the Contractor in accordance to NCTCOG Item 107.25.
- D. Each connecting sewer line shall be plugged with Class B concrete or capped with a manufactured watertight cap where the line is greater than 24 inches in diameter. Plugging shall follow the requirements of Item SS01.
- E. The excavation hole shall be backfilled according to the standard trench detail for the appropriate surface cover condition.

Payment: Payment shall be at the contract unit price for each existing manhole removal completed. The unit price shall include all the necessary labor, equipment, and materials needed to properly remove the manhole and plug all connecting sewer lines. Excavation and backfill are included in the unit price.

U.S. 380 20" Transmission Main (826 Service Area)
U.S. 380 16" Transmission Main (900 Service Area)
Scripture Street 20: Transmission Main (826 Service Area)

BID ITEM DEFINITIONS

Payment sections of the specifications include all material, labor, equipment and incidental work necessary to complete the project.

PAY ITEMS

U.S.. 380 20" Transmission Main (826 Service Area)

Item 101 Mobilization & Demobilization:

This item includes mobilization cost such as mobilization of personnel and site equipment, initial coordination and other work required to prepare for the beginning of work. This item also includes demobilization cost such as final site cleanup, departure of personnel and equipment from site, record drawings, and other related project closing work. Measurement and payment for this item will follow Section 01 70 00 Mobilization and Remobilization.

Item 102 20-Inch Ductile Iron Pipe AWWA C151, CL152 Water Line with Class 'B-3' Embedment by Open Cut:

This item shall include furnishing and installing Ductile Iron water pipe (AWWA C151, CL52, NCTCOG Item 501.7) by open cut, at the locations shown on the Plans. Ductile Iron water pipe shall be cement mortar lined (AWWA C104, NCTCOG Item 501.7.3), zinc coated (ISO 8179-1) and 8mil and 4mil cross-linked virgin polyethylene double-wrapped (AWWA C105, NCTCOG Item 502.8). Installation, testing and disinfection shall be in accordance with NCTCOG Item 506-Water Conduit Installation. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work, including excavation, fittings, blocking, polyethylene wrap of DIP Fittings (AWWA C105, NCTCOG Item 502.8), thrust restraints, backfill, testing and disinfection as delineated by the Plans.

Item 103 20-Inch Ductile Iron Pipe AWWA C151, CL152 Water Line in 36-Inch Diameter, 5/8-Inch Thick Steel Encasement Pipe by Boring:

This item shall include furnishing and installing Ductile Iron water pipe (AWWA C151, CL52, NCTCOG Item 501.7) and steel encasement pipe (AWWA C-200) by boring (NCTCOG Item 503), at the locations shown on the Plans. Ductile Iron water pipe shall be cement mortar lined (AWWA C104, NCTCOG Item 501.7.3), zinc coated (ISO 8179-1) and 8mil and 4mil cross-linked virgin polyethylene double-wrapped (AWWA C105, NCTCOG Item 502.8). Installation, testing and disinfection shall be in accordance with NCTCOG Item 506-Water Conduit Installation. Buy America Compliance required. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work, including excavation, fittings, blocking, polyethylene wrap, thrust restraints, backfill, testing and disinfection as delineated by the Plans.

Item 104 20-Inch Ductile Iron Pipe AWWA C151, CL152 Water Line through Existing 36-Inch Diameter Steel Encasement Pipe:

This item shall include furnishing and installing Ductile Iron water pipe (AWWA C151, CL52, NCTCOG Item 501.7) through existing steel encasement pipes, as shown in the plans and called out by size in the plans. Ductile Iron water pipe shall be cement mortar lined (AWWA C104, NCTCOG Item 501.7.3), zinc coated (ISO 8179-1) and 8mil and 4mil cross-linked virgin polyethylene double-wrapped (AWWA C105, NCTCOG Item 502.8). Installation, testing and disinfection shall be in accordance with NCTCOG Item 506-Water Conduit Installation. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work, including

excavation, fittings, blocking, polyethylene wrap, thrust restraints, backfill, testing and disinfection as delineated by the Plans.

Item 105 Field Locate Either End of Existing 36-Inch Diameter Steel Encasement Pipe, including Dewatering:

This item shall consist of locating either end of an existing 36-inch diameter steel encasement pipe, at the locations indicated on the plans, including dewatering. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work.

Item 106 20-inch AWWA C500 Gate Valve:

These items shall include the furnishing and installing of 20-inch metal seated gate valves (AWWA C500, NCTCOG 502.6.1), at the locations shown on the plans per the City Standard Details including valve stack, valve pad and valve extension. Gate valves shall be mechanical joint by mechanical joint. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work, including excavation and backfill.

Item 107 Furnish & Install 2-Inch Type 2 Air Release Valve:

This item shall include furnishing and installing 2-inch air release valve assembly, including all appurtenances, per the details provided in the plans. This item includes a 5-foot diameter reinforced concrete manhole NCTCOG Item 502.1. The air release valve shall meet (AWWA C500 Standards, NCTCOG Item 502.6.1). Ductile iron fittings shall meet (AWWA C111, NCTCOG Item 501.7) of domestic or foreign origin and be full body or compact body. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete work, including excavation and backfill as delineated by the Plans.

Item 108 Remove Plug and Connect to Existing 20-Inch Water Line:

This item shall consist of connecting the new Ductile Iron water pipe to existing waterlines at the locations indicated on the plans, including removal of existing water line plug, delivering the plug to the City public works yard, dewatering, fittings, adjustments, barricades and working continuous to make connections, etc. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work.

Item 109 Furnish & Install Ductile Iron Fittings:

This item shall include the furnishing and installing of full bodied ductile iron fittings (AWWA C111, NCTCOG Item 501.7) at the locations indicated on the plans. The per pound (lb.) unit price shall include all labor, equipment and materials, including blocking and/or restraining glands.

Item 110 Sawcut, Remove & Dispose of Concrete Sidewalk & Flume:

This item shall include sawcutting, removal and approved disposal of concrete sidewalk and flume at the locations indicated on the plans. The square yard (S.Y.) unit price shall include all labor, equipment and materials, including full depth saw cut necessary to complete the work.

Item 111 Furnish & Install 4-Inch Thick Reinforced Concrete Sidewalk:

This item shall consist of replacing 4-inch thick reinforced concrete sidewalk constructed of reinforced Portland cement concrete to the width, dimensions and limits delineated in the Plans in conformity with the City of Denton Standard Details. The square yard (S.Y.) unit price shall include all labor, equipment and materials necessary to complete the work as delineated by the plans.

Item 112 Furnish & Install Reinforced Concrete Flume:

This item shall consist of replacing 4-inch thick reinforced concrete flume constructed of reinforced Portland cement concrete to the width, dimensions and limits delineated in the Plans in conformity with the City of Denton Standard Details. The square yard (S.Y.) unit price shall include all labor, equipment and materials necessary to complete the work as delineated by the plans.

Item 113 Trench Safety System Design:

This item shall include the furnishing a trench safety plan designed and signed and sealed by a professional engineer licensed in the State of Texas. The Plan must include the naming of the competent person and in accordance with all OSHA requirements. Payment shall be made on the basis of the bid price per each (Ea.).

Item 114 Trench Safety System Installation:

This item shall include the implementation of the trench safety plan. The linear foot (L.F.) price for implementation shall include, all labor, equipment, and materials necessary to furnish, install, provide daily inspections, operating, maintaining and adjusting safety systems as outlined in the trench safety plan and in accordance with all OSHA requirements and as required during construction meeting actual conditions to keep all workers and others entering the trench safe.

Item 115 Furnish & Install Erosion Control Measures:

This item shall include furnishing, installing, maintaining and removing silt fences, inlet protection, stone outlet sediment trap, construction entrances, and all required erosion control devices and in accordance with NCTCOG Item 201 and the City's storm water prevention requirements. Measurement and payment shall be made on the basis of the bid price per each (Ea.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work.

Item 116 Furnish, Install & Maintain Traffic Control Devices:

This item shall include the furnishing and implementing traffic control plan in accordance with the Texas Manual of Uniform Traffic Control Devices. The each (Ea.) price shall include, but not be limited to all labor, equipment, and materials necessary to implement, maintain, move and remove traffic control devices during all phases of construction including submittal of the phasing and barricade plan and obtaining TxDOT. Payment shall be made on a monthly basis or fraction of a whole month where the control devices are in place, and shall be the total compensation for furnishing labor, materials, and equipment necessary to complete the work.

Item 117 Furnish, Place, Water & Fertilize Hydromulch:

This item shall include furnishing, spraying, watering, fertilizing and maintaining hydromulch seed in the proposed medians, parkways, drainage easements and all other non-paved areas within the right-of-way and within the utility easement disturbed by construction in accordance with NCTCOG Item 202. The square yard unit price shall include all labor, equipment and materials necessary to complete the work, including preparations of subgrade.

Item 118 Furnish, Install & Maintain Solid Block Sod:

This item consists of furnishing, installing, and establishing solid sod grass replacement with top soil in the proposed medians, parkways, drainage easements and all other non-paved areas within the right-of-way and within the utility easement disturbed by construction in accordance with NCTCOG Item 202. The square yard unit price shall include all labor, equipment and materials necessary to complete the work, including preparations of subgrade.

Item 119 Remove and Replace Existing Landscape Shrubs

This item consists of removing and replacing the existing Nellie R. Stevens holly shrubs from Station 8+70 to 10+59 as shown on sheets 6 and 6 of the construction plans. The existing plantings are to be replaced with like size and quality (minimum 3-gallon container). The unit price per each shall include all labor, materials, equipment, fertilizer, water and mulch necessary to plant and establish the shrubs. Replacement of landscape edging as required shall not be paid for separately and is subsidiary to this pay item.

Item 120 Bid Allowance for Irrigation System Repairs:

This item consists of a \$10,000 bid allowance for repairing existing irrigation systems as required during construction. All work under this pay item must be authorized in writing by the City prior to performance. Approval process includes submitting an estimate of the scope and cost of repairs. All irrigation system repairs are

to be performed by a licensed irrigator. Payment will be made based on actual invoice amount for labor and material for the irrigation repairs, plus ten percent (10%) for the prime contractor's administration and overhead. Existing irrigation systems repaired during construction to be replaced with equal or better irrigation systems.

Item 121 Furnish, Install, Maintain & Remove Project Sign:

Measurement and payment for this item will follow Section 01 58 13 Temporary Project Signage.

U.S. 380 16" Transmission Main (900 Service Area)

Item 201 Mobilization & Demobilization:

This item includes mobilization cost such as mobilization of personnel and site equipment, initial coordination and other work required to prepare for the beginning of work. This item also includes demobilization cost such as final site cleanup, departure of personnel and equipment from site, record drawings, and other related project closing work. Measurement and payment for this item will follow Section 01 70 00 Mobilization and Remobilization.

Item 202 16-Inch Ductile Iron Pipe AWWA C151, CL152 Water Line with Class 'B-3' Embedment by Open Cut:

This item shall include furnishing and installing Ductile Iron water pipe (AWWA C151, CL52, NCTCOG Item 501.7) by open cut, at the locations shown on the Plans. Ductile Iron water pipe shall be cement mortar lined (AWWA C104, NCTCOG Item 501.7.3), zinc coated (ISO 8179-1) and 8mil and 4mil cross-linked virgin polyethylene double-wrapped (AWWA C105, NCTCOG Item 502.8). Installation, testing and disinfection shall be in accordance with NCTCOG Item 506-Water Conduit Installation. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work, including excavation, fittings, blocking, polyethylene wrap of DIP Fittings (AWWA C105, NCTCOG Item 502.8), thrust restraints, backfill, testing and disinfection as delineated by the Plans.

Item 203 16-Inch Ductile Iron Pipe AWWA C151, CL152 Water Line in 30-Inch Diameter, 1/2-Inch Thick Steel Encasement Pipe by Boring:

This item shall include furnishing and installing Ductile Iron water pipe (AWWA C151, CL52, NCTCOG Item 501.7) and steel encasement pipe (AWWA C-200) by boring (NCTCOG Item 503), at the locations shown on the Plans. Ductile Iron water pipe shall be cement mortar lined (AWWA C104, NCTCOG Item 501.7.3), zinc coated (ISO 8179-1) and 8mil and 4mil cross-linked virgin polyethylene double-wrapped (AWWA C105, NCTCOG Item 502.8). Installation, testing and disinfection shall be in accordance with NCTCOG Item 506-Water Conduit Installation. Buy America Compliance required. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work, including excavation, fittings, blocking, polyethylene wrap, thrust restraints, backfill, testing and disinfection as delineated by the Plans.

Item 204 16-inch AWWA C500 Gate Valve:

These items shall include the furnishing and installing of 16-inch metal seated gate valves (AWWA C500, NCTCOG 502.6.1), at the locations shown on the plans per the City Standard Details including valve stack, valve pad and valve extension. Gate valves shall be mechanical joint by mechanical joint. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work, including excavation and backfill.

