

TOWN OF FAIRVIEW
Country Side Water Main
Replacement & Hydrant Additions
July 2020



372 TOWN PLACE FAIRVIEW, TX. 75069

PREPARED BY: DANIELLE OGLESBEE, PE

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TOWN OF FAIRVIEW

Country Side Water Main Replacement & Hydrant Additions

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NCTCOG Standard Specifications for Public Works Construction

City of Fort Worth - 03 34 13

TOWN OF FAIRVIEW

NOTICE TO CONTRACTORS

1. Sealed bids (proposals) addressed to the Town of Fairview (Town), 372 Town Place, Fairview, Texas 75069, will be received at Town Hall until 12:00 p.m., July 29th 2020 for

Country Side Water Main Replacement & Hydrant Additions

At 2:00 pm, July 29th bids will be publicly opened and read aloud.

2. The work consists of furnishing all labor, equipment and materials (except as otherwise specified), and performing all work necessary for installing 2,110 LF of C900 DR18 PVC water main, and associated valves and hydrants.
3. Plans and Specifications for the work may be downloaded at www.fairviewtexas.org

TOWN OF FAIRVIEW, TEXAS



**James Chancellor, PE
Town Engineer**

INSTRUCTIONS TO BIDDERS

1. Each proposal shall be legibly written or printed in ink, on the proposal form provided in this bound copy of proposed Contract Documents. No alterations in proposal, or in the printed forms thereof, by erasures, interpolations, or otherwise will be acceptable unless each such alteration is signed or initialed by the bidder; if initialed, the Town may require the bidder to identify any alterations so initialed. No alteration in any proposal, or in the proposal form on which it is submitted, shall be made by the person after the proposal has been submitted by the bidder. Any and all addenda to the Contract Documents on which a proposal is based, properly signed by the bidder, shall accompany the proposal when submitted. The bidder may withdraw his proposal any time prior to the bid opening date and time stipulated in the Notice to Contractors.

Each proposal submitted shall be enclosed in a sealed envelope, addressed to the Town of Fairview, 372 Town Place, Fairview, Texas 75069, identified on the outside with the words "Proposal for Country Side Water Main Replacement & Hydrant Additions" and identifying the bidder. Proposals shall be delivered to the Town Engineer by 12:00 p.m., July 29th, 2020 at 2:00 pm, July 29th bids will be publicly opened and read aloud. **Facsimile Transmittals Will Not Be Accepted.**

All bids will be tabulated for the Town Council by the Town Engineer. The Town Council will determine the lowest responsible bid, after considering the recommendations of the Town Engineer, determine whether such bid is that of a responsible bidder, and award a contract to the Contractor determined to be the lowest responsible bidder. The Fairview Town Council will authorize the Town Manager to enter into a contract with said Contractor.

2. Each Proposal shall be accompanied by either a cashier's check, a certified check, or an acceptable bid bond in an amount of not less than five percent (5%) of the proposed bid price, made payable without conditions to "Town of Fairview, Texas", and the amount of the said proposal Guarantee may be retained by and forfeited to the Town as liquidated damages if the proposal covered thereby is accepted and a contract based thereon is awarded and the bidder should fail to enter into a contract in the form prescribed, with legally responsible sureties, within the ten (10) days after such award is made by the Town.

The proposal guarantee deposit of the unsuccessful bidders will be returned if and when their proposals are rejected. The proposal guarantee deposit of the bidder to whom a contract is awarded will be returned provided, and when, said successful bidder executes a contract and files satisfactory bonds as hereinafter stipulated. The proposal guarantee deposit of the second and third lowest responsible bidders may be retained for a period of not to exceed sixty (60) days pending the execution of the contract and bonds by the successful bidder.

3. Accompanying his proposal, each bidder shall furnish an experience list of similar work along with such other information as will tend to show the bidder's ability to prosecute the required

work. The Bidder shall have a minimum of three years experience and successful history in the performance of similar work. The Town may make such investigations as they deem necessary to determine the ability of the Bidder to perform the work. The experience list is not required for those bidders who have performed similar work for the Town of Fairview within the past 5 years.

4. Each bidder shall carefully examine the Specifications, and other Contract Documents, shall visit the site and fully inform himself of all conditions affecting the work or the cost thereof, and shall be presumed to have done so and his bid shall be based upon his own conclusions from such examination. Each bidder shall inform himself concerning all Federal, State, and local laws, ordinances or regulations which may in any manner affect his proposed construction operations, or those engaged or employed on the work or the material or equipment. Should a bidder find discrepancies in, or omissions from, the Plans, Specifications or other Contract Documents, he should at once notify the Town Engineer and obtain clarification or interpretation prior to submitting any bid.

Any interpretation of the proposed Contract Documents will be made only by addendum duly issued and a copy of such addendum will be mailed or delivered to each person obtaining a set of such documents from the Town Engineer. The Town will not be responsible for any other explanations or interpretations of the proposed Contract Documents.

5. Each bidder to whom a contract for the work is awarded will be required to furnish surety as follows:

Performance Bond: A contract bond to the Town, in an amount equal to 100 percent (100%) of the not to exceed contract price.

Payment Bond: A payment bond to the Town, in an amount equal to 100 percent (100%) of the not to exceed contract Price.

The bonds shall be executed in three (3) counterparts on the forms bound herein, signed by an acceptable surety company authorized to do business in the State of Texas as required by Article 5160 V.A.T.C.S.

Attorneys-in-fact who sign the bonds must file with each bond a certified and effective dated copy of their power of attorney.

Certificates of Insurance: Satisfactory certificates of insurance shall be filed with the Town in accordance with the GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS in the Contract Documents.

6. The Bidder's attention is directed to Texas House Bill 11 (72nd Legislature, 1st C.S.) which amended the Texas Tax Code Section 151.311. This amendment provides that by the CONTRACTOR entering into a separated contract, The CONTRACTOR will become a seller of materials purchased for the project, which will obviate paying taxes, on materials incorporated into the project.

7. No bidder may submit more than one proposal. Two proposals under different names will not be received from one firm or association.
8. No bidder may withdraw his proposal for a period of sixty (60) days after the date and hour set for the opening herewith. A bidder may modify or withdraw his proposal at any time prior to the expiration of the period during which proposals may be submitted, by written request of the same persons or person who signed the Proposal.
9. The Town reserves the right to accept the bid which, in its judgment is the lowest responsible bid; to reject any or all bids; and to waive irregularities or informalities in any bid submitted. Bids received after the specified time of closing will be returned unopened. Conditional or qualified bids will not be accepted.
10. None of the Instructions to Bidders, Proposal, Performance Bond, Payment Bond, Contract Agreement, General Conditions, Special Conditions or Specifications shall be removed from the bound copy of the Contract Documents prior to filing the proposal contained therein.
11. Each bidder shall sign his proposal, using his usual signature and giving his full business address. Bids by partnerships shall be signed with the partnership name followed by the signature of one of the members of the partnership or by an authorized representative and designation of the person signing. Bids by corporations shall be signed with the name of the corporation, followed by the signature and designation of the president, secretary, or other person authorized to bind it in the matter. The names of all persons signing should also be printed below the signature. A bid by a person who affixes to his signature the word "President", "Secretary", "Agent", or other designation, without disclosing his principal, may be held to be the individual signing. When requested by the Town, satisfactory evidence of the authority of the officer signing in behalf of a corporation shall be furnished.
12. The Notice of Award shall be accompanied by the necessary Contract Agreement and Bond forms. The Bidder to whom the Contract is awarded will be required to execute the Contract Agreement and obtain the Performance and Payment Bonds and Certificates of Insurance within ten (10) calendar days from the date when notice of Award is delivered to the bidder. In case of failure of the bidder to execute the Contract Agreement, the Town may at its option consider the bidder in default, in which case, the bid security accompanying the Proposal shall become the property of the Town.
13. The Town, within ten (10) days of receipt of acceptable Performance Bond, Payment Bond, Certificates of Insurance and Contract Agreement signed by the bidder to whom the contract was awarded, shall sign the Contract Agreement and return to the bidder two (2) executed copies of the Contract Agreement. The Bidder may withdraw his signed Agreement should the Town not execute the Agreement within the stated period by written notice to the Town.
14. The Notice to Proceed shall be issued within ten (10) days of the execution of the Contract Agreement by the Town. The time may be extended by mutual agreement between the Town and Contractor. If the Notice to Proceed has not been issued within the specified time or mutually

agreed upon extension, the Contractor may terminate the Contract Agreement without further liability on the part of either party.

15. Attention is called to the fact that not less than the federally determined prevailing wage rate, as issued by the U.S. Department of Labor, must be paid on this project.

16. The Town intends to award the Contract to a bidder that will be doing a substantial portion of the work rather than through subcontracts. The bidder must complete the item in the Proposal regarding the amount of work to be done by the Prime Contractor. The Town reserves the right to consider this breakdown in awarding the Contract.

17. Each Bidder shall list all subcontractors they propose to use on this project for which the amount of the subcontract is in excess of \$10,000. The list shall include the name and address of the subcontractor, the work they will be performing and the amount of the subcontract. The Bidder shall also complete a Statement of Qualifications and Experience for each subcontractor. The Contractor shall not change subcontractors or enter into contract with subcontractors not listed without prior approval by the Town. The Town reserves the right to refuse any or all requests for changes.

**Country Side Water Main Replacement
& Hydrant Additions**

PROPOSAL

THIS BID IS SUBMITTED TO:

Honorable Mayor and Town Council
Town of Fairview
372 Town Place
Fairview, Texas 75069

The Undersigned Bidder proposes to complete the generally described work as shown in these Specifications for the following unit prices and total price. The bidder understands that units may change in the field and that the unit prices shown here will be honored and that the final price will be based on the actual measured or approved field quantities.