Item 205 Furnish & Install 2-Inch Type 2 Air Release Valve:

This item shall include furnishing and installing 2-inch air release valve assembly, including all appurtenances, per the details provided in the plans. This item includes a 5-foot diameter reinforced concrete manhole NCTCOG Item 502.1. The air release valve shall meet (AWWA C500 Standards, NCTCOG Item 502.6.1). Ductile iron fittings shall meet (AWWA C111, NCTCOG Item 501.7) of domestic or foreign origin and be full body or compact body.

Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete work, including excavation and backfill as delineated by the Plans.

Item 206 Cut and Remove Existing 12-Inch Water Line:

This item shall include the removal and disposal of existing waterline as called out in the construction plans and mechanically backfilling in 8-inch loose lifts to 95% Standard Proctor under existing and future TxDOT paving and 90% Standard Proctor elsewhere. Moisture content shall be optimum moisture plus 2 to 4 points. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for all labor, materials and equipment necessary to complete the work.

Item 207 Remove Plug and Connect to Existing 16-Inch Water Line:

This item shall consist of connecting the new Ductile Iron water pipe to existing waterlines at the locations indicated on the plans, including removal of existing water line plug, delivering the plug to the City public works yard, dewatering, fittings, adjustments, barricades and working continuous to make connections, etc. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work.

Item 208 Remove Plug and Connect to Existing 12-Inch Water Line:

This item shall consist of connecting the new PVC water pipe to existing waterlines at the locations indicated on the plans, including removal of existing water line plug, delivering the plug to the City public works yard, dewatering, fittings, adjustments, barricades and working continuous to make connections, etc. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work.

Item 209 Furnish & Install Ductile Iron Fittings:

This item shall include the furnishing and installing of full-bodied ductile iron fittings (AWWA C111, NCTCOG Item 501.7) at the locations indicated on the plans. The per pound (lb.) unit price shall include all labor, equipment and materials, including blocking and/or restraining glands.

Item 210 Sawcut, Remove & Dispose of Concrete Pavement:

This item shall include sawcutting, removal and approved disposal of concrete pavement at the locations indicated on the plans. The square yard (S.Y.) unit price shall include all labor, equipment and materials, including full depth saw cut necessary to complete the work.

Item 211 Furnish & Install 6-Inch Thick Reinforced Concrete Driveway, Including Connection to Existing Pavement:

This item shall include replacement of concrete driveway at the locations shown on the Plans. Finished pavement shall be constructed of reinforced Portland cement concrete to the limits delineated in the Plans and in conformity with the City of Denton's Standard Details. Measurement and payment shall be made on the basis of the bid price per square yard (S.Y.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work as delineated by the Plans.

Item 212 Trench Safety System Design:

This item shall include the furnishing a trench safety plan designed and signed and sealed by a professional engineer licensed in the State of Texas. The Plan must include the naming of the competent person and in accordance with all OSHA requirements. Payment shall be made on the basis of the bid price per each (Ea.).

Item 213 Trench Safety System Installation:

This item shall include the implementation of the trench safety plan. The linear foot (L.F.) price for implementation shall include, all labor, equipment, and materials necessary to furnish, install, provide daily inspections, operating, maintaining and adjusting safety systems as outlined in the trench safety plan and in accordance with all OSHA

requirements and as required during construction meeting actual conditions to keep all workers and others entering the trench safe.

Item 214 Furnish & Install Erosion Control Measures:

This item shall include furnishing, installing, maintaining and removing silt fences, inlet protection, stone outlet sediment trap, construction entrances, and all required erosion control devices and in accordance with NCTCOG Item 201 and the City's storm water prevention requirements. Measurement and payment shall be made on the basis of the bid price per each (Ea.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work.

Item 215 Furnish, Install & Maintain Traffic Control Devices:

This item shall include the furnishing and implementing traffic control plan in accordance with the Texas Manual of Uniform Traffic Control Devices. The each (Ea.) price shall include, but not be limited to all labor, equipment, and materials necessary to implement, maintain, move and remove traffic control devices during all phases of construction including submittal of the phasing and barricade plan and obtaining TxDOT. Payment shall be made on a monthly basis or fraction of a whole month where the control devices are in place, and shall be the total compensation for furnishing labor, materials, and equipment necessary to complete the work.

Item 216 Furnish, Place, Water & Fertilize Hydromulch:

This item shall include furnishing, spraying, watering, fertilizing and maintaining hydromulch seed in the proposed medians, parkways, drainage easements and all other non-paved areas within the right-of-way and within the utility easement disturbed by construction in accordance with NCTCOG Item 202. The square yard unit price shall include all labor, equipment and materials necessary to complete the work, including preparations of subgrade.

Scripture Street 20" Transmission Main (826 Service Area)

Item 301 Mobilization & Demobilization:

This item includes mobilization cost such as mobilization of personnel and site equipment, initial coordination and other work required to prepare for the beginning of work. This item also includes demobilization cost such as final site cleanup, departure of personnel and equipment from site, record drawings, and other related project closing work. Measurement and payment for this item will follow Section 01 70 00 Mobilization and Remobilization.

Item 302 20-Inch Ductile Iron Pipe AWWA C151, CL152 Water Line with Class 'B-3' Embedment by Open Cut:

This item shall include furnishing and installing Ductile Iron water pipe (AWWA C151, CL52, NCTCOG Item 501.7) by open cut, at the locations shown on the Plans. Ductile Iron water pipe shall be cement mortar lined (AWWA C104, NCTCOG Item 501.7.3), zinc coated (ISO 8179-1) and 8mil and 4mil cross-linked virgin polyethylene double-wrapped (AWWA C105, NCTCOG Item 502.8). Installation, testing and disinfection shall be in accordance with NCTCOG Item 506-Water Conduit Installation. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work, including excavation, fittings, blocking, polyethylene wrap of DIP Fittings (AWWA C105, NCTCOG Item 502.8), thrust restraints, backfill, testing and disinfection as delineated by the Plans.

Item 303 20-Inch Ductile Iron Pipe AWWA C151, CL152 Water Line in 36-Inch Diameter, 5/8-Inch Thick Steel Encasement Pipe by Boring:

This item shall include furnishing and installing Ductile Iron water pipe (AWWA C151, CL52, NCTCOG Item 501.7) and steel encasement pipe (AWWA C-200) by boring (NCTCOG Item 503), at the locations shown on the Plans. Ductile Iron water pipe shall be cement mortar lined (AWWA C104, NCTCOG Item 501.7.3), zinc coated (ISO 8179-1) and 8mil and 4mil cross-linked virgin polyethylene double-wrapped (AWWA C105, NCTCOG Item 502.8). Installation, testing and disinfection shall be in accordance with NCTCOG Item 506-Water Conduit

Installation. Buy America Compliance required. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work, including excavation, fittings, blocking, polyethylene wrap, thrust restraints, backfill, testing and disinfection as delineated by the Plans.

Item 304 12-Inch PVC AWWA C900, DR14 Water Line with Class 'B-3' Embedment by Open Cut:

This item shall include furnishing and installing 12-inch PVC water pipe (AWWA C900 DR14, NCTCOG Item 505) by open cut, at the locations shown on the Plans. Installation, testing and disinfection shall be in accordance with NCTCOG Item 506-Water Conduit Installation. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work, including excavation, fittings, blocking, polyethylene wrap, thrust restraints, backfill, testing and disinfection as delineated by the Plans.

Item 305 8-Inch PVC AWWA C900, DR14 Water Line with Class 'B-3' Embedment by Open Cut:

This item shall include furnishing and installing 12-inch PVC water pipe (AWWA C900 DR14, NCTCOG Item 505) by open cut, at the locations shown on the Plans. Installation, testing and disinfection shall be in accordance with NCTCOG Item 506-Water Conduit Installation. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work, including excavation, fittings, blocking, polyethylene wrap, thrust restraints, backfill, testing and disinfection as delineated by the Plans.

Item 306 20-inch AWWA C500 Gate Valve:

These items shall include the furnishing and installing of 20-inch metal seated gate valves (AWWA C500, NCTCOG 502.6.1), at the locations shown on the plans per the City Standard Details including valve stack, valve pad and valve extension. Gate valves shall be mechanical joint by mechanical joint. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work, including excavation and backfill.

Item 307 12-inch AWWA C500 Gate Valve:

These items shall include the furnishing and installing of 12-inch metal seated gate valves (AWWA C500, NCTCOG 502.6.1), at the locations shown on the plans per the City Standard Details including valve stack, valve pad and valve extension. Gate valves shall be mechanical joint by mechanical joint. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work, including excavation and backfill.

Item 308 8-inch AWWA C500 Gate Valve:

These items shall include the furnishing and installing of 8-inch metal seated gate valves (AWWA C500, NCTCOG 502.6.1), at the locations shown on the plans per the City Standard Details including valve stack, valve pad and valve extension. Gate valves shall be mechanical joint by mechanical joint. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work, including excavation and backfill.

Item 309 Furnish & Install 2-Inch Type 2 Air Release Valve:

This item shall include furnishing and installing 2-inch air release valve assembly, including all appurtenances, per the details provided in the plans. This item includes a 5-foot diameter reinforced concrete manhole NCTCOG Item 502.1. The air release valve shall meet (AWWA C500 Standards, NCTCOG Item 502.6.1). Ductile iron fittings shall meet (AWWA C111, NCTCOG Item 501.7) of domestic or foreign origin and be full body or compact body. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete work, including excavation and backfill as delineated by the Plans.

Item 310 Remove Plug and Connect to Existing 20-Inch Water Line:

This item shall consist of connecting the new Ductile Iron water pipe to existing waterlines at the locations indicated on the plans, including removal of existing water line plug, delivering the plug to the City public works yard, dewatering, fittings, adjustments, barricades and working continuous to make connections, etc. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work.

Item 311 Cut & Remove Existing 20-Inch Water Line:

This item shall include the removal and disposal of existing waterline as called out in the construction plans and mechanically backfilling in 8-inch loose lifts to 95% Standard Proctor under existing and future TxDOT paving and 90% Standard Proctor elsewhere. Moisture content shall be optimum moisture plus 2 to 4 points. Measurement and payment shall be made on the basis of the bid price per linear foot (L.F.) and shall be the total compensation for all labor, materials and equipment necessary to complete the work.

Item 312 Connect to Existing 8-Inch Water Line:

This item shall consist of connecting the new Ductile Iron water pipe to existing waterlines at the locations indicated on the plans, including removal of existing water line plug, delivering the plug to the City public works yard, dewatering, fittings, adjustments, barricades and working continuous to make connections, etc. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work

Item 313 Cut, Plug and Abandon Existing 8-Inch Water Line:

This item shall consist of cutting and plugging existing waterline including dewatering, fittings, backfilling, mechanically compacting backfill in 8-inch loose lifts, restoration and barricades. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work.

Item 314 Furnish & Install 20-Inch M.J. Plug:

These items shall include the furnishing and installing of 20-inch mechanical joint restrained plugs (AWWA C500, NCTCOG 502.5), at the locations shown on the plans. Plugs shall be mechanical joint restrained. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work, including excavation and backfill.

Item 315 Furnish & Install 12-Inch M.J. Plug:

These items shall include the furnishing and installing of 12-inch mechanical joint restrained plugs (AWWA C500, NCTCOG 502.5), at the locations shown on the plans. Plugs shall be mechanical joint restrained. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work, including excavation and backfill.

Item 316 Furnish & Install Standard Fire Hydrant Assembly, including 6-Inch Piping and 6-Inch Valve:

This item shall include the furnishing and installing of AWWA C502 Fire Hydrants at the locations shown on the plans, including 6-inch metal seated gate valves (AWWA C500, NCTCOG 502.6.1) and ductile iron fittings (AWWA C111, NCTCOG Item 501.7) of domestic or foreign origin, and be full body or compact body. Buy America Compliance required. The per each (Ea.) unit price shall include all labor, equipment and materials necessary to complete the work including excavation, embedment, thrust restraints, blocking, polyethylene wrap (AWWA C105, NCTCOG Item 502.8) pipe, fittings, painting and backfill.

Item 317 Furnish & Install Ductile Iron Fittings:

This item shall include the furnishing and installing of full-bodied ductile iron fittings (AWWA C111, NCTCOG Item 501.7) at the locations indicated on the plans. The per pound (lb.) unit price shall include all labor, equipment and materials, including blocking and/or restraining glands.

Item 318 Remove & Replace 20 L.F. of Existing 8-Inch Sanitary Sewer with 8-Inch 150 PSI Pressure Class Pipe (AWWA C900, DR18, Colored Green):

Item 319 Sawcut, Remove & Dispose of Concrete Sidewalk:

This item shall include sawcutting, removal and approved disposal of concrete sidewalk at the locations indicated on the plans. The square yard (S.Y.) unit price shall include all labor, equipment and materials, including full depth saw cut necessary to complete the work.

Item 320 Furnish & Install 4-Inch Thick Reinforced Concrete Sidewalk:

This item shall consist of replacing 4-inch thick reinforced concrete sidewalk constructed of reinforced Portland cement concrete to the width, dimensions and limits delineated in the Plans in conformity with the City of Denton Standard Details. The square yard (S.Y.) unit price shall include all labor, equipment and materials necessary to complete the work as delineated by the plans.

Item 321 Trench Safety System Design:

This item shall include the furnishing a trench safety plan designed and signed and sealed by a professional engineer licensed in the State of Texas. The Plan must include the naming of the competent person and in accordance with all OSHA requirements. Payment shall be made on the basis of the bid price per each (Ea.).

Item 322 Trench Safety System Installation:

This item shall include the implementation of the trench safety plan. The linear foot (L.F.) price for implementation shall include, all labor, equipment, and materials necessary to furnish, install, provide daily inspections, operating, maintaining and adjusting safety systems as outlined in the trench safety plan and in accordance with all OSHA requirements and as required during construction meeting actual conditions to keep all workers and others entering the trench safe.

Item 323 Furnish & Install Erosion Control Measures:

This item shall include furnishing, installing, maintaining and removing silt fences, inlet protection, stone outlet sediment trap, construction entrances, and all required erosion control devices and in accordance with NCTCOG Item 201 and the City's storm water prevention requirements. Measurement and payment shall be made on the basis of the bid price per each (Ea.) and shall be the total compensation for furnishing all labor, materials and equipment necessary to complete the work.

Item 324 Furnish, Install & Maintain Traffic Control Devices:

This item shall include the furnishing and implementing traffic control plan in accordance with the Texas Manual of Uniform Traffic Control Devices. The each (Ea.) price shall include, but not be limited to all labor, equipment, and materials necessary to implement, maintain, move and remove traffic control devices during all phases of construction including submittal of the phasing and barricade plan and obtaining TxDOT. Payment shall be made on a monthly basis or fraction of a whole month where the control devices are in place, and shall be the total compensation for furnishing labor, materials, and equipment necessary to complete the work.

Item 325 Furnish, Place, Water & Fertilize Hydromulch:

This item shall include furnishing, spraying, watering, fertilizing and maintaining hydromulch seed in the proposed medians, parkways, drainage easements and all other non-paved areas within the right-of-way and within the utility easement disturbed by construction in accordance with NCTCOG Item 202. The square yard unit price shall include all labor, equipment and materials necessary to complete the work, including preparations of subgrade.

Item 326 Bid Allowance for Irrigation System Repairs:

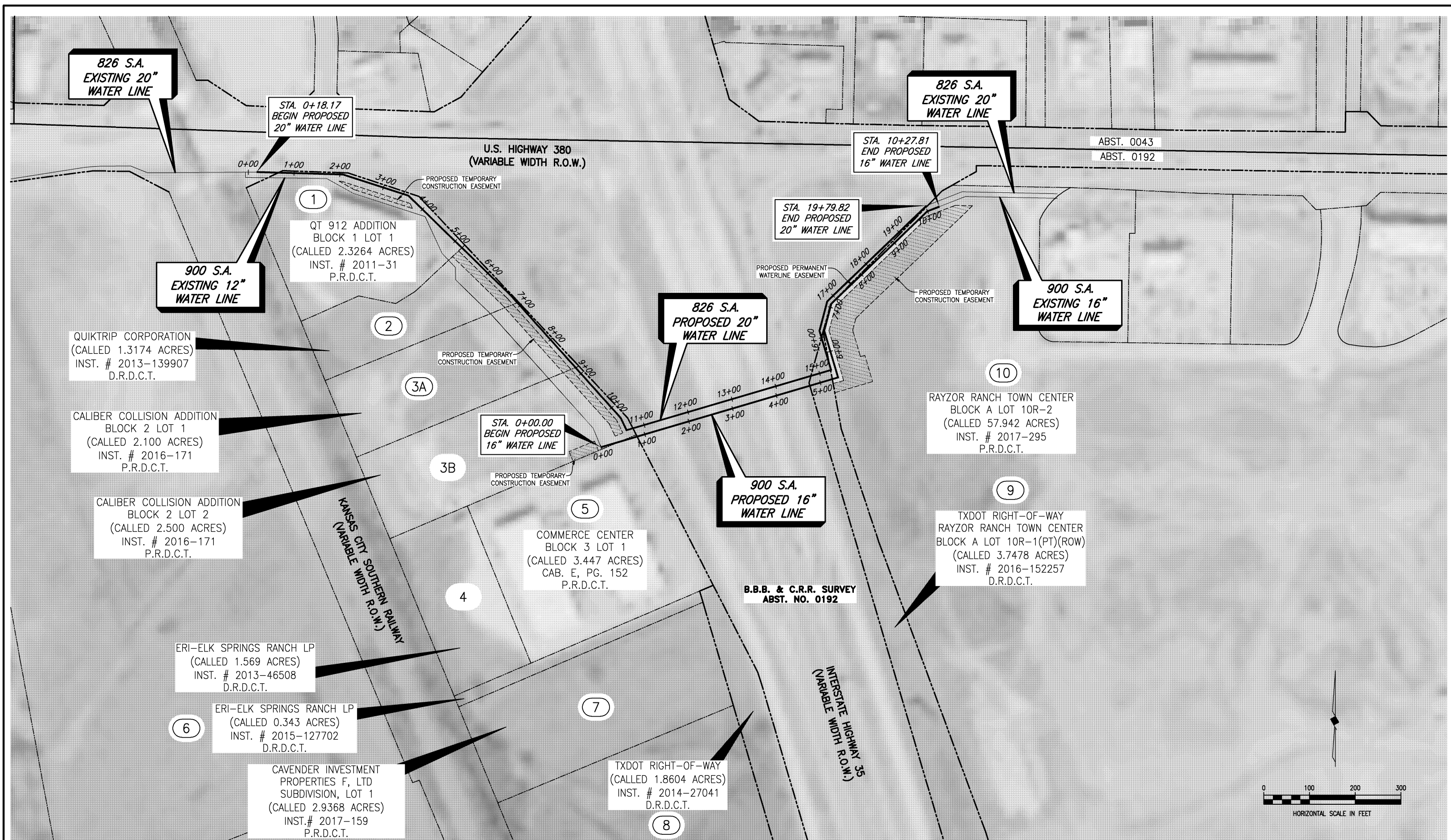
This item consists of a \$5,000 bid allowance for repairing existing irrigation systems as required during construction. All work under this pay item must be authorized in writing by the City prior to performance. Approval process includes submitting an estimate of the scope and cost of repairs. All irrigation system repairs are to be performed by a licensed irrigator. Payment will be made based on actual invoice amount for labor and

material for the irrigation repairs, plus ten percent (10%) for the prime contractor's administration and overhead. Existing irrigation systems repaired during construction to be replaced with equal or better irrigation systems.

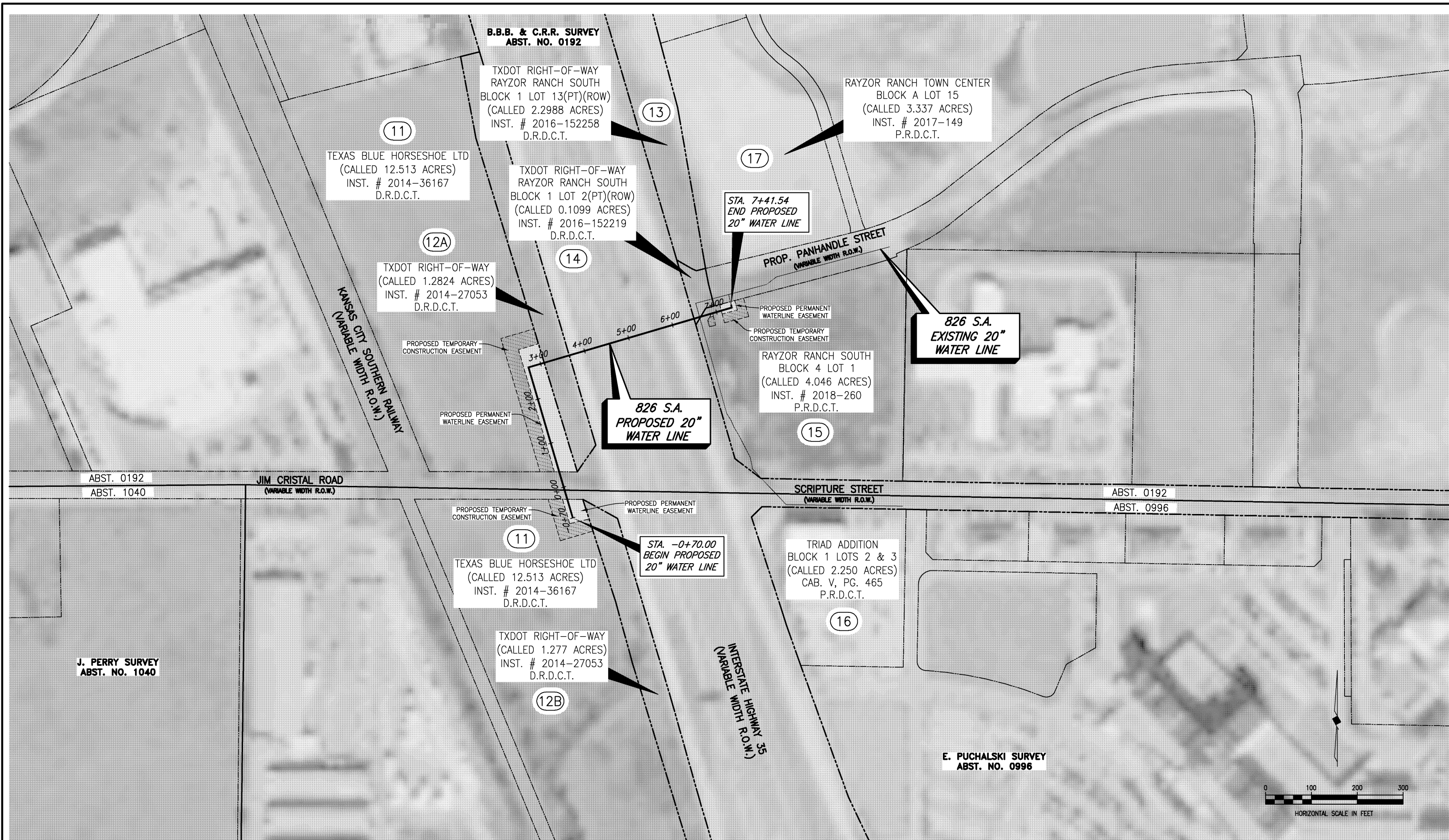
Item 327 Furnish, Install, Maintain & Remove Project Sign:

Measurement and payment for this item will follow Section 01 58 13 Temporary Project Signage.

APPENDIX GC-4.01
PROPERTY STRIP MAP



<p>These plans and related specifications were prepared for construction of this specific project only. Reuse of these documents is not permitted without written authorization of Birkhoff, Hendricks & Carter, L.L.P. If this drawing is converted to an electronic file, if any discrepancy occurs between the electronic file and the Birkhoff, Hendricks & Carter, L.L.P. original document, the original document will govern in all cases.</p>	<p>BIRKHOFF, HENDRICKS & CARTER, L.L.P. PROFESSIONAL ENGINEERS TBPE Firm No. 526; TBPLS Firm No. 10031800 11910 Greenville Ave., Suite 600 Dallas, Texas 75243 (214) 361-7900</p>	<p>THESE DOCUMENTS ARE FOR INTERIM REVIEW AND ARE NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.</p> <p>CARY C. HENDRICKS TEXAS P.E. NO. 65226 DATE: March 2019</p>	<p>CITY OF DENTON, TEXAS SH 380 TRANSMISSION MAINS</p> <p>PROPERTY OWNER MAP & PROPOSED WATERLINE ALIGNMENT</p>	<p>BHC PROJECT NO. 2017-145 March 2019</p>	<p>SHEET NO. 4</p>
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	<p>These plans and related specifications were prepared for construction of this specific project only. Reuse of these documents is not permitted without written authorization of Birkhoff, Hendricks & Carter, L.L.P. If this drawing is converted to an electronic file, if any discrepancy occurs between the electronic file and the Birkhoff, Hendricks & Carter, L.L.P., original document, the original document will govern in all cases.</p>	<p>BIRKHOFF, HENDRICKS & CARTER, L.L.P. PROFESSIONAL ENGINEERS TBPE Firm No. 526; TBPLS Firm No. 10031800 11910 Greenville Ave., Suite 600 Dallas, Texas 75243 (214) 361-7900</p>	<p>THESE DOCUMENTS ARE FOR INTERIM REVIEW AND ARE NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.</p> <p>GARY C. HENDRICKS TEXAS P.E. NO. 65226 DATE: March 2019</p>	<p>CITY OF DENTON, TEXAS SCRIPTURE STREET TRANSMISSION MAIN</p> <p>PROPERTY OWNER MAP & PROPOSED WATERLINE ALIGNMENT</p>	<p>BHC PROJECT NO. 2017-146</p> <p>March 2019</p>	<p>SHEET NO:</p> <p>4</p>
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APPENDIX GC-4.02.A
GEOTECHNICAL REPORT

APPENDIX GC-4.02.B
DESIGN MEMORANDUM REPORT

DESIGN

MEMORANDUM

REPORT

ON THE

CITY OF DENTON

S.H. 380 TRANSMISSION MAINS & SCRIPTURE STREET TRANSMISSION MAIN

FOR

BIRKHOFF, HENDRICKS & CARTER, L.L.P.