Description	Quantity	Unit	Unit Price	Total
MOBILIZATION	1	LS	_____	_____
CLEARING	471	LF	_____	_____
8" C900 DR 18 PVC PIPE STANDARD EMBED	1120	LF	_____	_____
8" C900 DR 18 PVC PIPE MODIFIED EMBED	990	LF	_____	_____
16" X 8" T.S.V	2	EA	_____	_____
GATE VALVE & BOX	3	EA	_____	_____
16" STEEL ENCASEMENT (SCH. 40)	40	LF	_____	_____
WATER STOPS	2	EA	_____	_____
2" SHORT SERVICE OFF 8" MAIN	7	EA	_____	_____
2" LONG SERVICE OFF 8" MAIN WITH SLEEVES	2	EA	_____	_____
FIRE HYDRANT ASSEMBLY	3	EA	_____	_____
FITTINGS	1	LS	_____	_____
TESTING AND CHLORINATION	2110	LF	_____	_____
TRENCH SAFETY	2110	LF	_____	_____
2" HMCA TYPE D ASPHALT REPAIR	140	SY	_____	_____
Concrete Driveway removal	175	SY	_____	_____
6" Concrete Driveway	175	SY	_____	_____
MAILBOX REMOVE & REPLACE	2	EA	_____	_____
FENCE REMOVE & REPLACE	222	LF	_____	_____
SOD & WATERING	911	SY	_____	_____

Description	Quantity	Unit	Unit Price	Total
MOBILIZATION	1	LS	_____	_____
6" FIRE HYDRANT ASSEMBLY	9	EA	_____	_____
SITE STABILIZATION	1	LS	_____	_____

TOTAL BASE BID \$ _____

1. The Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Town in the form included in the Contract Documents to complete the Water Main Replacement and Hydrant Additions as specified or indicated in the Contract Documents for the Contract Price in this Bid and in accordance with the Contract Documents.

2. Bidder accepts all of the terms and conditions of the notice to Contractors, including without limitation those dealing with the disposition of Bid Security. This Bid will remain open for sixty (60) days after the day of Bid opening. Bidder will sign the Agreement and submit the Contract Security, Certificate of Insurance and other documents required by the Contract Documents within ten (10) days after the date of Town's Notice of Award.

3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

- (a) Bidder has examined, and hereby acknowledges receipt of, copies of all the Contract Documents and the following addenda:

ADDENDUM NO:

DATE

- (b) Bidder has examined the site and locality where the Work is to be performed, the legal requirements (Federal, State and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as Bidder deems necessary.
- (c) Bidder intends to perform a substantial portion of the work himself in accordance with the following approximate breakdown based on percentage of Base Bid:

Portion of Work by Bidder _____%

Portion to be Sub-Contracted _____%

Subcontractor Information

<u>Name</u>	<u>Type of Work</u>	<u>Amount</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

5. The following documents are attached to and made a condition of this Bid:

- (a) Required Proposal Guarantee (cashier's check, certified check, or bid bond).
- (b) Statement of Bidder's Qualifications and Experience.
- (c) Statement of Subcontractors' Qualifications and Experience.

6. The terms used in this Bid which are defined in the General Conditions of Agreement included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

Submitted on _____, 20____.

_____	Individual Partnership Corporation
Firm Name	

By: _____
 Typed or Printed

SIGNATURE _____

TITLE _____

ADDRESS _____

TELEPHONE _____

TOWN OF FAIRVIEW
County Side Water Main Replacement
& Hydrant Additions

CONTRACTOR _____

STATEMENT OF QUALIFICATIONS AND EXPERIENCE

Note: Demonstrate a minimum of three years experience. Bidders who have performed similar work for the Town of Fairview within the past 5 years are not required to complete this information.

NAME OF PROJECT:

OWNER:

TOTAL CONTRACT COST:

COMPLETION DATE:

DESCRIPTION:

NAME OF PROJECT:

OWNER:

TOTAL CONTRACT COST

COMPLETION DATE:

DESCRIPTION:

NAME OF PROJECT:

OWNER:

TOTAL CONTRACT COST:

COMPLETION DATE:

DESCRIPTION:

NAME OF PROJECT:

OWNER:

TOTAL CONTRACT COST:

COMPLETION DATE:

DESCRIPTION:

DUPLICATE THIS FORM IF THERE IS MORE THAN ONE SUBCONTRACTOR

TOWN OF FAIRVIEW
County Side Water Main Replacement
& Hydrant Additions

SUBCONTRACTOR _____

STATEMENT OF QUALIFICATIONS AND EXPERIENCE

Note: Demonstrate a minimum of three years experience. Subcontractors who have performed similar work for the Town of Fairview within the past 5 years are not required to complete this information.

NAME OF PROJECT:

OWNER:

TOTAL CONTRACT COST:

COMPLETION DATE:

DESCRIPTION:

NAME OF PROJECT:

OWNER:

TOTAL CONTRACT COST

COMPLETION DATE:

DESCRIPTION:

NAME OF PROJECT:

OWNER:

TOTAL CONTRACT COST:

COMPLETION DATE:

DESCRIPTION:

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____
_____ as Principal, and _____
_____ as Surety, are hereby held and firmly bound unto the
Town of Fairview, Texas as Owner in the penal sum of _____
_____ (5% of the proposal as submitted) for
payment of which, well and truly to be made, we hereby jointly and severally bind
ourselves, successors and assigns.

Signed, this _____ day of _____, 2020.

The Condition of the above obligation is such that whereas the Principal has submitted to
the Town of Fairview, Texas a certain Bid, attached hereto and hereby made a part hereof
to enter into a contract in writing, for the construction of Country Side Water Main
Replacement & Hydrant Additions in the Town of Fairview.

NOW THEREFORE,

- (a) If said Bid shall be rejected, or
- (b) If said Bid shall be accepted and the principal shall execute and deliver a
contract in the Form of Contract attached hereto (properly completed in
accordance with said Bid) and shall furnish a Bond for his faithful
performance of said contract, and Certificates of Insurance and shall in all
other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise the same shall remain in force and effect: it
being expressly understood and agreed that the liability of the Surety for any and all
claims hereunder shall, in no event, exceed the penal amount of this obligation as herein
stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal L.S.

Surety

By: _____

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended and be authorized to transact business in the State of Texas.)

TOWN OF FAIRVIEW

Country Side Water Main Replacement & Hydrant Additions

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 2020, by and between the Town of Fairview, Collin County, Texas, Party of the First Part, hereinafter referred to as the "Town", and _____ Party of the Second Part, hereinafter referred to as the "Contractor" for Construction of Country Side Water Main Replacement & Hydrant Additions including furnishing all labor, equipment and materials (except as otherwise specified) and performing all work necessary for the construction.

ARTICLE 1. It is hereby mutually agreed that for and in consideration of the payments as provided for herein to the Contractor by the Town, the said Contractor shall furnish all labor, equipment, and material (except as otherwise specified above) and shall perform all work necessary to complete the improvements in a good and substantial manner, ready for use, before the contract time expiration. The work shall be in strict accordance with this Contract, a copy of which is filed pursuant to law in the office of the legal representative of the Town.

ARTICLE 2. It is hereby further agreed that in consideration of the faithful performance of the work by the Contractor, the Town shall pay the Contractor the compensation due him by reason of said faithful performance of the work at stated intervals and in the amount certified by the Town Engineer, in accordance with the provisions of this Contract.

ARTICLE 3. It is hereby further agreed that, at the completion of the work and its acceptance by the Town, all sums due the Contractor by reason of alterations or modifications of the original Contract or by reason of "Extra Work" authorized under this Contract, will be paid the Contractor by the Town after said completion and acceptance.

ARTICLE 4. It is hereby further agreed that any reference herein to the "Contract" shall include all "Contract Documents" as the same are listed and described in Paragraph 1.9 of SECTION: GENERAL CONDITIONS bound herein, and said "Contract Documents" are hereby made a part of this Agreement as fully as if set out at length herein, and that this Contract is limited to the items in the Proposal as signed by the "Contractor" and included in the "Contract Documents".

ARTICLE 5. The Contractor agrees to perform all of the work described in the Contract Documents for the unit prices and total contract price as submitted in the Bid, in the total amount of _____ taking into consideration additions to or deductions from the Total Bid by reason of alterations or modifications of the original quantities or by reason of "Extra Work" authorized under this Agreement in accordance with the provisions of the Contract

Documents. Contractor agrees to a substantial completion time of _____ days and final completion of _____ days from the date of the Notice to Proceed.

ARTICLE 6. The Contractor agrees that the sum of Three Hundred Dollars (\$300.00) in Liquidated Damages will be deducted from the Contract price by the Town for each calendar day that the work remains incomplete beyond the Contract time for completion, or within such extra time as may have been allowed by an extension approved by the Town.

ARTICLE 7. The Contractor agrees to submit a Maintenance Bond prior to the release of final retainage for 100% of the value of the Contract Amount for a period of two years from the date of final acceptance.

IN WITNESS WHEREOF, the Party of the First Part and the Party of the Second Part, respectively, have caused this Agreement to be duly executed in day and year first herein written in three (3) copies, all of which to all intents and purposes shall be considered as the original.

ARBITRATION PROVISION:

THIS CONTRACT CONTAINS A BINDING ARBITRATION PROVISION WHICH MAY BE ENFORCED BY THE PARTIES.