REV. 0

BY



ELK ENGINEERING ASSOCIATES, INC.

JOB NUMBER 3141

11 DECEMBER 2018

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Design

Memorandum

Report

For the

City of Denton

S.H. 380 Transmission Mains & Scripture Street Transmission Main

For

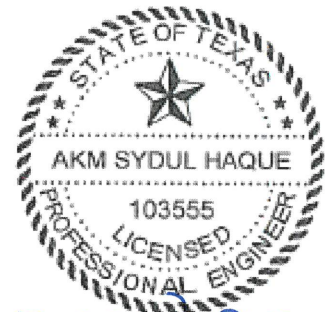
Birkhoff, Hendricks & Carter, L.L.P

Rev. 0

by

Job Number 3141

11 December 2018



AKM SYDUL HAQUE 12/11/18
ELK Engineering Associates, Inc.
Registration No. F-003434

A. INTRODUCTION

In accordance with the terms of a Subcontractor Service Agreement for Professional Services from Birkhoff, Hendricks & Carter L.L.P. (BHC) to ELK Engineering Associates, Inc. (ELK), a survey team from ELK conducted a site evaluation survey of the subject pipelines right-of-way (R/W) on 2 October 2018. ELK has prepared an engineering design report of cathodic protection system for the subject pipelines. This report sets forth our initial findings, the Design Memorandum Report (DMR), and our specific recommendations for installation of cathodic protection.

B. REFERENCE STANDARDS AND CRITERIA OF PROTECTION

NACE International Standard Practice SP0169-2013 - "Control of External Corrosion on Underground or Submerged Metallic Piping Systems"

NACE International Standard Practice SP0286-2007 – "Electrical Isolation of Cathodically Protected Pipelines"

"6.2.1.2 A minimum of 100 mV of cathodic polarization. Either the formation or the decay of polarization must be measured to satisfy this criterion."

"6.2.1.3 A structure-to-electrolyte potential of –850 mV or more negative as measured with respect to a saturated copper/copper sulfate (CSE) reference electrode. This potential may be either a direct measurement of the polarized potential or a current-applied potential. Interpretation of a current-applied measurement requires consideration of the significance of voltage drops in the earth and metallic paths."

American Water Works Association Manual of Water Supply Practices AWWA M41 – Ductile-Iron Pipe and Fittings.

American Water Works Association Manual of AWWA C105-10 - Polyethylene Encasement for Ductile-Iron Pipe Systems.

DIPRA – The Design Decision Model for Corrosion Control of Ductile Iron Pipelines

C. PROJECT DESCRIPTION

When completed, the proposed Scripture Street water main will consist of approximately 742-ft 20-inch Ductile Iron (DI) pipe. S.H. 380 Water mains will consist of approximately 1980-ft 20-inch DI pipe and 1028-ft 16-inch DI pipe materials of construction (MOC).

C. INVESTIGATIONS

Soil Resistivity - All our corrosion control recommendations and the proposed cathodic protection design contained in this report are based upon the conclusions drawn from a review of our site testing.

I. SOIL RESISTIVITY

Field measurements were conducted in conformance with ASTM G57-06 (2012) "Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method" with the following exceptions of notation of the time, temperature, topography, and drainage. If the bulk soil is not frozen or saturated, these factors make very little difference in the measurement. Any resistance change due to temperature fluctuation would fall within measurement error limits. The soil was neither frozen or saturated at the time of these tests.

All test equipment has been maintained in calibration to NIST traceable

standards. The in-situ soil resistivity along the pipeline right-of-way (R/W) were measured to average depths of 2.5-ft., 5-ft., 10-ft., 15-ft., and 20-ft. The soil resistivity readings are presented on data sheets contained in the Appendix.

A total of 5 (five) soil resistivity measurements were taken along the length of the pipeline R/W over or very close to the proposed pipeline.

These soil resistivity data show very little variation along the length of the line at pipeline depth. Average 0 to 15 feet soil resistivity is 1826 Ohm-cm.

Generally, the rate of galvanic cell corrosion is inversely proportional to the average resistivity of the soil through which the piping passes ⁽¹⁾. The lower the average soil resistivity, the greater the corrosion tendency. The following table of soil resistivity classifications illustrates this correlation.

TABLE OF SOIL RESISTIVITY CLASSIFICATIONS

Soil Resistivity Range		
OHM-CM	Classification	General Rating of Corrosiveness
0 – 1,000	Very Low	Extremely Corrosive
1,000 – 5,000	Low	Usually Very Corrosive
5,000 – 10,000	Medium	Often Corrosive
10,000 – 25,000	High	Seldom Corrosive

25,000 – 100,000	Very High	Seldom Corrosive, Unless Mixed
100,000 – 1,000,000	Ultra High	Very Seldom, Unless Mixed
Over 1,000,000	Super High	Almost Never Corrosive, Unless Mixed

The corrosiveness of the soil is also affected by the degree of variation or mixture of soil conditions through which the piping passes. Greater variation or mixture generally results in increased corrosion at the lower resistivity sites. Thus, even though the average soil resistivity may be quite high, if there are inclusions of low resistivity materials in the backfill, or if the line drops down through a low wet spot, or similar conditions occur which provide sudden or great variations to the backfill, significant corrosion may result in those locations. For these particular water line alignments, the soil is found to be low resistivity and is considered to be usually very corrosive. Therefore cathodic protection to supplement the polyethylene encasement is warranted.

II. pH

Dissolved chemicals in the soil effect pH and the general corrosivity of the soil. Chemical fertilizers tend to be highly acidic and reduce the pH of the soil. Highly acidic, moist soil conditions can be corrosive to steel pipe. There is no direct correlation between pH and corrosivity of soils⁽²⁾, but low pH (acidic) soils are known to be corrosive to steel pipe. As is the case with soil resistivity, there is no direct correlation between pH and corrosion rate, it is an

indicator only. Many other factors such as: the available acid radicals contributing to the pH, available free oxygen, moisture level, soil bacteria activity, available sulfur and chloride ion concentrations also contribute to the actual corrosion rate. Many attempts have been made to develop a soils corrosivity index with limited success. King⁽³⁾ developed a complex nomograph relating corrosion rate to pH and soil resistivity, but cautions that it should only be used as a guide. The nomograph indicates expected corrosion rates ranging from 45 gm/m²/yr in 5,000 ohm-cm soil at pH 6.5 to about 600 gm/m²/yr in 1,000 ohm-cm soil at pH 3.5. Starkey and Wright⁽³⁾ developed a corrosivity index based upon Redox potentials.

Our onsite pH tests were taken at an average depth of six inches below grade and utilized narrow range pH test strips and distilled water. These tests reveal acidic pH values ranging from 4.7 to 5.5 and averaging 5.26. This is further justification for application of cathodic protection.

D. BASIS OF DESIGN

Polyethylene Encasement Ductile Iron Pipe :

The Basis of Design for a Galvanic Anode Cathodic Protection (GACP) system for this pipeline with bare ductile iron pipe is a current demand of 2-mA per square foot of bare area on the pipeline with an assumed coating efficiency of 98.5% for double polyethylene encasement on DI pipe. The design life expectancy for the cathodic

protection system is twenty (20) years.

Zinc Coated Ductile Iron Pipe:

Zinc coated pipe for ductile iron pipe is not a common practice in USA. However, it is used in Europe, Asia, Africa and Latin America. There is an international standard, ISO 8179-1 (Ductile Iron Pipes-External zinc-based coating-Part 1: Metallic Zinc with Finishing Layer). Zinc coated ductile iron pipe could provide an acceptable level of cathodic protection on the subject pipelines on the selected right-of-way provided that the pipe is polyethylene encased. All proposed test stations must be installed to permit future monitoring of the level of protection being provided to the pipe. The final choice between zinc coating and a GACP system should be made on cost. We believe that the GACP system will prove to be more cost effective.

E. CATHODIC PROTECTION SYSTEMS

Cathodic protection is an electrochemical means of corrosion control that is effective in any soil or water medium where there is a continuous electrolyte. GACP system are very simple, self-regulating, and are usually trouble free. They do not require a source of external power, but they are limited in the amount of current output that each individual anode can provide. Therefore, they are limited in the expanse of the structure that may be protected with an individual installation and also must be confined to relatively low electrical resistivity soils such as those found on this project.

a. Design Recommendations

1. Protective Coatings

In moderately corrosive soils poly bagging is typically specified. That would be a reasonable corrosion protection (life extension) methodology. However, poly bagging only provides corrosion resistance in areas where film is intact. One must expect to have significant tears in the poly films when constructing and backfilling a large diameter DI pipeline. Therefore, supplementing the poly bagging with the galvanic anode cathodic protection system assures reasonably effective corrosion control. That is the approach that we recommended on this project.

The DIP shall be wrapped in accordance with AWWA C105-10 "Polyethylene Encasement for Ductile-Iron Pipe Systems." The contractor shall take the necessary precautions to protect the encasement during installation.

All buried valves must be externally coated with a shop applied coating or a hand applied asphaltic based coating system, or wax type coating system.

2. Electrical Isolation

All connections to existing metallic structures such shall be made electrically discontinuous using flange isolation sets. Failure to properly

isolate the proposed pipe from existing pipe may result in unacceptable levels of cathodic protection.

All carrier pipes shall be electrically isolated from casing pipe by use of approved casing insulators. There shall be no welded tie-down straps, bonds or wire connections between the carrier pipe and the casing pipe.

3. **Electrical Continuity**

Continuity bonding is required to make all bell and spigot joints, mechanical joints, or flanged connections electrically continuous.

Electrical continuity shall be achieved by the installation of two (2) #4 AWG continuity bond wires for DI pipe.

4. **Test Leads**

Two drawings, appended to this DBR, provide installation details for the various test lead configurations.

A "Test Station List" in the appendix of the report provide location station numbers and descriptions for each of the proposed installations. Ideal spacing between monitoring test stations for DI water pipe range from 1000 foot to 1500-foot intervals. Each at grade test station must be installed in the curbed area of the road.

E. BILL OF MATERIALS

The following components will be used to achieve an effective corrosion control system for the Scripture Street - 20" Water Line.

Item No.	Description	Quantity
1	32 lb High Potential Magnesium Anode	2 ea.
2	Permanent Reference Electrode	1 ea.
3	At Grade Test station	5 ea.
4	#10 AWG THWN insulated wire, Green (Casing)	200 ft.
5	#10 AWG THWN insulated wire, Red (Foreign Line)	100 ft.
6	#10 AWG THWN insulated wire, White (Proposed Pipeline)	500 ft.
7	#10 AWG HMWPE insulated wire, Black (Anode Header)	50 ft.
8	#4 AWG HMWPE wire	250 ft.
9	CAHAA-1G welder	1 ea.
10	CAHAA-1L Welder	1 Ea.
11	CA-15 Cartridge	260 ea.
12	Flint Gun	1 ea.
13	R-28 Mastic	1 Gal.
14	0.1 Ohm Shunt	1 ea.
15	#12/10 X 1/4" Ring Terminals	40 ea.
16	PN14-14R-L Insulated Terminal	1 ea.
17	1" dia. Brass tag	40 ea.
18	CAB-133-1H Sleeve Adapter	30 ea.
19	Duxseal: CAT-317, 1 lb pkg	1 ea.

20	Skotch No.130 C Rubber Tape x 3/4" width	1 ea.
21	Skotch No.33+ Vinyl Electrical Tape x 3/4" width	1 ea.
22	YC8C8 Burndy Crimpit	1 ea.

The following components will be used to achieve an effective corrosion control system for the SH 380 - 20" Water Line.

Item No.	Description	Quantity
1	32 lb High Potential Magnesium Anode	6 ea.
2	Permanent Reference Electrode	3 ea.
3	At Grade Test station	8 ea.
4	#10 AWG THWN insulated wire, Green (Casing)	400 ft.
5	#10 AWG THWN insulated wire, Red (Foreign Line)	100 ft
6	#10 AWG THWN insulated wire, White (Proposed Pipeline)	1000 ft.
7	#10 AWG HMWPE insulated wire, Black (Anode Header)	150 ft.
8	#4 AWG HMWPE wire	400 ft.
9	CAHAA-1G welder	1 ea.
10	CAHAA-1L Welder	1 Ea.
11	CA-15 Cartridge	550 ea.
12	Flint Gun	1 ea.
13	R-28 Mastic	1 Gal.
14	0.1 Ohm Shunt	3 ea.
15	#12/10 X 1/4" Ring Terminals	60 ea.

16	PN14-14R-L Insulated Terminal	3 ea.
17	1" dia. Brass tag	60 ea.
18	CAB-133-1H Sleeve Adapter	40 ea.
19	Duxseal: CAT-317, 1 lb pkg	1 ea.
20	Skotch No.130 C Rubber Tape x 3/4" width	1 ea.
21	Skotch No.33+ Vinyl Electrical Tape x 3/4" width	1 ea.
22	YC8C8 Burndy Crimpit	3 ea.

The following components will be used to achieve an effective corrosion control system for the SH 380 - 16" Water Line.

Item No.	Description	Quantity
1	32 lb High Potential Magnesium Anode	2 ea.
2	Permanent Reference Electrode	1 ea.
3	At Grade Test station	4 ea.
4	#10 AWG THWN insulated wire, Yellow (Casing)	200 ft.
5	#10 AWG THWN insulated wire, White (Proposed Pipeline)	400 ft.
6	#10 AWG HMWPE insulated wire, Black (Anode Header)	50 ft.
7	#4 AWG HMWPE wire	150 ft.
8	CAHAA-1G welder	1 ea.
9	CAHAA-1L Welder	1 Ea.
10	CA-15 Cartridge	220 ea.
11	Flint Gun	1 ea.

12	R-28 Mastic	1 Gal.
13	0.1 Ohm Shunt	1 ea.
14	#12/10 X ¼" Ring Terminals	40 ea.
15	PN14-14R-L Insulated Terminal	1 ea.
16	1" dia. Brass tag	40 ea.
17	CAB-133-1H Sleeve Adapter	20 ea.
18	Duxseal: CAT-317, 1 lb pkg	1 ea.
19	Skotch No.130 C Rubber Tape x 3/4" width	1 ea.
20	Skotch No.33+ Vinyl Electrical Tape x 3/4" width	1 ea.
21	YC8C8 Burndy Crimpit	1 ea.

F. OPINION OF PROBABLE COST

The following opinions of probable cost are provided for budgetary purposes. Test stations, continuity bonding, and magnesium anode, in their entirety, are to be installed by the pipeline constructor at the time that the line is to be laid.

System	Material, Construction Support & Testing Cost	Installation Labor Cost	Total Cost
Scripture Street – 20" Water Line	\$5,300.00	\$6,500.00	\$11,800.00
SH 380 – 20" Water Line	\$9,500.00	\$11,000.00	\$20,500.00
SH 380 – 16" Water Line	\$4,800.00	\$6,000.00	\$10,800.00
Total Cost	\$19,600.00	\$23,500.00	\$43,100.00

G. REFERENCES

1. Underground Corrosion, M. Romanoff, National Bureau of Standards, 1957,
National Association of Corrosion Engineers, 1989.
2. Control of Pipeline Corrosion, A.W. Peabody, National Association of Corrosion
Engineers, 1967.
3. Uhlig's Corrosion Handbook, Second Edition, Edited by R. Winston Revie, John
Wiley & Sons, Inc., New York, 2000, p.p. 340, 341.
4. American Water Works Association – Manual of Water Supply Practices "Steel Pipe
AWWA M11."

APPENDIX

817/568-8585 METRO 972/455-5110 FAX 817/568-8590

DATE: 10/2/2018

3141

Soil Resitivity & pH

[illegible]

Notes:

DESIGN CALCULATION SHEETS

OWNER: City of Denton
PROJECT: Scripture Street Transmission Main

LINE DESIGNATION: 20" DI Pipe
PROBLEM: DESIGN GALVANIC ANODE SYSTEM FOR 20 Years

DESIGN TEMPLATE

Given:	DI PIPE TYPE (STEEL, DI, CCP)
size of pipe or conduit:	20 Inch diameter
length of pipe	742.00 Ft.
area or pipe per lineal foot	5.655 FT ² /Lineal Foot FROM LOOKUP CHARTS
Surface Area	4,195.911 FT ²
coating eff.	98.500% assumed
current density	2 ma/Ft ²
theoretical design life:	20 Years
Anode Size:	32 HP
Anode Type:	mag
Deterioration rate of anode	0.0175 lbs/ma/yr
Soil Resistivity	2.5 K Ohms-cm
Desired P/S	850 mV

CALCULATED FROM DATA ABOVE

Current (I)	<u>126 mA</u>
weight of anodes	<u>44 LBS.</u>

Resistance to Remote Earth

For Anode Type:	32 HIGH POTENTIAL MAGNESIUM ALLOY
Anode Voltage	1800 mV
Driving Voltage, ΔE	950 mV
Vertical Installation (Y/N)	NO

Resistance for single horizontal; anode to remote earth, R 10.62 OHMS

Calculated Maximum Current Output/Anode based on Resistance to Remote Earth

$$I_{MA} = \Delta E / R$$

CALCULATED I_{MA} **89 mA/ANODE**

RECOMMENDED MAX CURRENT OUTPUT/ANODE **91 mA/ANODE** FOR 20 Yr. life

DESIGN RECOMMENDATIONS

USE CALCULATED CURRENT OUTPUT PER ANODE IN DESIGN CALCULATIONS

INSTALL THEORETICAL : 1.41 EA 32 HIGH POTENTIAL MAGNESIUM ALLOY
USING CALCULATED CURRENT OUTPUT

ELK ENGINEERING ASSOCIATES, INC.
8950 FORUM WAY
FORT WORTH, TX 76140
817.568.8585 817.568.8590 FAX

JOB NO. 3141
DATE: 11-Dec-18

DESIGN CALCULATION SHEETS

OWNER: City of Denton
PROJECT: Scripture Street Transmission Main

LINE DESIGNATION: 20" DI Pipe
PROBLEM: DESIGN GALVANIC ANODE SYSTEM FOR 20 Years

THEREFORE INSTALL	1 SET	OF	2	ANODES EA. GB
TOTAL	2 EA	32 HIGH POTENTIAL MAGNESIUM ALLOY		

ANODE LIFE IN YEARS

$$\text{MAGNESIUM} = \frac{0.116 \times \text{ANODE WT IN LBS.} \times \text{EFFICIENCY} \times \text{UTILIZATION FACTOR}}{\text{CURRENT IN AMPS}}$$

LIFE OF ANODES BASED ON THEORETICAL CALCULATIONS

WEIGHT OF ANODES INSTALLED 45 lbs
EFFICIENCY 50%
UTILIZATION FACTOR 85%
CURRENT OUT IN AMPERES 0.1259 AMPS
17.64 years theoretical design life

LIFE OF ANODES BASED ON WEIGHT OF ANODES INSTALLED

WEIGHT OF ANODES INSTALLED 64 lbs
EFFICIENCY 50%
UTILIZATION FACTOR 85%
CURRENT OUT IN AMPERES 0.1259 AMPS
25.07 years calculated design life

CONCLUSIONS: THEORETICAL LIFE CALCULATION NOT ADEQUATE, USE WEIGHT BASED
CALCULATION FOR DESIGN

APPROXIMATE GROUND BED SPACING 742 FT. SPACING
371

CALCULATED ASH

REVIEWED BY: ELK

DESIGN CALCULATION SHEETS

OWNER: City of Denton
PROJECT: S.H. 380 Transmission Mains (20" Transmission Main)

LINE DESIGNATION: 20" DI Pipe
PROBLEM: DESIGN GALVANIC ANODE SYSTEM FOR 20 Years

DESIGN TEMPLATE

Given:	DI PIPE TYPE (STEEL, DI, CCP)
size of pipe or conduit:	20 Inch diameter
length of pipe	1980.00 Ft.
area or pipe per lineal foot	5.655 FT ² /Lineal Foot FROM LOOKUP CHARTS
Surface Area	11,196.636 FT ²
coating eff.	98.500% assumed
current density	2 ma/Ft ²
theoretical design life:	20 Years
Anode Size:	32 HP
Anode Type:	mag
Deterioration rate of anode	0.0175 lbs/mA/yr
Soil Resistivity	2.5 K Ohms-cm
Desired P/S	850 mV

CALCULATED FROM DATA ABOVE

Current (I)	<u>336 mA</u>
weight of anodes	<u>118 LBS.</u>

Resistance to Remote Earth

For Anode Type:	32 HIGH POTENTIAL MAGNESIUM ALLOY
Anode Voltage	1800 mV
Driving Voltage, ΔE	950 mV
Vertical Installation (Y/N)	NO

Resistance for single horizontal; anode to remote earth, R 10.62 OHMS

Calculated Maximum Current Output/Anode based on Resistance to Remote Earth

$$I_{MA} = \Delta E / R$$

CALCULATED I_{MA} **89 mA/ ANODE**

RECOMMENDED MAX CURRENT OUTPUT/ANODE **91 mA/ANODE** FOR 20 Yr. life

DESIGN RECOMMENDATIONS

USE CALCULATED CURRENT OUTPUT PER ANODE IN DESIGN CALCULATIONS

INSTALL THEORETICAL : 3.75 EA 32 HIGH POTENTIAL MAGNESIUM ALLOY
USING CALCULATED CURRENT OUTPUT

ELK ENGINEERING ASSOCIATES, INC.
8950 FORUM WAY
FORT WORTH, TX 76140
817.568.8585 817.568.8590 FAX

JOB NO. 3141
DATE: 11-Dec-18

DESIGN CALCULATION SHEETS

OWNER: City of Denton
PROJECT: S.H. 380 Transmission Mains (20" Transmission Main)

LINE DESIGNATION: 20" DI Pipe
PROBLEM: DESIGN GALVANIC ANODE SYSTEM FOR 20 Years

THEREFORE INSTALL TOTAL	3 SET 6 EA	OF 32 HIGH POTENTIAL MAGNESIUM ALLOY	2 ANODES EA. GB
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ANODE LIFE IN YEARS

$$\text{MAGNESIUM} = \frac{0.116 \times \text{ANODE WT IN LBS.} \times \text{EFFICIENCY} \times \text{UTILIZATION FACTOR}}{\text{CURRENT IN AMPS}}$$

LIFE OF ANODES BASED ON THEORETICAL CALCULATIONS

WEIGHT OF ANODES INSTALLED 120 lbs
EFFICIENCY 50%
UTILIZATION FACTOR 85%
CURRENT OUT IN AMPERES 0.3359 AMPS
17.64 years theoretical design life

LIFE OF ANODES BASED ON WEIGHT OF ANODES INSTALLED

WEIGHT OF ANODES INSTALLED 192 lbs
EFFICIENCY 50%
UTILIZATION FACTOR 85%
CURRENT OUT IN AMPERES 0.3359 AMPS
28.18 years calculated design life

CONCLUSIONS: THEORETICAL LIFE CALCULATION NOT ADEQUATE, USE WEIGHT BASED
CALCULATION FOR DESIGN

APPROXIMATE GROUND BED SPACING

660 FT. SPACING
110

CALCULATED ASH

REVIEWED BY: ELK

DESIGN CALCULATION SHEETS

OWNER: City of Denton
PROJECT: S.H. 380 Transmission Mains (16" Transmission Main)

LINE DESIGNATION: 16" DI Pipe
PROBLEM: DESIGN GALVANIC ANODE SYSTEM FOR 20 Years

DESIGN TEMPLATE

<u>Given:</u>	DI PIPE TYPE (STEEL, DI, CCP)
size of pipe or conduit:	16 Inch diameter
length of pipe	1028.00 Ft.
area or pipe per lineal foot	4.555 FT ² /Lineal Foot FROM LOOKUP CHARTS
Surface Area	4,682.858 FT ²
coating eff.	98.500% assumed
current density	2 ma/Ft ²
theoretical design life:	20 Years
Anode Size:	32 HP
Anode Type:	mag
Deterioration rate of anode	0.0175 lbs/ma/yr
Soil Resistivity	2.5 K Ohms-cm
Desired P/S	850 mV

CALCULATED FROM DATA ABOVE

Current (I)	140 mA
weight of anodes	49 LBS.