CONTRACTOR, PARTY OF THE SECOND PART

By: _____

(Office or Position of Signer)

OWNER, PARTY OF THE FIRST PART
TOWN OF FAIRVIEW, TEXAS

By: _____
Julie Couch, Town Manager

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENT THAT WE, _____
of _____, hereinafter referred to as the "Contractor" and _____
_____, a Corporation
organized and existing under the laws of the State of Texas, and duly authorized to transact business
in the State of Texas, as "Surety" are held and firmly bound unto the Town of Fairview, Texas
(Owner), their successors and assigns, hereinafter called the "Owner", in the penal sum of
_____ in lawful money of the United States of America,
for the payment of which well and truly to be made to said Owner with the understanding that such
designation shall be held and taken to apply to them or to their successors, lessees and assigns, as
the circumstances not or to any time in the future under the terms hereof shall require, we, said
Contractor and Surety, do hereby bind ourselves and our respective successors, lessees and
assignees, jointly and severally, forever firmly by these present.

THE CONDITION OF THE ABOVE OBLIGATION, HOWEVER IS SUCH THAT:

WHEREAS, said Contractor has entered into a certain Contract in writing bearing date of the
_____ day of _____, 2020, and designated as construction of COUNTRY SIDE
WATER REPLACEMENT & HYDRANT ADDITIONS including furnishing all labor, equipment
and materials (except as otherwise specified), and performing all work necessary for the
construction.

WHEREAS, it is provided in said Contract that said Contractor shall furnish a bond in the sum
hereinabove stated condition for the faithful performance of said Contract as well as any supplement
or supplements in writing thereto covering additional or other work to be performed by the
contractor pursuant to the terms and conditions of said Contract.

NOW, THEREFORE, if said Contractor shall in all respect faithfully and fully perform each and
all of the terms, provisions, conditions, and undertakings of said Contract in writing to be by it
performed, together with like performance of any an all supplements in writing thereto covering
additional or other work to be performed by the Contractor, notice of any such supplement or
supplements being hereby waived, then this obligation shall be null and void; otherwise it shall
remain in full force, virtue and effect.

PROVIDED FURTHER, that it is expressly understood and agreed that notice of any default in or
non-performance of any duty of obligation on the part of the Contractor under the terms of said
Contract in writing, or any supplement in writing thereto covering additional or other work to be
performed by the Contractor, is hereby expressly waived by the Surety, and that any such default or
non-performance of any duty or obligation shall not absolve or release the Surety from its joint and
several absolute and unconditional undertaking or indemnity, irrespective of whether Owner shall or
shall not call upon the Contractor for compliance therewith or performance thereof, and that these
present shall remain in full force, virtue and effect during the existence of said Contractor of any
supplement in writing thereto covering additional or other work to be performed by the Contractor,

and thereafter for the purpose of adjusting rights and obligations which shall have accrued during the life of said written Contract, or any supplement in writing thereto covering additional or other work to be performed by the Contractor.

IN TESTIMONY WHEREOF, the Contractor has hereunto set his hand, and said Surety has caused these present to be executed in its name, and its corporate seal to be hereunto affixed, by its attorney-in-fact duly authorized to do so at _____, on this _____ day, of _____, 20____.

SURETY COMPANY

CONTRACTOR

Name of Company

Name of Company

By: _____
Attorney-in-Fact

By: _____

By: _____
Title of Person Signing

Title of Person Signing

(Seal)

(Seal)

(Accompany this bond with attorney-in-fact's authority from the Surety company certified to include the date of the bond.)

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENT, that _____
as "Contractor", and _____ a corporation organized under the laws of the
State of _____, with general offices in _____, and authorized to
transact business in the State of TEXAS as "Surety", are held and firmly bound unto the Town of
Fairview, in the penal sum of _____ for the payment
of which sum will and truly to be made, we bind ourselves, and our heirs, executors, administrators,
successors, and assigns, jointly and severally, be these presents:

THE CONDITIONS OF THE FOREGOING OBLIGATIONS IS SUCH THAT:

WHEREAS, the Contractor has on the _____ day of _____, 2020, entered into a
written contract with the Town for COUNTRY SIDE WATER MAIN REPLACEMENT &
HYDRANT ADDITIONS in Fairview including furnishing all labor, equipment and materials
(except as otherwise specified), and performing all work necessary for the construction.

NOW, THEREFORE, if the Contractor and his subcontractors shall pay all indebtedness incurred
for supplies, materials, or labor furnished, used or consumed in connection with the prosecution of
the work provided for in said contract, this obligation shall be void; otherwise it shall remain in full
force and effect.

PROVIDED FURTHER, that the Surety, for value received, hereby stipulates and agrees that no
change, extension of time, alteration, or addition to the terms of the contract or to the work to be
performed thereunder, or the specifications accompanying the same, shall in any way affect its
obligation on this bond, and it does hereby waive notice of any such change, extension of time,
alteration, or addition to the terms of the Contract or to the specifications.

PROVIDED FURTHER, that the surety agrees that any person to whom there is due any sum for
supplies, materials, or labor, hereinbefore stated, or his assigns, may bring an action on his bond for
the recovery of the indebtedness; **PROVIDED**, that no action shall be brought on the bond after six
months from the completion of the public improvements.

SURETY COMPANY:

CONTRACTOR:

Name of Company

Name of Company

By:_____

By:_____
Title of Person Signing

Title of Person Signing

(Seal)

(Seal)

(Accompany this bond with attorney-in-fact's authority from the Surety Company certified to include the date of the bond.)

NOTICE OF AWARD

TO: _____

Project Description: _____

The Fairview Town Council has considered the Proposal submitted by you on _____ for the above described work in response to its Notice to Contractors and Instructions to Bidders and on _____ voted to award you the Contract in the amount of _____. You are required by the Instructions to Bidders to execute the Contract Agreement and furnish the required Performance and Payment Bonds and Certificates of Insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Contract Agreement and to furnish said Bonds and Certificates within ten (10) days from the date of this Notice, the Town of Fairview will be entitled to consider all your rights arising out of the Town's acceptance of your Proposal as abandoned and as a forfeiture of your Bid Security. The Town will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the Town.

Dated this _____ day of _____, 2020.

TOWN OF FAIRVIEW

By _____

James Chancellor, Town Engineer

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by _____
_____, this the _____ day of _____
_____, 2020.

By _____

Title _____

GENERAL CONDITIONS

1. **DEFINITIONS:** Wherever used in the Contract Documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.1 Acceptance, Final Acceptance: The formal action by the town in accepting the Work as being complete.

1.2 Addenda: Written or graphic supplemental documents issued prior to the opening of bids which modify or interpret the Contract Documents, by additions, deletions, clarifications, or corrections.

1.3 Bid: The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the work to be performed.

1.4 Bidder: Any individual, partnership, corporation, or combination thereof submitting a proposal for the Work contemplated, acting directly or through and authorized representative.

1.5 Bonds: Bid, performance, and payment bonds and other instruments or security, furnished by the Contractor and his surety in accordance with the Contract Documents.

1.6 Change Order: A document recommended by the Engineer which is signed by the Contractor and Town 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 Contract.

1.7 Contract: The written agreement between the town and Contractor covering the work to be performed; other Contract Documents are attached to the Contract and made a part thereof as provided therein.

1.8 Contractor: The individual, partnership, corporation, or combination thereof who has entered into the Contract (or agreement) with the town for the performance of the Work called for in the Contract Documents.

1.9 Contract Documents: The Notice to Contractors, Instructions to Bidders, Proposal, Contract Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary Conditions, Technical Specifications, Plans, Addenda, Notice of Award, and Notice to Proceed are each and all included in this Contract and the Work shall be done in accordance therewith.

1.10 Contract Price: The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

1.11 Contract Time: The number of calendar days stated in the Proposal for the completion of the Work. The term day as used in the Contract Documents shall mean calendar day unless specifically designated otherwise.

1.12 Effective Date of the Contract: The date indicated in the Notice to Proceed as the date of commencement of the Work, the date from which Contract Time is measured.

1.13 Engineer: The individual or firm designated, appointed, or otherwise employed or delegated by the town for this Work, or their duly authorized agents, such agents acting within the scope of the particular duties entrusted to them in each case. The Engineer on this Project is the town Engineer.

1.14 Field Order: A written order issued by the Engineer which orders minor changes in the Work but which do not involve a change in the Contract Price or the Contract Time.

1.15 Notice of Award: The written notice of the acceptance of the bid from the town to the successful Bidder.

1.16 Notice to Proceed: Written communication issued by the town to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work, also referred to as the Effective Date of the Contract.

1.17 Town: The Town of Fairview, Texas with whom the Contractor has entered into the Contract and for whom the Work is to be provided.

1.18 Plans: The part of the Contract Documents which shows the locations, characteristics, dimensions, and details of the Work to be performed and which have been prepared or approved by the Engineer.

1.19 Project: The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

1.20 Proposal: The offer or proposal of the Bidder submitted on the prescribed form bound herein, setting forth the prices for the Work to be performed.

1.21 Resident Project Representative or Inspector: The authorized representative of the Engineer who is assigned to the site or any part thereof.

1.22 Samples: Physical examples which illustrate materials, equipment or workmanship, and establish standards by which the Work will be judged

1.23 Shop Drawings: All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by the Contractor to illustrate material or equipment for some portion of the Work.

1.24 Specifications: Those portions of the Contract Documents consisting of written technical descriptions of material, equipment, construction systems, standards and workmanship

as applied to the Work and certain administrative details applicable thereto, including these General Conditions and the Supplementary Conditions.

1.25 Subcontractor: An individual, firm or corporation having direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site.

1.26 Substantial Completion: The Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer as evidenced by Engineer's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended.

1.27 Superintendent: The employee of the Contractor at the project site who shall have sole responsibility and authority for supervision of the Contractor's forces and construction operations.

1.28 Supplementary Conditions: The part of the Contract Documents which amends or supplements these General Conditions.

1.29 Supplier: A manufacturer, fabricator, supplier, distributor, materialman or vendor.

1.30 Underground Facilities: All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasement containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

1.31 Work: The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

2. TERMS:

2.1 Whenever in these Contract Documents the words "as ordered", "as directed", "as required", "as permitted", "as allowed", or words or phrases of like import are used, it shall be understood that the order, directions, requirement, permission or allowance of the town and Engineer is intended.

2.2 Similarly the words "approved", "reasonable", "suitable", "acceptable", "properly", "satisfactory", or words of like effect and import, unless otherwise particularly specified herein, shall mean approved, reasonable, suitable, acceptable, proper or satisfactory in the judgment of the town and Engineer.

2.3 Whenever any statement is made in the Contract Documents containing the expression "it is understood and agreed", or an expression of like import, such expression means the mutual

understanding and agreement of the parties executing the Contract of which these General Conditions are a part.

3. ABBREVIATIONS:

When references are made to the following abbreviations, they refer to the specifications, standards, or methods of the respective national association. All references to the above specifications, standards, or methods shall, in each instance, be understood to refer to the latest issue in effect (including all amendments).

ASSHTO	American Association of the State Highway and Transportation Officials
ACI	American Concrete Institute
AI	The Asphalt Institute
IA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute (Succeeding ASA)
APWA	American Public Works Association, Inc.
AREA	American Railway Engineering Association
ASTM	American Society for Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association, Inc.
CRSI	Concrete Reinforcing Steel Institute
FED SPEC	Federal Specifications
NBFU	National Board of Fire Underwriters
NEC	National Electric Code
NEMA	National Electrical Manufacturers' Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Act of 1970
PCA	Portland Cement Association
SSPC	Steel Structures Painting Council
UBC	Uniform Building Code
U/L	Underwriter's Laboratories, Inc.

4. VERBAL STATEMENTS NOT BINDING: It is understood and agreed that the written items and provisions of this Contract shall supersede all prior verbal statements of any and every official and/or other representative of the town, and such statements shall not be effective or be construed as entering into, or forming part of, or altering in any way whatsoever, the written Contract.

5. INTENT OF CONTRACT DOCUMENTS: The intent of the Contract Documents is that the Contractor shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the Work in accordance with the Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all.

6. INTENT OF PLANS AND SPECIFICATIONS: Certain Plans prepared by the Engineer on behalf of the town and elsewhere described and named accompany and supplement these Specifications and constitute a part of the Contract Documents. Such Plans are agreed to be constructively attached to these Specifications although convenience may prevent physical attachment.

6.1 Modifications or Additions to Plans: The town shall have the right to modify minor details of these Plans, to provide final or checked plans in lieu of any preliminary or unchecked plans, to supplement these Plans with additional plans or with additional information as the work proceeds, all of which shall be considered as Plans accompanying these Specifications.

6.2 Organization of Specifications: The organization of the Specifications into divisions, sections, and articles, and the arrangement of Plans shall not control the Contractor in dividing the Work among subcontractors or in establishing the extent of Work to be performed by any trade.

7. PRECEDENCE OF CONTRACT DOCUMENTS: In case of conflict between the Contract Documents, the following order of precedence shall govern:

- First: Supplemental Agreements (Change Orders and Field Orders), the last in time being first in precedence
- Second: Contract
- Third: Notice to Contractors, Instructions to Bidders
- Fourth: Plans and Specifications, the order to precedence in these documents shall be Supplementary Conditions, General Conditions, Technical Specifications and Plans
- Fifth: Contractor Proposal

Figure dimensions of Plans shall govern over scale dimensions, and detailed drawings shall govern over general drawings. In all cases, where a conflict is cited, the Engineer shall be duly informed. The Engineer will notify the Contractor in writing should the above procedure be deviated from in any particular instance.

8. DISCREPANCIES, ERRORS, AND OMISSIONS: Any discrepancies, errors, omissions, or ambiguities found in the contract Documents shall be promptly reported to the Engineer. The Engineer shall clarify such discrepancies or omissions, in writing, within a reasonable amount of time. Work done by the Contractor after his discovery of such discrepancies, inconsistencies, or ambiguities shall be at his own risk in that subsequent corrective measures will be required.

9. REUSE OF DOCUMENTS: Neither the Contractor nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with the town shall have or acquire any title to or ownership rights in any of the Plans, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of the Engineer; and they shall not reuse any of them on extensions of the Project or any other project without written consent of the town.

10. **PRECONSTRUCTION CONFERENCE:** Before the Contractor starts work at the site, a conference attended by the Contractor, Engineer and others as appropriate will be held to discuss the procedures for handling Shop Drawings and other submittal and for processing Payment Estimates, and to establish a working understanding among the parties as to the Work.

11. **SHOP DRAWINGS:** Where called for in the Contract Documents, the Contractor shall submit to the Engineer for review, six (6) prints of each Shop Drawing. Shop Drawings shall be understood to include detail calculations, reinforcement bar bending diagrams, fabrication, erection and installation drawings, parts lists, graphs, wiring diagrams, operating instructions, etc. Drawings shall be submitted in sufficient time to allow the Engineer not less than ten (10) working days for review of such drawings, and to accommodate the rate of construction progress required under the Contract.

The review of Shop Drawings by the Engineer will be limited to checking for general agreement with the Contract Documents, and shall in no way relieve the Contractor of responsibility for errors or omissions contained in the Contract Documents. Fabricating dimensions, quantities of material, applicable code requirements, and other Contract requirements shall be the Contractor's responsibility. When the Shop Drawings have been reviewed by the Engineer, four (4) sets of submittals will be returned to the Contractor appropriately stamped. If major changes or corrections are necessary, the Shop Drawings may be rejected and one (1) set will be returned to the Contractor with the required changes or corrections indicated, and the Contractor shall promptly make the required changes or corrections. The Contractor shall make a complete and acceptable second submittal to the Engineer. Revisions to the Shop Drawings shall be limited to changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis of claims for extra work. The Contractor shall have no claims for extra work. The Contractor shall have no claims for damages or extension of time due to any delay resulting from the Contractor's having to make the required revisions.

Portions of the Work requiring a Shop Drawing or sample submission shall not begin until the Shop Drawing or sample has been reviewed.

13. **WORK DONE WITHOUT LINES OR GRADES:** Any work done without being properly located and work established by base lines, offset stakes, bench marks, or other basic reference points not located, established, or checked by the Engineer, may be ordered removed and replaced at the Contractor's cost and expense.

14. **PRESERVATION OF MONUMENTS AND STAKES:** The Contractor shall carefully preserve all monuments, bench marks, reference points and stakes, and in case of willful or careless destruction of the same will be charged with the resulting expense of replacement, and shall be responsible for any mistake or loss of time that may be caused by their unnecessary loss or disturbance. In the event that the stakes and marks placed by the Engineer are destroyed through carelessness on the part of the Contractor, and that the destruction of those stakes and marks cause a delay in the Work, the Contractor shall have no claim for damages or extensions of time. In the case of any permanent monuments or bench marks which must of necessity be

removed or disturbed in the construction of the Work, the Contractor shall carefully protect and preserve the same until they can be properly referenced for relocation. The Contractor shall furnish at his own expense such materials and assistance as are necessary for the proper replacement of monuments or bench marks that have been removed or destroyed.

15. UNDERGROUND FACILITIES:

15.1 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 the information and data furnished to the town by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

- (a) The town shall not be responsible for the accuracy or completeness of any such information or data; and,
- (b) The Contractor shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Facilities shown or indicated in the Contract Documents, for coordination of the Work with the owners of such Underground Facilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price. This shall include any utilities owned by the town.

15.2 Not Shown or Indicated: If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which the Contractor could not reasonably have been expected to be aware of, the Contractor shall, promptly after becoming aware thereof and before performing any work affected thereby (except in an emergency) identify the owner of such Underground Facility and give written notice thereof to that owner and to the Engineer. The Engineer will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, the Contractor shall be responsible for the safety and protection of such Underground Facility. The Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and of which the Contractor could not reasonably have been expected to be aware. If the parties are unable to agree as to the amount of length thereof, the Contractor may make a claim therefor.

16. TOWN'S RESPONSIBILITIES:

16.1 Communications: The town shall issue all communications to the Contractor through the Engineer.

16.2 Information and Payments: The town shall promptly furnish the data required of the town under the Contract Documents and shall make payments to the Contractor promptly after they are due.

16.3 Land and Rights-of-Way: Prior to issuance of Notice to Proceed, the town will obtain all land and rights-of-way necessary for carrying out and for the completion of the work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed. Nothing contained in the Plans or Specifications shall be interpreted as giving the Contractor exclusive occupancy of the land or rights-of-way provided. Land owned and rights-of-way acquired by the town are as shown on the Plans.

16.4 Encroachments: The town will secure, from the agencies having jurisdiction, the necessary permits to create obstructions, to make excavations if required under the Contract, and to otherwise encroach upon rights-of-way.

16.5 Town's Right to Retain Imperfect Work: If any part or portion of the Work done or material furnished under this contract shall prove defective and not in accordance with the Contract Documents, and if the imperfection in the same, in the opinion of the Engineer, shall not be of sufficient magnitude or importance as to make the Work dangerous or undesirable, the town shall have the right and authority to retain such Work but shall make such deductions in the final payment therefor as may be just and reasonable.

16.6 Temporary Suspension of Work: The town may suspend the Work or any portion thereof by written notice to the Contractor for a period of not more than sixty (60) days or such further time as agreed upon by the Contractor due to financing delays, unsuitable weather and/or other unfavorable conditions for prosecution of the Work, delay in delivery of Town-furnished equipment or materials, or failure of the Contractor to carry out provisions of the Contract or to provide materials and workmanship meeting the requirements of the Specifications. Suspended work shall be resumed by the Contractor within ten (10) days of receipt of written notice from the town to resume the Work.

16.6.1 The Contractor shall have no claim for damages alleged to have been suffered by reason of any suspension of the Work without termination of the Contract, and he shall receive no additional compensation because of any such suspension.