Resistance to Remote Earth

For Anode Type:	32 HIGH POTENTIAL MAGNESIUM ALLOY
Anode Voltage	1800 mV
Driving Voltage, ΔE	950 mV
Vertical Installation (Y/N)	NO

Resistance for single horizontal; anode to remote earth, R 10.62 OHMS

Calculated Maximum Current Output/Anode based on Resistance to Remote Earth

$$I_{MA} = \Delta E / R$$

CALCULATED I_{MA} 89 mA/ANODE

RECOMMENDED MAX CURRENT OUTPUT/ANODE 91 mA/ANODE FOR 20 Yr. life

DESIGN RECOMMENDATIONS

USE CALCULATED CURRENT OUTPUT PER ANODE IN DESIGN CALCULATIONS

INSTALL THEORETICAL : 1.57 EA 32 HIGH POTENTIAL MAGNESIUM ALLOY
USING CALCULATED CURRENT OUTPUT

ELK ENGINEERING ASSOCIATES, INC.
8950 FORUM WAY
FORT WORTH, TX 76140
817.568.8585 817.568.8590 FAX

JOB NO. 3141
DATE: 11-Dec-18

DESIGN CALCULATION SHEETS

OWNER: City of Denton
PROJECT: S.H. 380 Transmission Mains (16" Transmission Main)

LINE DESIGNATION: 16" DI Pipe
PROBLEM: DESIGN GALVANIC ANODE SYSTEM FOR 20 Years

THEREFORE INSTALL TOTAL	<u>1</u> SET <u>2</u> EA	OF 32 HIGH POTENTIAL MAGNESIUM ALLOY	<u>2</u> ANODES EA. GB
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ANODE LIFE IN YEARS

$$\text{MAGNESIUM} = \frac{0.116 \times \text{ANODE WT IN LBS.} \times \text{EFFICIENCY} \times \text{UTILIZATION FACTOR}}{\text{CURRENT IN AMPS}}$$

LIFE OF ANODES BASED ON THEORETICAL CALCULATIONS

WEIGHT OF ANODES INSTALLED 50 lbs
EFFICIENCY 50%
UTILIZATION FACTOR 85%
CURRENT OUT IN AMPERES 0.1405 AMPS
17.64 years theoretical design life

LIFE OF ANODES BASED ON WEIGHT OF ANODES INSTALLED

WEIGHT OF ANODES INSTALLED 64 lbs
EFFICIENCY 50%
UTILIZATION FACTOR 85%
CURRENT OUT IN AMPERES 0.1405 AMPS
22.46 years calculated design life

CONCLUSIONS: THEORETICAL LIFE CALCULATION NOT ADEQUATE, USE WEIGHT BASED
CALCULATION FOR DESIGN

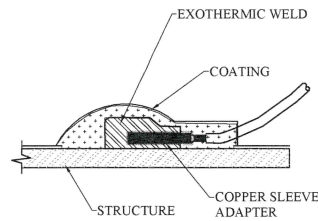
APPROXIMATE GROUND BED SPACING 1028 FT. SPACING
514

CALCULATED ASH

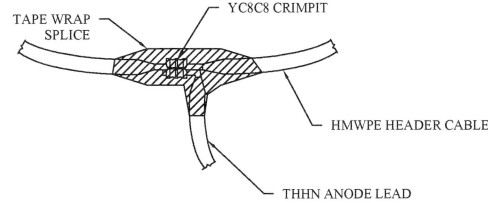
REVIEWED BY: ELK

City of Denton
Scripture Street Transmission Main & S.H. 380 Transmission Mains
Test Station List

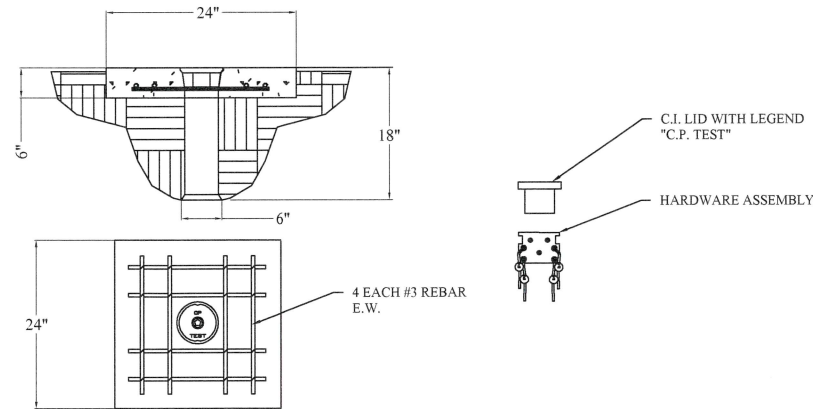
ESN	Pipeline	Description	Anode
0+53.62	Scripture Street - 20" Water Line	Isolation Fitting test Station	No
0+60	Scripture Street - 20" Water Line	Foreign Line Crossing Test Station	No
2+82	Scripture Street - 20" Water Line	Casing Test Station	No
6+81	Scripture Street - 20" Water Line	Casing Test Station	No
7+41.54	Scripture Street - 20" Water Line	Anode Groundbed & Isolation Fitting Test Station	Yes
0+18.17	SH 380 - 20" Water Line	Isolation Fitting Test Station	No
1+32	SH 380 - 20" Water Line	Anode Groundbed & Casing Test Station	Yes
3+00	SH 380 - 20" Water Line	Casing Test Station	No
8+02	SH 380 - 20" Water Line	Anode Groundbed & Casing Test Station	Yes
9+82	SH 380 - 20" Water Line	Foreign Line Crossing Test Station	No
10+70	SH 380 - 20" Water Line	Casing Test Station	No
15+16	SH 380 - 20" Water Line	Casing Test Station	No
19+79.82	SH 380 - 20" Water Line	Anode Groundbed & Isolation Fitting Test Station	Yes
0+00	SH 380 - 16" Water Line	Isolation Fitting Test Station	No
0+10	SH 380 - 16" Water Line	Casing Test Station	No
5+20	SH 380 - 16" Water Line	Casing Test Station	No
10+27.81	SH 380 - 16" Water Line	Anode Groundbed & Isolation Fitting Test Station	Yes



- NOTES:
1. REMOVE ENOUGH COATING FOR WELD.
 2. FILE OR GRIND SURFACE TO NEAR WHITE METAL, WIRE BRUSH TO REMOVE ALL OIL, DUST OR GRIT.
 3. FOLLOW MANUFACTURERS WRITTEN DIRECTIONS.
 4. USE SLEEVE ADAPTERS ON ALL WELDS FOR #8 OR SMALLER WIRE.
 5. REPAIR DAMAGE TO COATING WITH SPECIFIED COATING REPAIR MATERIALS.



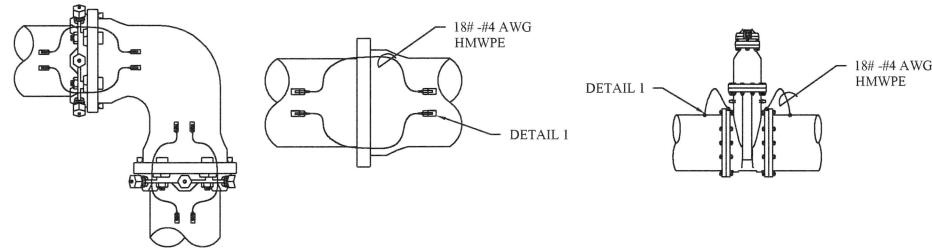
- NOTES:
1. REMOVE NO MORE INSULATION THAN NECESSARY TO MAKE THE SPLICE.
 2. ABRASE HEADER CABLE AND ANODE PIGTAIL INSULATION.
 3. MAKE CRIMP CONNECTION WITH PROPER SIZED TOOL AND DIE.
 4. WRAP 2 LAYERS OF VINYL TAPE AROUND RUBBER TAPE.



- NOTES:
1. ALL FLUSH-TO-GRADE TEST STATIONS LOCATED IN UNPAVED AREAS SHALL BE PLACED IN A CONCRETE PAD.
 2. THE CONCRETE PAD DIMENSIONS SHALL BE AS SHOWN.
 3. ALL TEST STATIONS SHALL BE IDENTIFIED WITH THE LEGEND "CP TEST" ON THE LID.

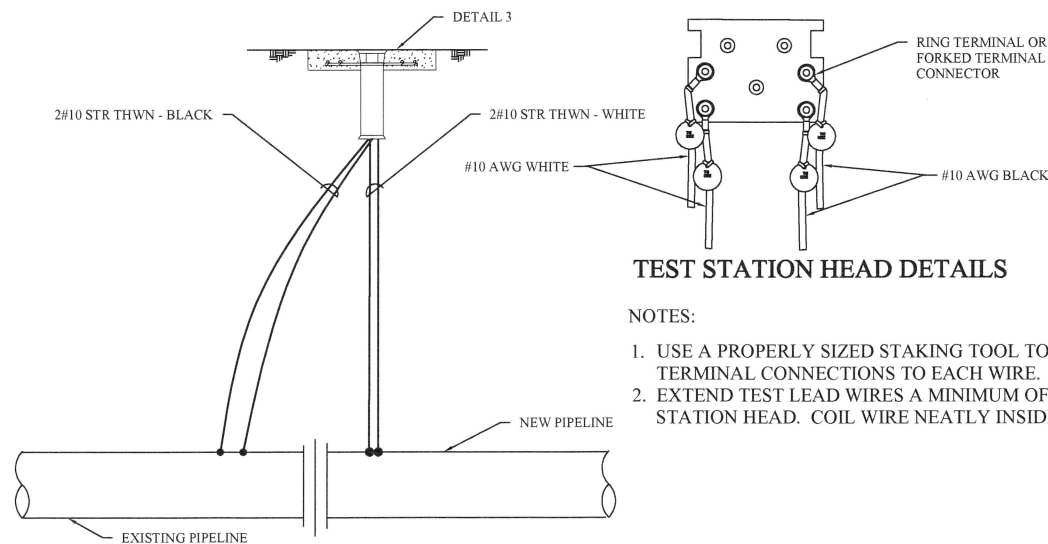
1 HORIZONTAL CADWELD

2 SPLICE DETAIL



NOTE:
INSTALL TWO #4 AWG STR. HMWPE BOND WIRES ON EACH FLANGED, MJ, OR PUSH JOINT VALVES, FITTING FOR 24" DIAMETER AND LARGER PIPE, ONE BOND FOR SMALLER PIPE. REMOVE SLAG FROM WELD AND COAT EXOTHERMIC WELDS WITH R-28 MASTIC.

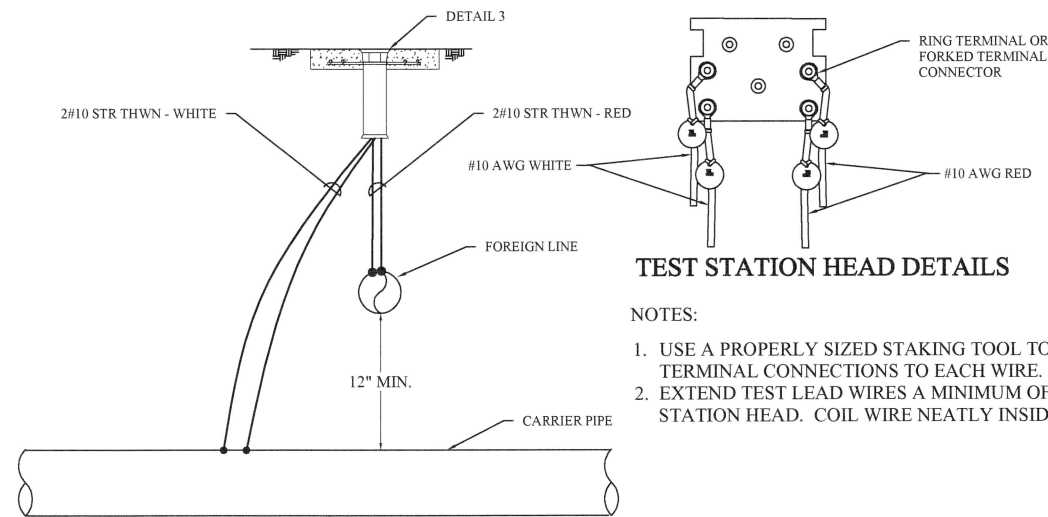
4 CONTINUITY BONDING DETAILS



6 ISOLATION FITTING TEST STATION

- NOTES:
1. USE A PROPERLY SIZED STAKING TOOL TO CONNECT THE TERMINAL CONNECTIONS TO EACH WIRE.
 2. EXTEND TEST LEAD WIRES A MINIMUM OF 18" ABOVE TEST STATION HEAD. COIL WIRE NEATLY INSIDE THE TEST STATION.

3 FLUSH TO GRADE TEST STATION



- NOTES:
1. USE A PROPERLY SIZED STAKING TOOL TO CONNECT THE TERMINAL CONNECTIONS TO EACH WIRE.
 2. EXTEND TEST LEAD WIRES A MINIMUM OF 18" ABOVE TEST STATION HEAD. COIL WIRE NEATLY INSIDE THE TEST STATION.