16.6.2 If the performance of all or any portion of the Work is suspended, delayed, or interrupted as a result of a failure of the town to act within the time specified above, an adjustment in the Contract Price or an extension of the Contract Time, or both, shall be made by Change Order to compensate the Contractor for the costs and delays necessarily caused by the failure of the town to notify the Contractor to resume Work.

16.7 Termination of Contract (Contractor Not at Fault) : The town may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the

Contract provided that such termination is in the best interest of the town. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which termination becomes effective.

16.8 Termination of Contract (Contractor at Fault): The town may, without prejudice to any other right or remedy, terminate the Contract after ten (10) days from delivery of a written notice to the Contractor and his surety in the event of breach of the Contract or of any default by the Contractor. It shall be considered a default by the Contractor whenever he shall:

- (a) declare bankruptcy, become insolvent, or assign his assets for the benefit of his creditors, or if a trustee or receiver is appointed for the Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws;
- (b) repeatedly fail to provide a qualified superintendent, sufficient skilled workmen, suitable materials or equipment;
- (c) repeatedly fail to make prompt payments to Subcontractors or for labor, materials, or equipment delivered;
- (d) disregard laws, ordinances rules, regulations, or orders of any public body having jurisdiction over the Work or if he disregards the authority of the Engineer;
- (e) violates any important provisions of the Contract Documents; or
- (f) repeatedly fail to prosecute work according to the approved progress schedule.

16.8.1 In the event the Contract is terminated due to defaults described above, the town may take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor, and finish the Work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished.

16.8.2 If the unpaid balance of the Contract Price exceeds the direct and indirect cost of completing the Project, including compensation for additional professional services, such excess will be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor shall pay the difference to the town. Such costs incurred by the town will be determined by the Engineer and incorporated in a Change Order.

16.8.3 Where the Contractor's services have been so terminated by the town, said termination shall not affect any right of the town against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies by the town due the Contractor will not release the Contractor from compliance with the Contract Documents.

17. ENGINEER'S AUTHORITY: The Engineer will be the town's representative during the construction period. The duties and responsibilities and the limitations of authority of the Engineer as the town's representative during construction are set forth herein and shall not be extended without written consent of the town Council.

17.1 Project Representation: The town, at its option, may furnish a Resident Project Representative and Inspector to assist the Engineer in observing the performance of the Work. The duties, responsibilities and limitations of authority of any such Resident Project Representative and Inspectors will be as provided in the Supplementary Conditions.

17.2 Clarifications and Interpretations: The Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of drawings or otherwise) as the Engineer may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If the Contractor believes that a written clarification or interpretation justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree to the amount or extent thereof, the Contractor may make a claim therefor.

17.3 Authorized Variations in Work: The Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and will be binding on the town, and also on the Contractor who shall perform the Work involved promptly. If the Contractor believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, the Contractor may make a claim therefor.

17.4 Rejecting Defective Work: The Engineer will have authority to disapprove or reject Work which the Engineer believes to be defective, and will also have the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed or completed.

17.5 Determinations for Payment: The Engineer will determine the actual quantities and classifications of Work performed by the Contractor. The Engineer will review with the Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of a Payment Estimate or otherwise). The Engineer's written decisions thereon will be final and binding upon the town and Contractor, unless, within ten (10) days after the date of any such decision, the Contractor delivers to the town written notice of intention to appeal from such a decision. The Engineer will not be responsible for the Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and program incident hereto, and the Engineer will not be responsible for the Contractor's failure to perform or furnish the Work in accordance with the Contract Documents. The Engineer will not be responsible for the acts or omissions of the Contractor, of any Subcontractor, of any Supplier, or of any other person or organization performing or furnishing any of the Work.

18. **CONTRACTOR'S RESPONSIBILITY:** By executing the Contract, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents.

18.1 **Insurance Requirements:** Before any work at the site is started, the Contractor shall deliver to the town certificates of insurance which the Contractor is required to purchase and maintain in accordance with the Contract Documents.

18.2 **Supervision:** The contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of Construction, but the Contractor shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. The Contractor shall be responsible to see that the finished Work complies accurately with the Contract Documents.

18.3 **Superintendence of Work:** The Contractor shall provide and maintain, continually on the site of the Work during its progress, adequate and competent superintendence of all operations for and in connection with the Work being performed under this Contract, either personal or by a duly authorized superintendent or representative.

18.3.1 The superintendent or other representative of the Contractor on the Work, and who has charge thereof, shall be fully authorized to act for the Contractor and to receive whatever orders as may be given by the Engineer for the proper prosecution of the Work, or notices in connection therewith.

18.3.2 The superintendent shall be a person having considerable experience on similar projects. The Contractor shall submit the name of the proposed superintendent to the town together with a list of projects on which the proposed individual has served as superintendent. Such list shall detail the size and complexity of projects and shall include references for each engagement. The Engineer shall review the submitted qualifications. No person shall serve as superintendent without approval of the town.

18.4 **Labor, Materials and Equipment:** The Contractor shall provide competent, suitably qualified personnel to lay out the Work and perform construction as required by the Contract Documents. The Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work, or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and the Contractor will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without the town's prior written consent.

18.4.1 The Contractor shall furnish and assume full responsibility for all 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 furnishing, performance, testing, start-up and completion of the Work.

18.4.2 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by the Engineer, the Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used cleaned and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to the Engineer, or any of the town's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work.

18.5 Sunday, Holiday and Night Work: Except in connection with the care, maintenance or protection of equipment, or of work already done, no work shall be done between the hours of 7 P.M. and 7 A.M., or on Sundays or legal holidays, without the written consent of the town.

18.6 Prosecution and Progress: The Contractor shall, within ten (10) days after being instructed to do so in a written notice from the town, commence the Work to be done under this Contract; and the rate of progress shall be such that the Work shall have been completed in accordance with the terms of the Contract on or before the termination of the Contract Time stated in the Proposal, subject to any extension or extensions of such time made as hereinafter provided.

18.6.1 Promptly after the award of the Contract, the Contractor shall submit to the Engineer for approval an estimated progress schedule and a written program of construction outlining the proposed operations and the order of completion of the various parts in sufficient detail to demonstrate to the Engineer the adequacy of the progress to complete the construction within the time provided. No payment shall be made to the Contractor on any Payment Estimate until such progress schedule and program have been submitted and approved.

18.6.2 Should it become evident at any time during construction that construction operations will or may fall behind the schedule of this first program of construction the Contractor shall, upon request, promptly submit revised written schedules setting out operations, methods and equipment, added amount labor, or of working shifts, night work, etc., by which lost time shall be made up and shall confer with the Engineer until an approved modification of the original program and schedule have been provided by the Contractor. Execution of the Work according to the accepted program of construction, or approved modifications thereof, shall be an obligation of the Contract.

18.6.3 Should the Contractor fail to complete the Work within the Contract Time as stipulated in the Proposal or within such extra time as may have been allowed by extension, the town will deduct from any moneys due or coming due to the Contractor, the amount indicated in the Proposal for each calendar day the Work shall remain uncompleted. This sum shall be

considered and treated not as a penalty but as fixed, agreed and liquidated damages due the town from the Contractor by reason of interference with business, inconvenience to the public, added cost of engineering, administration, inspection, maintenance of detours and temporary facilities, and other items which have caused an expenditure of funds resulting from his failure to complete the Work within the Contract Time.

18.6.4 Permitting the Contractor to continue and finish the Work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, shall in no way operate as a waiver on the part of the town of any of its rights under the Contract.

18.6.5 Neither by the act of taking over the Work nor by the annulment of the Contract nor by requiring the surety to complete the Contract shall the town forfeit the right to recover liquidated damages from the Contractor or his surety for failure to complete the Contract within the specified Contract Time.

18.7 Extensions of Time: The Contractor shall place orders for all principal materials to be needed in the Work within ten (10) days after award of the Contract and delivery dates shall be obtained, in writing, from the suppliers of each of these materials. One copy of each order for the primary materials in the Contract together with one copy of the suppliers reply stating the date of delivery shall be furnished to the Engineer prior to the payment of the first partial monthly Payment Estimate. Payment of partial monthly Payment Estimates shall not be commenced until these provisions have been complied with to the full satisfaction of the Engineer.

18.7.1 Should special conditions arise from war, strikes or other national emergencies wherein restrictions may prevent or delay the acquirement, delivery or use of materials and be the direct cause of specific delays, extensions of time will be granted. In such event, the Contractor shall file with the Engineer, copies of documentary evidence to substantiate the causes and extent of resultant delays at the time they are in occurrence. This evidence together with the original orders and written delivery dates will be used by the Engineer to determine the amount of extension of time to be made on account of such delays. In determining extensions of time, revised delivery dates for primary materials will be computed by extending the original Contract Time by the actual number of days which elapses during any emergency.

18.7.2 The Contractor is requested to bring to the attention of the Engineer, by letter, during the progress of the Work, the occurrence of events which the Contractor considers may warrant extensions of time under the conditions of the Contract. If the Contract is not completed within the Contract Time, the Contractor shall, at the conclusion of the Work, present to the Engineer a written statement presenting his view upon all matters of time extensions.

18.7.3 The amount of all extensions of time, for whatever reason granted, shall be determined by the Engineer with due consideration given to working seasons and working conditions.

In general, only actual and not constructive or hypothetical days of delay will be considered. The town shall have the authority to grant additional extensions of time as the town may deem advisable and justifiable.

18.8 Substitutes or "Or-Equal" Items: Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by the Engineer to determine that the material or equipment proposed is equivalent or equal to that named. Requests for review of substitute items of material and equipment will not be accepted by the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall make written application to the Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not be prejudice the Contractor's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with the town for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the Engineer in evaluating the proposed substitute. The Engineer may require the Contractor to furnish, at the Contractor's expense, additional data about the proposed substitute.

18.8.1 If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, the Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to the Engineer, if the Contractor submits sufficient information to allow the Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents.

18.8.2 The Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. The Engineer will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without the Engineer's prior written acceptance, which will be evidenced by a Change Order or an approved Shop Drawing. The town may require the Contractor to furnish , at the Contractor's expense, a special performance guarantee or other surety with respect to any substitute.

18.9 Subcontractors and Suppliers: The Contractor shall not employ any Subcontractor, Supplier or other person or organization, whether initially or as a substitute, against whom the town may have reasonable objection. The Contractor shall not be required to employ any

Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom the Contractor has reasonable objection.

18.9.1 If the Supplementary Conditions require and identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to the town for acceptance by the town and if the Contractor has submitted a list thereof in accordance with the Supplementary Conditions, the town's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case the Contractor shall submit an acceptable substitute. The Contract Price will be increased by the difference in the cost occasioned by such substitution and an appropriate Change Order will be issued. No acceptance by the town of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of the town to reject defective Work.

18.9.2 The Contractor shall be fully responsible to the town for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with the Contractor just as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between the town and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of the town to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

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

18.9.4 All Work performed for the Contractor by a Subcontractor will be pursuant to an appropriate agreement between the Contractor and the Subcontractor, which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of the town. The Contractor shall pay each Subcontractor a just share of any insurance moneys received by the Contractor on account of losses under policies issued.

18.10 Patent Fees and Royalties: The 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 the town its use in 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 the town in the Contract Documents. The Contractor shall indemnify and hold harmless the town and anyone directly or indirectly employed by the town from and against all claims, damages, losses and expenses (including attorney's fees and court and arbitration costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or

resulting from the incorporation in the Work of any invention, design, process, produce or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

18.11 Permits: Unless otherwise provided in the Supplementary Conditions, the Contractor shall obtain and pay for all construction permits and licenses. The town shall assist the Contractor, when necessary, in obtaining such permits and licenses. The Contractor shall pay all charges of utility owners for connections to the Work, and the town shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

18.12 Laws and Regulations: The Contractor shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, the town shall not be responsible for monitoring the Contractor's compliance with any Laws or regulations. If the Contractor observes that the Plans and Specifications are at variance with any Laws or Regulations, the Contractor shall give the Engineer prompt written notice thereof, and any necessary changes will be authorized. If the Contractor performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to the Engineer, the Contractor shall bear all costs arising therefrom; however, it shall not be the Contractor's primary responsibility to make certain that the Plans and Specifications are in accordance with such Laws and Regulations.

18.13 Use of Premises: The Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. The Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas Contiguous thereto, resulting from the performance of the Work. Should any claim be made against the town by any such owner or occupant because of the performance of the Work, the Contractor shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. The Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold the town harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against the town to the extent based on a claim arising out of the Contractor's performance of the Work.

18.13.1 Where the space within the project site, right-of-way or easements is not available for construction plant, the Contractor shall provide at his own expense any work area he requires, shall construct and maintain any roadway or other facilities required for this purpose and the cost thereof shall be included in the prices bid for the various items scheduled in the Proposal.

18.13.2 During the progress of the Work, the Contractor shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. at the completion of the Work, the Contractor shall remove all waste materials, rubbish and debris from

and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by the town. The Contractor shall restore to original condition all property not designated for alteration by the Contract Documents.

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

18.14 Record Documents: The Contractor shall maintain in a safe place at the site one record copy of all Plans, Specifications, Addenda, Written Amendments, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications in good order annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to the Engineer for reference. Upon completion of the Work, these record documents, samples and Shop Drawings will be delivered to the town.

18.15 Safety and Protection: The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.

18.15.1 The Contractor shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and of Underground Facilities and 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. All damage, injury or loss to any property referred to in these paragraphs caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by the Contractor. The Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and the Engineer has issued a notice to the Contractor that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

18.15.2 The Contractor shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the town.

18.16 Emergencies: In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer, is obligated to act to prevent threatened damage, injury or loss. The Contractor shall give the Engineer prompt written notice if the Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If the Engineer determines that a change in the Contract Documents is required because

of the action taken in response to an emergency, a Change Order will be issued to document the consequences of the changes or variations.

18.17 Loses From Natural Causes: All loss or damage arising out of the nature of the Work, to be done, or from the action of the elements, or from floods or overflows, or from groundwater, or from any unusual obstruction or difficulty, or any other natural or existing circumstances either known or unforeseen, which may be encountered in the prosecution of the Work shall be sustained and borne by the Contractor at his own cost and expense.

18.18 Continuing the Work: The Contractor shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with the town. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the Contractor and Town may otherwise agree in writing.

18.19 Indemnification: To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the town and its consultants, agents and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expenses:

- (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom, and
- (b) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by Law and Regulations regardless of the negligence of any such party.

18.19.1 In any and all claims against the town or any of its consultants, agents or employees by any employee of the Contractor, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the contractor or any such Subcontractor or other person or organization under workers or workmen's compensation or benefits payable by or for the contractor or any such Subcontractor or other person or organization under workers or workmen's compensation acts, disability benefit acts or other employee benefit acts.

18.20 Contractor's Responsibility in Case of Termination: After receipt of a Notice of Termination, and except as otherwise directed by the town, the Contractor shall:

- (a) stop work under the Contract on the date and to the extent specified in the Notice of Termination,
- (b) place no further orders or subcontractors for materials, services or facilities, except as may be necessary for completion of such portion of the Work under the Contract that is not terminated;
- (c) terminate all orders and subcontracts to the extent that they relate to the performance of the Work terminated by the Notice of Termination;
- (d) assign to the town, in the manner, at the times, and to the extent directed by the town, all of the right, title, and interest of the Contractor under the orders and subcontracts;
- (e) settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the town, to the extent he may require, which approval or ratification shall be final for all the purposes of this clause;
- (f) transfer title and deliver to the town, in the manner, at the times, and to the extent, if any, directed by the town, the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced as a performance of, and the work terminated by the Notice of Termination; and 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 town.
- (g) complete performance of such part of the Work as shall not have been terminated by the Notice of Termination; and
- (h) take such actions as may be necessary, or as the town may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the town has or may acquire an interest.

18.20.1 After receipt of a Notice of Termination, the Contractor shall submit to the town his termination claim, in the form and with certification prescribed by the town. Such claim shall be submitted promptly but in no event later than one year from the effective date of termination, unless extensions in writing are granted by the town, upon request of the Contractor made in writing within such one year period or authorized extension thereof. However, if the town determines that the facts justify such actions, he may receive and act upon any such termination claim at any time after such one year period or any extension thereof. Upon failure of the Contractor to submit his termination claim within the time allowed the town may determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

18.20.2 Upon termination of the Contract, the Contractor shall have no claims against the town except for:

- (a) the value of work performed plus profit up to the date the Contract is terminated; and
- (b) the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Contract is terminated, which would be needed in the Work and which meets the requirements of the Contract Documents.

18.20.3 The value of work performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined in accordance with the procedure prescribed for the making of the final estimate and payment.

19. OTHER WORK: The town may perform other work related to the Project at the site by the town's own forces, have other work performed by utility owners or let other direct contracts therefor which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the Contractor prior to starting any such other work; and, if the Contractor believes that such performance will involve additional expense to the Contractor or requires additional time and the parties are unable to agree as to the extent thereof, the Contractor may make a claim therefor.

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

19.2 If any part of the Contractor's Work depends for proper execution or results upon the work of any such other contractor or utility owner (or the town), the Contractor shall inspect and promptly report to the Engineer, in writing, any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. The Contractor's failure so to report will constitute acceptance of the other work as fit and proper for integration with the Contractor's Work except for latent or nonapparent defects or deficiencies in the other work.

19.3 Coordination: If the town contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be

provided, in the Supplementary Conditions. unless otherwise provided in the Supplementary Conditions, the town shall have no authority or responsibility in respect of such coordination.

20. MISCELLANEOUS PROVISIONS:

20.1 Legal Address: The business address of the Contractor given in the Proposal upon which this Contract is founded is hereby designated as the place to which all notices, letters and other communications to the Contractor may be mailed or delivered. The business address of the town appearing in the Contract, is hereby designated as the place to which all notices, letters and other communications to the town may be mailed or delivered. The delivery by one party to the other party at an address so designated, or the depositing in any mail box regularly maintained by the post office, of any notice, letter or other communication addressed to such address, postage prepaid, registered or certified mail, with return receipt requested, shall be deemed sufficient service thereof, and the date of said service shall be the date of such delivery of mailing. Either party may change the said address or addresses at any time by an instrument in writing delivered to the other party. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or communication upon either party personally.

20.2 Independent Contractor: The right of general supervision by the town shall not make the Contractor an agent of the town, and the liability of the Contractor for all damages to persons, firms and corporations, arising from the Contractor's execution of the work, shall not be lessened because of such general supervision; but as to all such persons, firms and corporations and the damages, if any, to them or their property, the contractor herein is an independent contractor in respect to the Work.

20.3 Suggestions to Contractor Adopted at his Own Risk: Any plan or method of work suggested by the town, the Engineer, or their representatives, to the Contractor, but not specified, or required, if adopted or followed by the Contractor in whole or in part, shall be used at the risk and responsibility of the Contractor, and the town will assume no responsibility therefor.

20.4 Hindrances and Delays: In executing the Contract, the Contractor expressly covenants and agrees that, in undertaking to complete the Work within the time therein fixed, he has taken into consideration and made allowances for all hindrances and delays incident to such work, whether growing out of delays in securing materials or workmen or otherwise. No charge shall be made by the Contractor for hindrances or delays from any cause during the progress of the work, or any portion thereof, embraced in this Contract, except as provided by the town's right to suspend the Work.