5 FOREIGN LINE CROSSING TEST STATION

ELK ENGINEERING ASSOCIATES, INC.
8950 FORUM WAY
FORT WORTH, TX 76140

817.568.8585 FAX: 817.568.8590



DESIGNED BY:

S. HAQUE

DRAWN BY:

S. HAQUE

SCALE:

NTS



ELK Engineering Associates, Inc.
F-003434

CITY OF DENTON
S.H. 380 & SCRIPTURE STREET
TRANSMISSION MAINS
CATHODIC PROTECTION DETAILS

DATE:

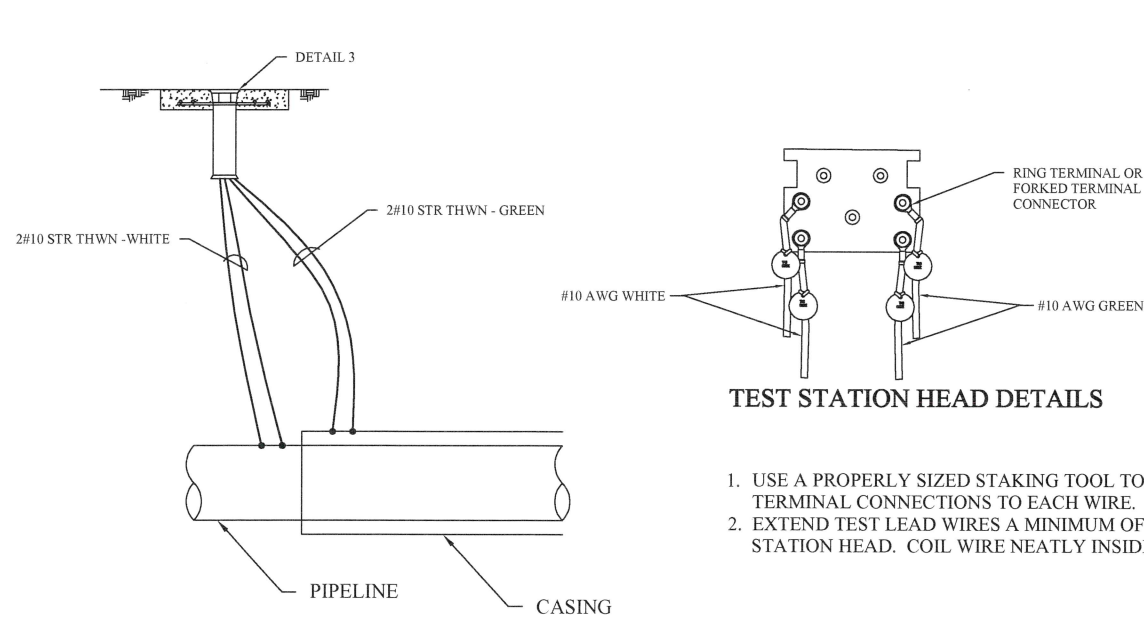
10/04/18

DRAWING NO.:

B-3141-01

REV. NO.:

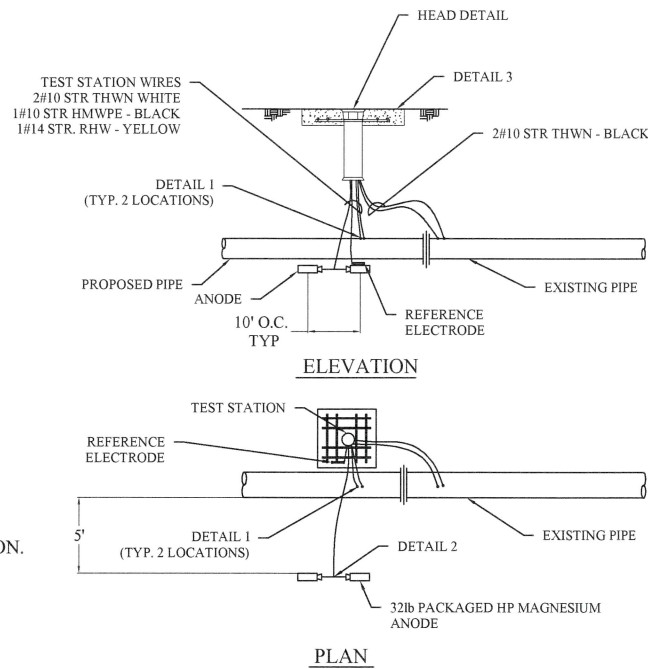
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TEST STATION HEAD DETAILS

1. USE A PROPERLY SIZED STAKING TOOL TO CONNECT THE TERMINAL CONNECTIONS TO EACH WIRE.
2. EXTEND TEST LEAD WIRES A MINIMUM OF 18" ABOVE TEST STATION HEAD. COIL WIRE NEATLY INSIDE THE TEST STATION.

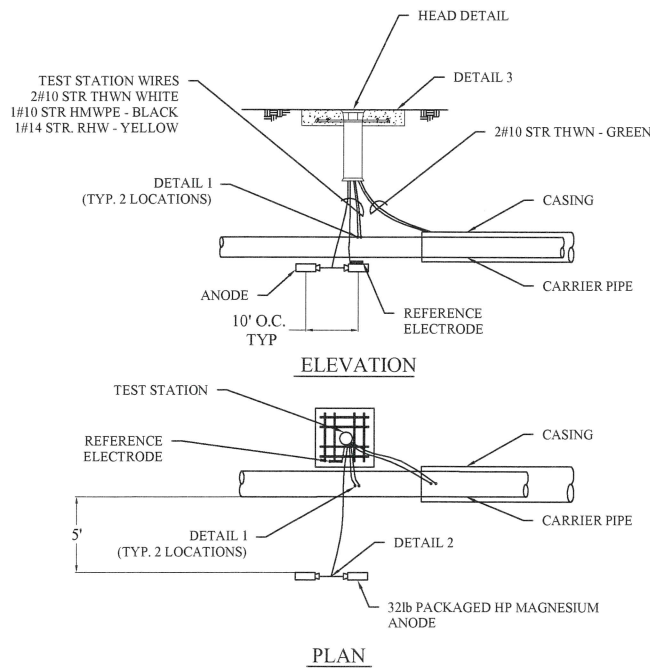
7 CASED CROSSING TEST STATION



TEST STATION HEAD DETAILS

- NOTES:
1. USE A PROPERLY SIZED STAKING TOOL TO CONNECT THE TERMINAL CONNECTIONS TO EACH WIRE.
 2. EXTEND TEST LEAD WIRES A MINIMUM OF 18" ABOVE TEST STATION HEAD. COIL WIRE NEATLY INSIDE THE TEST STATION.

8 ANODE GROUND BED & ISOLATION FITTING TEST STATION



TEST STATION HEAD DETAILS

- NOTES:
1. USE A PROPERLY SIZED STAKING TOOL TO CONNECT THE TERMINAL CONNECTIONS TO EACH WIRE.
 2. EXTEND TEST LEAD WIRES A MINIMUM OF 18" ABOVE TEST STATION HEAD. COIL WIRE NEATLY INSIDE THE TEST STATION.

9 ANODE GROUND BED & CASING TEST STATION

PIPELINE	TEST STATION LOCATION	ANODE TYPE	DETAIL
SCRIPTURE STREET - 20"	ESN 0+53.62	NO ANODE	DETAIL 6
SCRIPTURE STREET - 20"	ESN 0+60	NO ANODE	DETAIL 5
SCRIPTURE STREET - 20"	ESN 2+81	NO ANODE	DETAIL 7
SCRIPTURE STREET - 20"	ESN 6+81	NO ANODE	DETAIL 7
SCRIPTURE STREET - 20"	ESN 7+41.54	32 lb HP MAG. ANODE (2 REQ.)	DETAIL 8
S.H. 380 - 20"	ESN 0+18.17	NO ANODE	DETAIL 6
S.H. 380 - 20"	ESN 1+32	32 lb HP MAG. ANODE (2 REQ.)	DETAIL 9
S.H. 380 - 20"	ESN 3+00	NO ANODE	DETAIL 7
S.H. 380 - 20"	ESN 8+02	32 lb HP MAG. ANODE (2 REQ.)	DETAIL 9
S.H. 380 - 20"	ESN 9+82	NO ANODE	DETAIL 5
S.H. 380 - 20"	ESN 10+70	NO ANODE	DETAIL 7
S.H. 380 - 20"	ESN 15+16	NO ANODE	DETAIL 7
S.H. 380 - 20"	ESN 19+79.82	32 lb HP MAG. ANODE (2 REQ.)	DETAIL 8
S.H. 380 - 16"	ESN 0+00	NO ANODE	DETAIL 6
S.H. 380 - 16"	ESN 0+10	NO ANODE	DETAIL 7
S.H. 380 - 16"	ESN 5+20	NO ANODE	DETAIL 7
S.H. 380 - 16"	ESN 10+27.81	32 lb HP MAG. ANODE (2 REQ.)	DETAIL 8

10 TEST STATION LOCATION TABLE

(A) ANODE
 (WL) WATER LINE
 (FL) FOREIGN LINE
 (C) CASING
 (R) REFERENCE ELECTRODE

11 BRASS TAG DETAIL

ELK ENGINEERING ASSOCIATES, INC.
 8950 FORUM WAY
 FORT WORTH, TX 76140
 817.568.8585 FAX: 817.568.8590



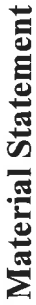
DESIGNED BY: S. HAQUE
 DRAWN BY: S. HAQUE
 SCALE: NTS

CITY OF DENTON
 S.H. 380 & SCRIPTURE STREET
 TRANSMISSION MAINS
 CATHODIC PROTECTION DETAILS

DATE: 10/04/18
 DRAWING NO: B-3141-02
 REV. NO: 0

APPENDIX GC-6.09

TXDOT PERMITS AND FORMS 1818



Sheet of

County: _____

Project: _____

Control: _____

Contractor: _____

[illegible]

This is to certify that the materials listed above and on the attached supplement (if attached) are in conformance with the governing specification(s). This is to also certify that all manufacturing processes for steel and iron materials or for the application of coatings (epoxy, galvanizing, painting or any other coating that protects or enhances the value of the steel or iron metal) to these materials occurred in the United States of America. Manufacturing processes are defined as all processes required to change the raw ore or scrap metal into the finished in-place steel or iron product. The attached mill test reports (MTRs) and Certifications (Cert.) are offered as proof of Domestic Origin.

Subscribed and sworn to before me this _____ day of _____, _____.

I declare under penalty of perjury under the laws of the United States of America and the State of Texas that the foregoing is true and correct and that I am authorized to sign for the Firm listed below.

Notary Public

(Authorized Corporate Official Signature) _____ Date _____

My Commission expires: _____

(Type Name and Title)

(Firm Name)

APPENDIX GR-01 60 00

PROJECT MATERIAL SUBMITTAL CHECKLIST



Approved Materials List and Alternative Materials Request Form

Development Services
215 W. Hickory St., Denton, TX 76201 (940) 349-8541

The following items are approved materials, products, and specifications for the purpose of public improvement construction. Items not on this list may be submitted for review, provided they meet the same minimum specifications.

Water Improvements*			
Approved Item	Approved Manufactures /Product	Approved Minimum Specifications	Alternative Specifications and Mfr.
PVC Pipe	Diamond Plastics/ C900 JM Eagle/Blue Brute Northern Pipe Products/C900 Vinyltech/C900 North American Pipe/C900	AWWA C-900, DR-14, Sizes 4"-12"	
Ductile Iron Pipe	American Cast Iron/Fast-Tite, Flex-Ring Joint McWane Ductile/ Tyton US Pipe/Tyton Joint Griffin Pipe/Tyton Joint	AWWA C-151, Class 52, Sizes 16"-24"	
Ductile Iron Fittings	Tyler Union Star Pipe Products SIP Industries	Compact: AWWA C153 (12" and smaller) Full: AWWA C110 Flange Joint (16" and larger) Mechanical: AWWA C110	
Mechanical Joint Restraints	Star Pipe Products/StarGrip 3000,3100 Star Pipe/StarGrip 4000,4100 EBAA Iron/Megalug 1100 EBAA Iron/Megalug 2000PV Ford Meter Box/Uni-Flange 1400 Ford Meter Box/Uni-Flange 1500	Compact: AWWA C153 Full: AWWA C115 Flange Joint Mechanical: AWWA C110 ASTM A536 Grade 65-45-12 Ductile Iron ASTM F1674 Std. Test Mtd. For Joint Rest. Products (PVC)	
Mechanical Joint Restraints Within Casing	ROMAC Industries Series 600 (4"-12") Sigma PV-Lok (4"-12")		
Mechanical Joint Restraints for Water Meter Vault and PRV Vault	EBAA Series 2100 Megaflange Restrained Flange Adapter	ASTM A536 Ductile Iron	
Gate Valve Box	Tyler Union/6850 Bass & Hays/2436S East Jordan Iron Works/8550	ASTM A48 Class 30B Minimum 3-piece (top, extension, base) screw-type (for adjustment)	
Casing Pipe Spacers	Raci / HDPE APS/SS18, SS12 CCI Pipeline/CSS8, CSS12 PSI/S8, S12	Stainless Steel: For bores longer than 150 L.F. 12" wide band, 2" wide runner T-304 Two-Piece Band (14-gauge min. thickness) T-304 Riser (10-gauge min. thickness) PVC Liner T-304 Fastener Hardware For bores equal to less than 150 L.F.: HDPE ISO 9002 Certified	
Water Service Tapping Saddle	Mueller/BR2B Ford Meter Box/202B	Brass, Double Strap with CC Threads ("Compression", "grip joint" or "quick joint" fittings are not allowed)	
Gate Valves 2" - 12"	Mueller/A-2360 MJxMJ, MJxFL US Pipe/A-USPO MJxMJ, MJxFL M&H Valve/4067 MJxMJ, MJxFL Clow/2639, 2640 MJxMJ, MJxFL	AWWA C509 Resilient-Seated Gate Valves Non-Rising Stem Dual O-Ring Stem Seal Interior/Exterior Poxo Coating conforms to AWWA C550 Operating Nut Opens Left 2" Square Operating Nut	
Air and Vacuum Release Valves		AWWA C512 Air-Release, Air/Vacuum, & Combination 3" & Smaller: Standard Iron Thread Inlet Connection 4" & Larger: Flanged Inlet Connection, Class 250 Internal Metal Parts: Stainless Steel, Bronze, or Brass 316 Stainless Steel Flange Connection Hardware	
Pipe Joints		PVC Pipe - ASTM F477 Elastomeric Seals PVC Pipe - ASTM D3139 Joints for Plastic Pressure Pipe Ductile Iron Pipe - AWWA C111 Rubber Gasketed Joints	

* In compliance with the reduction of lead in Drinking Water Act, any product designed for dispensing potable water shall meet both the NSF 61 and NSF 372 test standards via third-party testing and certification.



Approved Materials List and Alternative Materials Request Form

Development Services
215 W. Hickory St., Denton, TX 76201 (940) 349-8541

The following items are approved materials, products, and specifications for the purpose of public improvement construction. Items not on this list may be submitted for review, provided they meet the same minimum specifications.

Water Improvements*			
Approved Item	Approved Manufactures /Product	Approved Minimum Specifications	Alternative Specifications and Mfr.
Steel Encasement		ASTM A53 Grade B Carbon Steel 16" encasement and larger: 1/2" thickness Smaller than 16" encasement: 3/8" thickness	
Gate Valves 14"-24"	Mueller/A-2361 MJxMJ, A-2362 MJxMJ US Pipe/A-USP1 MJxMJ M&H Valve/Large RW MJxMJ Clow/2638 MJxMJ American Flow Control/2500 MJxMJ	AWWA C515 Resilient-Seated Gate Valves Non-Rising Stem Dual O-Ring Stem Seal Interior/Exterior Poxo Coating conforms to AWWA C550 Operating Nut Opens Left 2" Square Operating Nut Stainless Steel Joint Fasteners (Type 304 or 316) Gear Operator for Gate Valves 20" or larger	
Fire Hydrants	Mueller/Super Centurion A-423 US Pipe/Sentinel 250 M&H Style 129	AWWA C502 Dry-Barrel Fire Hydrants 1 1/4" Operating Nut 4 1/2" Pumper Nozzle Two 2 1/2" Hose Nozzles Breakaway Safety Flange 5 1/4" Main Valve Opening Main Valve - Compression Seal Paint Color: Public – Body is Silver (Bonnet and Cap based on fire flow and Water Distribution direction) Paint Color: Private - Red	
Corporation Valves	Mueller/P15008N, P25008N (for 1" Line) Ford Meter Box/F1000NL, FB1000NL (for 1" Line) Mueller/E25009N (for 2" Line) Ford Meter Box/FBNL1000NL (for 2" Line)	1": Brass, CC Inlet Threads & Pack Joint Fitting Ball Type, NSF 372 compliant 2": Brass, CC Inlet Threads & Pack Joint Fitting Ball type, NSF 372 compliant ("Compression", "grip joint" or "quick joint" fittings are not allowed)	
Angle Meter Valves 1" & 2" Service Lines	Mueller/P24258N (for 1" Line) Ford Meter Box/BA43NL (for 1" Line) Mueller/P24276N (for 2" Line) Ford Meter Box/BFA43NL (for 2" Line)	Brass, Angle Meter with Pack Jointing & Lock Wing Ball type, NSF 372 compliant ("Compression", "grip joint" or "quick joint" fittings are not allowed)	
Water Meter Boxes	3/4": Bass & Hays/34A 1": Bass & Hays/548A 1 1/2" & 2": Bass & Hays/55A		
Service Line Tubing	Endot/EndoTrace	1" & 2": AWWA C901 HDPE Tubing – Tracible	
Exterior Pipe Coating 16" or Larger at Fittings		Ductile Iron Pipe: AWWA C105 Polyethylene Encasement Linear: 8mil; Cross-Linked: 4mil At Fittings: 8-mil linear Stipulates virgin PE material for both & labeled.	
Interior Pipe Coating 16" or Larger		Ductile Iron Pipe: AWWA C104 Mortar Lining	
Flanged Pipe 3" or Larger: Water Meter or Fire-Rated Master Meter		Ductile Iron Pipe - AWWA C115 Flanged Ductile Iron Pipe Heavy Hex Bolts & Nuts - Zinc, Cadmium or Fluoropolymer Coated	

* In compliance with the reduction of lead in Drinking Water Act, any product designed for dispensing potable water shall meet both the NSF 61 and NSF 372 test standards via third-party testing and certification.



Approved Materials List and Alternative Materials Request Form

Development Services
215 W. Hickory St., Denton, TX 76201 (940) 349-8541

Sanitary Sewer Improvements			
Approved Item	Approved Manufactures /Product	Approved Minimum Specifications	Alternative Specifications and Mfr.
Gravity Pipe (4"-15")	Diamond Plastics/SDR-26, SDR-35 JM Eagle/Ring-Tite SDR-26, SDR-35 Northern Pipe Products/SDR-26, SDR-35 North American Eagle/SDR-26, SDR-35	PVC ASTM D3034 SDR-35 PVC ASTM D3034 SDR-26	
Gravity Pipe (>15")	Diamond Plastics/F679 JM Eagle/Ring-Tite F679 North American Eagle/F679	PVC ASTM F679 PS46 PVC ASTM F679 PS115	
PVC Pressure Pipe (4"-12")	Diamond Plastics/IPS SDR-26 JM Eagle/IPS Ring-Tite SDR-26 Vinyltech Green Pipe/C900 North American Eagle/IPS SDR-26	ASTM D2241 or C900, DR 14	
PVC Pressure Pipe (>12")	Diamond Plastics/C905 JM Eagle/Big Blue North American Eagle/C905	AWWA C905, DR 14	
Ductile Iron Pipe	American Cast Iron/Fast-Tite McWane Ductile/Tyton, Fastite US Pipe/Tyton Joint Griffin Pipe/ H2SewerSafe	AWWA C151	
Ductile Iron Fittings (Compact)	Tyler Union/AWWA C153 Star Pipe Products/AWWA C153 SIP Industries/AWWA C153	AWWA C153 Compact Fittings Mechanical Joint	
Ductile Iron Fittings (Full)	Tyler Union/AWWA C110 Star Pipe Products/AWWA C110 SIP Industries/AWWA C110	AWWA C110 Mechanical Joint Flange Joint Fittings	
PVC Fittings (Gravity)	Plastic Trends/SDR-35, SDR-26 Multi Fittings/SDR-35, SDR-26 GPK/SDR-35, SDR-26	ASTM D3034 (4"-15") ASTM F679 (>15")	
Pressure Pipe Joints		PVC Pipe: ASTM F477 Elastomeric Seals PVC Pipe: ASTM D3139 Joints for Plastic Pressure Pipe Ductile Iron Pipe: AWWA C111 Rubber-Gasketed Joints	
Gravity Pipe Joints	Plastic Trends/SDR-35, SDR-26 Multi Fittings/SDR-35, SDR-26 GPK/SDR-35, SDR-26 RACI/HDPE	PVC: ASTM F477 Elastomeric Seals PVC: ASTM D3212 Joints for Plastic Sewer Pipe	
Casing Pipe Spaces	APS/Stainless Steel, SSI18, SSI12 CCI Pipeline/Stainless Steel, CSS8, CSS12 PSI/Stainless Steel, S8, S12		
Manhole Frame & Cover	East Jordan Iron Works/V1420, 1480A East Jordan Iron Works/V1420, 1480 Lid 2	Pick Slots, outside floodplain, 30" clear opening Pick Slots, inside floodplain, 30" clear opening (The 1480 Lid 2 manhole cover is the only one allowed for watertight conditions) Cast Iron Cover ASTM A48 Class 35B minimum 360 lb minimum weight requirement - cover & frame 30" nominal cover diameter Cover marked "Sanitary Sewer" Pick Slots (not holes)	



Approved Materials List and Alternative Materials Request Form

Development Services
215 W. Hickory St., Denton, TX 76201 (940) 349-8541

Sanitary Sewer Improvements			
Approved Item	Approved Manufactures /Product	Approved Minimum Specifications	Alternative Specifications and Mfr.
Flexible Pipe Adaptor (pipe to pipe) Assemblies	Fernco/ASTM C1173 Mission/ASTM C1173 Indiana Seal Shear Guard/ASTM C1173	ASTM C1173 Flexible Transition Couplings ASTM D5926 PVC Gaskets for Sanitary Sewer Systems Coupling Support	
Manhole Concrete Mix Design		4,200 PSI @ 28 days 25% maximum fly ash in lieu of cement allowed ASTM C94	
Flexible Tap Saddles	Fernco/TSW-4, TSW-6 NDS/ 4Y/C, 6Y/C	PVC Series 300 stainless steel clamps	
Exterior Pipe, Fitting, and Coating		Ductile Iron Pipe: AWWA C105 Polyethylene Encasement	
Interior Pipe, Fitting, and Lining	Protecto 401 Ceramic Epoxy	Ductile Iron Pipe: Protecto 401 Cermic Epoxy or approved equivalent	
Resilient Connectors (manhole to pipe)		ASTM C923	
Mainline Cleanout Castings	Bass & Hays/BH339	Cast Iron ASTM A48Class 35B minimum	
Air & Vacuum Release Valves (force mains)		AWWA C512 Air Release, Air/Vacuum, and Combination Air Valves 3" & Smaller: Standard Iron Thread Inlet Connection 4" & Larger: Flanged Inlet Connection, Class 250 Internal Metal Parts-Stainless Steel, Bronze or Brass 316 Stainless Steel Flange Connection Hardware Designed for Sewer Application Backwash Assembly	
Prefab Sewer Manholes Lining	Fuquay, Inc. SpectraShield Liner Systems		
Steel Encasement		ASTM A53 Grade B Carbon Steel 16" encasement and larger: 1/2" thickness Smaller than 16" encasement: 3/8" thickness	



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Paving Improvements			
Approved Item	Approved Manufactures /Product	Approved Minimum Specifications	Alternative Specifications and Mfr.
Paving Concrete Mix Design		4,000 p.s.i. machine placed @ 28 days 4,500 p.s.i. hand placed @ 28 days 25% maximum fly ash in lieu of cement allowed ACI-318, ACI-301, ASTM C94 Sidewalk Concrete: 3,000 p.s.i @ 28 days	
Sidewalk Reinforcement	Fibermesh 150 PSI Fiberstrand F	1.5" lengths 1.5 lb/CY application rate ASTM C1116/C1116M	
Water Reducing Admixture		ASTM C 494C C494M	
Air Entraining Admixture		ASTM C260, AASHTO M154, CRD-C13	
Aggregate Analysis		ASTM #467 ASTM #57 TXDOT 2 ASTM C-33- TXDOT 421 ASTM C-94 & ACI 211	
Curing Compound		ASTM C309 white pigmented curing compound	
Barrier Free Ramp Pavers	Pavestone	Truncated dome terra cotta red color ASTM C936, C-33	

Drainage Improvements			
Approved Item	Approved Manufactures /Product	Approved Minimum Specifications	Alternative Specifications and Mfr.
Reinforced Concrete Pipe	Johnson Pipe Forterra Rinker	Reinforced Concrete ASTM C76 Class III if at least 2 ft cover Class IV if less than 2 ft cover	
Pipe Joints		RCP: ASTM C443 Rubber Gasketed Joints or ASTM C990 Preformed Flexible Joint Sealants	
Cast in Place Concrete, Manholes, Junction Boxes and Inlets		3,000 psi Class A Concrete - NCTCOG Item 702.3.4.2 Reinforcing Steel - Refer to City of Denton Details	
Manholes, Junction Boxes, Frame and Cover		Cast Iron Cover ASTM A48 Class 30 B minimum 400 lb weight requirement - cover & frame 24" nominal cover diameter Cover marked "Storm Sewer" Pick Slots (not holes)	
Inlet Frame and Cover	Bass & Hays/ #226L	Cast Iron Cover ASTM A48 Class 30 B minimum Cover Marked "Storm Sewer" Lockable	