20.5 Provision for Emergencies: Whenever, in the opinion of the Engineer, the Contractor has not taken sufficient precaution for the safety of the public or the protection of the Work to be constructed under this Contract or of adjacent structures or property which may be injured by processes of construction on account of such neglect, and whenever, in the opinion of the Engineer, an emergency shall arise and immediate action shall be considered necessary in order to protect public or private personal property interests, then the Engineer, with or without notice to the Contractor, may provide (but does not have the duty to do so) suitable protection to

the said interests by causing such work to be done and material to be furnished and placed as the Engineer may consider necessary and adequate. The cost and expense of such work and material so furnished shall be borne by the Contractor, and , if the same shall not be paid on presentation of the bills therefor, such costs shall be deducted from any amounts due or to become due the Contractor. The performance of such emergency work under the direction of the Engineer shall in no way relieve the Contractor of responsibility for damages which may occur during or after such precaution has been duly taken by the Engineer.

20.6 Assignment of Contract: The Contractor shall not assign the work, or any part thereof, without the previous written consent of the town, nor shall he assign, by power of attorney or otherwise, any of the money payable under this Contract unless by and with the like consent of the town to be signified in like manner. No right under this Contract, nor to any money due or to become due hereunder, shall be asserted in any manner against said Town, or persons acting for the town, by reason of any so-called assignment of this Contract or any part thereof, unless such assignment shall have been authorized by the written consent of the town. In case the Contractor assigns all, or any part of, any moneys due or to become due under this Contract, the instrument of assignment shall contain a right of the assignee in and to any moneys due or to become due or to become due under this Contract, the instrument of assignment shall contain a right of the assignee in and to any moneys due or to become due to the Contractor shall be subject to all prior liens of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work called for in this Contract.

20.7 Protests: If the Contractor considers any work demanded of him to be outside the requirements of the Contract, or if he considers any order, instruction, or decision of the Engineer or of any Inspector to be unfair, he shall, immediately upon receipt of such order, instruction, or decision, ask for a written confirmation of the same, whereupon he shall proceed without delay to perform the Work or to conform to the order, instruction, or decision; but if the Contractor finds such written order, instruction, or decision unsatisfactory, he shall, within ten (10) calendar days after receipt of same, file a written protest with the town, stating clearly and in detail his objections and the reasons therefor. Except for such protests or objections to the orders, instructions, or decisions of the Engineer and hereby agrees that as to all matters not included in such protest, the orders, instructions, and decisions of the Engineer shall be considered final and binding. All orders, instructions, and decisions of the Engineer will be limited to matters properly falling within the Engineer's authority.

20.8 Arbitration: All claims, disputes, or other questions that may arise between the town and the Contractor concerning any provision or provisions of this Contract which cannot otherwise be settled and which have not been waived by the making and acceptance of final payment or any progress payment may be submitted to and be determined and settled by arbitration in the manner set forth in this paragraph if both parties agree to arbitration prior to entering into arbitration. Either party, by written notice to the other received before litigation is commenced, may demand arbitration and may appoint an arbitrator. If litigation has been commenced prior to receipt of a demand to arbitrate, arbitration shall not be held. Within five (5) days after receipt of such notice, the other party shall, by written notice to the former, appoint another arbitrator, and in default of said second appointment, the arbitrator first appointed shall be sole arbitrator and shall proceed in the same manner as hereinafter provided for three (3)

arbitrators. When two (2) arbitrators have been appointed as aforesaid, they shall, if possible, agree upon a third arbitrator and shall appoint him by notice in writing, signed by both of them given to the town and the Contractor. If fifteen (15) days shall elapse after the appointment of the second arbitrator without notice of appointment of the third arbitrator being given as aforesaid, then either party may, in writing, request that the American Arbitration Association appoint the third arbitrator. Upon appointment of the third arbitrator, the three (3) arbitrators shall meet without delay and shall proceed with determination of the dispute in accordance with the Construction Industry Rules of the American Arbitration Association. If the award sustains the position of the contractor or if the award does not sustain the position of either party, the fees and expenses of the arbitration proceedings shall be assessed equally against both parties and shall be paid one-half by the town and one-half by the Contractor. The decision of the arbitrators shall be final. The Contractor shall carry on the Work and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed upon in writing.

21. BONDS AND INSURANCE

21.1 Insurance: The Contractor shall secure, and maintain throughout the duration of this Contract, insurance of such types and in such amounts as may be necessary to protect himself against all hazards or risks of loss as hereinafter designated and specified. The form and limits of such insurance, together with the underwriter thereof in each case, shall be the responsibility of the Contractor to maintain such coverage shall not relieve him of any contractual responsibility or obligation. If a part of the Contract is to be sublet, the Contractor shall:

- (a) Cover any and all Subcontractors in his insurance policies, or
- (b) Require each Subcontractor not so covered to secure insurance which will protect said Subcontractor against all applicable hazards or risks or loss designated herein.

21.2.1 Workmen's Compensation and Employer's Liability Insurance: This insurance shall protect the Contractor against any and all claims brought under the Workmen's Compensation law for the State of Texas. It shall also protect the Contractor against claims for injury to, disease or death of workmen engaged in the Work under this Contract which, for any reason, may not fall within the provisions of the Workmen's Compensation Act. Liability limits for this insurance on this Project shall be as specified in the SECTION: SUPPLEMENTARY CONDITIONS.

21.2.3 Comprehensive General Liability Insurance: This insurance, to be on the comprehensive form, shall protect the Contractor against any and all claims arising from injuries to members of the public or damage to property or others arising out of any act or omission of the Contractor, his agents, employees, or subcontractors, in connection with the operation or performance of the Work for and in connections with this Contract.

In addition, this general liability insurance policy shall specifically insure the contractual liability of the Contractor assumed under the provisions for indemnifying the town.

21.2.4 Bodily Injury and Property Damage Insurance: The property damage liability coverage under the comprehensive general liability policy shall contain no exclusion relative to blasting, explosion, collapse of buildings, or damage to underground property. Liability limits for general liability insurance coverage under this policy on this Project shall be as specified in SECTION: SUPPLEMENTARY CONDITIONS.

21.2.5 Comprehensive Automobile Liability Insurance: This insurance, to be on the comprehensive form, shall protect the Contractor against any and all claims or injuries to members of the public and damage to property of others arising from the use of automobiles and trucks in connection with the performance of the Work under this Contract, and shall cover operation on or off the site of the Work of all motor vehicles licensed for highway use, whether they are owned, non-owned, or hired by the Contractor. The policy shall include an "all states" endorsement. Liability limits for automobile liability insurance coverage on this Project shall be as specified in the SECTION: SUPPLEMENTARY CONDITIONS.

21.2.6 Property Insurance: The Contractor shall effect and maintain Builder's Risk Insurance to the full insurable value of the Work, with extended coverage for fire, vandalism, hail, wind, storm, etc., naming the town as co-insured. The Contractor shall provide insurance certificates to the town attesting to the coverage. insurance shall not be modified or cancelled without written notification to the town of such change or cancellation at least fifteen (15) days in advance of such change or cancellation.

22. TESTS AND INSPECTIONS; DEFECTIVE WORK:

22.1 Warranty and Guarantee: The Contractor warrants and guarantees to the town that all work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to the Contractor. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article.

22.2 Access to Work: The Engineer or other representatives of the town, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. The Contractor shall provide proper and safe conditions for such access.

22.3 Tests and Inspections: The Contractor shall give the Engineer timely notice of readiness of the Work for all required inspections, tests or approvals. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) to specifically be inspected, tested or approved, the Contractor shall assume full responsibility therefor, pay all costs in connection therewith and furnish the Engineer the required certificates of inspection, testing or approval, the Contractor shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the town's acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to the Contractor's purchase thereof for incorporation in the Work. The cost of all inspections, tests and approvals in addition to the above which are required by the Contract Documents shall be paid by the town (unless otherwise specified).

22.3.1 All inspections, tests or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to the town.

22.3.2 If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of the Engineer, it must, if requested by the Engineer, be uncovered for observation. Such uncovering shall be at the Contractor's expense unless the Contractor has given the Engineer timely notice of the Contractor's intention to cover the same, and the Engineer has not acted with reasonable promptness in response to such notice.

22.3.3 Neither observations by the Engineer nor inspections, tests or approvals by others shall relieve the Contractor from the Contractor's obligations to perform the Work in accordance with the Contract Documents.

22.4 Uncovering Work: If any portion of the Work is covered contrary to the written request of the Engineer, it must, if requested by the Engineer, be covered for the Engineer's observation and replaced at the Contractor's expense. If the Engineer considers it necessary or advisable that covered Work not contrary to Engineer's request or previously approved must be observed by the Engineer or inspected or tested by others, the Contractor, at the Engineer's request, shall uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, the Contractor shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, (including, but not limited to, fees and charges of engineers, architects, attorneys and other professionals), and the town shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, they may make a claim therefor. If, however, such Work is not found to be defective, the Contractor shall be allowed an increase in the Contract price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the Contractor may make a claim therefor.

22.5 Town May Stop the Work: If the Work is defective, or the Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract, or the Contractor stops the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the town to stop the Work shall not give rise to any duty on the part of the town to exercise this right for the benefit of the Contractor or any other party.

22.6 Correction or Removal of Defective Work: If required by the Engineer, the Contractor shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by the Engineer, remove it from the site and replace it with nondefective Work. The Contractor shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

22.7 One Year Correction Period: If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, the Contractor shall promptly, without cost to the town and in accordance with the town's written instructions, either correct such defective Work, or, if it has been rejected by the town, remove it from the site and replace it with nondefective Work. If the Contractor does not promptly comply with the terms of such instructions, or in any emergency where delay could cause serious risk of loss or damage, the town may have the defective Work (such costs to include, but not be limited to, fees and charges of engineers, architects, attorneys and other professionals). If any such acceptance occurs prior to the Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the town shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, the town may make a claim therefor. If the acceptance occurs after such recommendation, an appropriate amount will be paid by the Contractor to the town.

22.9 Town May Correct Defective Work: If the contractor fails within a reasonable time, after written notice of the Engineer, to correct defective Work or to remove and replace rejected Work as required by the Engineer, or if the Contractor fails to perform the Work in accordance with the Contract Documents, or if the Contractor fails to comply with any other provisions of the Contract Documents, the town may, after seven (7) days written notice to the Contractor, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph, the town shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, the town may exclude the Contractor from all or part of the site, take possession of all or part of the Work, and suspend the Contractor's services related thereto, take possession of the Contractor's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which the town has paid the Contractor but which are stored elsewhere. The Contractor shall allow the town, the town's representatives, agents and employees such access to the site as may be necessary to enable the town to exercise the rights and remedies under this paragraph. All direct, indirect and consequential cost to the town in exercising such rights and remedies will be charged against the Contractor in an amount determined by the engineer, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the town shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, the town may make a claim therefor. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court and arbitration costs and all costs of repair and replacement of work destroyed or damaged by correction, removal or replacement of the Contractor's defective Work. The Contractor shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by the town of the town's rights and remedies hereunder.

23. CHANGES IN THE WORK:

23.1 Modifications and Alterations: The Contractor agrees that the town shall have the right to make modifications, changes and alterations in the arrangement or extent of the work, without affecting the validity of the Contract and the Bonds thereunder.

23.1.1 If the modification or alteration increases the amount of work to be done, and the added work or any part thereof is of a type and character which can be properly and fairly classified under one or more unit price items of the Proposal, then such added work or part thereof shall be paid for according to the amount actually done and at the applicable unit price or prices therefor. Otherwise, such work shall be paid for as herein provided under "Extra Work".

23.1.2 If the modification or alteration decreases the amount of work to be done, such decrease shall not constitute the basis for a claim for damages or anticipated profits on work affected by such decrease. Where the value of omitted work is not covered by applicable unit prices, the Engineer shall determine, on an equitable basis, the amount of :

- (a) credit due the town for contract work not done as a result of an authorized change;
- (b) allowance to the Contractor for any actual loss incurred in connection with the purchase, delivery and subsequent disposal of materials or equipment required for use on the Work as planned and which could not be used in any part of the work as actually built; and
- (c) any other adjustment of the contract Price where the method to be used in making such adjustment is not clearly defined in the Contract Documents.

23.1.3 Except for minor changes or adjustments which involve no adjustment in the Contract Price or other monetary consideration, and with the exception of adjustments of estimated quantities for unit price work or materials to conform to actual pay quantities therefor as hereinafter provided under "Estimated Quantities", all changes and alterations in the terms or scope of the Contract shall be made under the authority of duly executed Change Orders issued and signed by the town and accepted and signed by the contractor.

23.2 Extra Work: The term "Extra Work", as used in this Contract, shall be understood to mean and include all work that may be required by the town to be done by the Contractor to accomplish any change or alteration in or addition to the Work shown by the Plans or reasonably implied by the Specifications and not covered by items, and which is not otherwise provided under "Modifications and Alterations".

23.2.1 It is agreed that the Contractor shall perform all extra work under the direction of the Engineer when and as so ordered in writing by the town. It is further agreed that the compensation to be paid the Contractor for performing extra work shall be determined by one or more of the following methods:

Method A: By agreed unit prices; or

Method B: By agreed lump sum; or

Method C: If neither Method A nor Method B can be agreed upon before the extra work is started, the Contractor shall be paid his actual field cost of the work plus fifteen percent (15%) for the work which he performs with his own forces and/or the Contractor shall be paid the subcontractor's actual field cost of the work plus twenty percent (20%) for work which is performed by his subcontractor or subcontractors.

23.2.2 Where extra work is performed under Method C, the actual field cost of such extra work is hereby defined to be and shall include:

- (a) the payroll cost for all workmen, such as foremen, mechanics, craftsmen, laborers;
- (b) the cost of all materials and supplies not furnished by the town;
- (c) rental for all power-driven equipment at agreed-upon rates for the time actually employed or used in the performance of extra work;
- (d) transportation charges necessarily incurred in connection with any equipment authorized by the Engineer for use on said extra work and which is not already on the job;
- (e) all power, fuel, lubricants, water, and similar operating expenses;
- (f) all incidental expenses incurred as a direct result of such extra work, including sales or use taxes on materials, payroll taxes, and the additional premiums for construction bonds, workmen's compensation, public liability and property damages, and other insurance required by the Contract where the premiums therefor are based on payroll and materials costs.

23.2.3 The Engineer may direct the form in which the actual field cost shall be kept, and may also specify in writing before the work commences, the method of doing the work and the type and kind of machinery and equipment, if required, which shall be used in the performance of extra work under Method C. If machinery or heavy construction equipment is required for extra work, the authorization and basis for the use thereof shall be stipulated in the written extra work order. The applicable "plus" percentage (15% or 20%) of the actual field cost to be allowed and paid to the Contractor shall constitute full compensation for profit, overhead, superintendence, field office expense, and all other elements of cost not embraced within the actual field cost as herein defined.

23.2.4 No claim for extra work of any kind will be allowed unless ordered in writing by the town prior to commencement of said extra work. In case any orders or instructions, either oral or written, appear to the Contractor to involve extra work for which he should receive compensation, he shall make a written request to the town for a written order authorizing such extra work. Should a difference of opinion arise as to what does or does not constitute extra

work, or concerning the payment thereof, and the Engineer insists on its performance, the Contractor shall proceed with the Work after making a written request for a written extra work order and shall keep an accurate account of the actual field cost thereof as provided for Method C in the foregoing paragraph.

23.3 Extra Work a Part of Contract: If extra work is performed in accordance with the provisions of this Contract, such extra work shall be considered a part hereof and subject to each and all terms and conditions of said Contract.

24. PAYMENTS TO CONTRACTOR AND COMPLETION:

24.1 Estimated Quantities: Any and all estimated quantities stipulated in the Proposal under unit price items are approximate and are to be used only:

- (a) as a basis for estimating the probable cost of the Work, and
- (b) for the purpose of comparing the proposals submitted for the Work.

It is understood and agreed that the actual amounts of work done and materials furnished under unit price items may differ from such estimated quantities and that the basis of payment for such work and materials shall be the actual amount of work done and materials furnished in each case. The Contractor agrees that he will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the amounts estimated therefor in the Proposal or other Contract Documents.

24.2 Monthly Estimates and Payments: On or about the first day of each month, the Contractor will make an approximate estimate of the value of work done in conformity with the Plans and Specifications during the previous calendar month and of unused materials delivered for, and stored on the site of, the Work. The Contractor shall submit the estimate to the Engineer and furnish such detailed information as he may request to aid him in the review and recommendation for approval of monthly estimates. After each such estimate has been approved by the town (and any Federal or State funding agency), the town shall pay to the Contractor ninety percent (90%) of the amount of such estimated sum. For Contract amounts equal to or greater than \$400,000, the town will either place the entire retainage in an interest bearing account, or reduce the amount of retainage to five percent (5%).

24.2.1 It shall be understood that payments made by the town for materials stored on the site shall be based only upon the actual cost of materials to the Contractor, and shall not include any overhead or profit to the Contractor.

24.2.2 Partial payment shall in general include only completed units or lump sum items. If the Contractor desires payment for partially completed lump sum items, he shall submit an appropriate cost breakdown of such items prior to commencing Work on the Project. The Engineer will review the itemized breakdown and if he agrees with the breakdown, partial

payments will be made accordingly. If the Engineer does not agree with the breakdown for any reason whatsoever, no partial payment will be made for such lump sum items.

24.3 Placing Work in Service: If desired by the town, portions of the Work may be placed in service when completed and the Contractor shall give proper access to the Work for this purpose; but such use and operation shall not constitute an acceptance of the Work, and the Contractor shall be liable for defects due to faulty construction until the entire Work under this Contract is finally accepted and for one year thereafter as stipulated under the Paragraphs hereinbefore which address defective work.

24.4 Completion and Acceptance of Work: On completion of the Work, the Engineer shall:

- (a) satisfy himself, by examination and tests, that the Work has been fully and finally completed in accordance with the Plans, Specifications and Contract, and
- (b) report such completion to the town Council.

24.4.1 Before final acceptance by the town of the Work, the Contractor shall submit to the town a notarized affidavit, in duplicate, stating under oath that all subcontractors, vendors and other persons or firms who have furnished or performed labor or furnished or performed labor or furnished materials for the Work have been fully paid or satisfactorily secured. Such affidavit shall bear or be accompanied by a statement, signed by the surety company who provided the Performance and Payment bonds for the Work, to the effect that said surety company consents to final payment to the Contractor being made by the town.

24.5 No Waiver of Rights: Neither the inspection by any of the town's officials, employees, or agents, nor any order by the town for payment of money, or any payment for, or acceptance of, the whole or any part of the Work by the town, nor any extension of time, nor any possession taken by the town or its employees, shall operate as a waiver of any provisions of this Contract, or of any power herein reserved to the town or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach.

24.6 Final Estimate and Payment: After official approval and acceptance of the Work by the town the Contractor shall prepare a final estimate of the Work done under this Contract and the value thereof. Such final estimate shall be submitted to the town after its preparation has been approved and authorized as aforesaid; and the town shall, after said final estimate is made and certified, pay the entire sum so found to be due hereunder, after deducting all amounts to be kept and retained under any provision of this Contract. All prior estimates and payments shall be subject to correction in the final estimate and payment; but in the absence of error or manifest mistake, it is agreed that all estimates, when approved by the town, shall be conclusive evidence of the work done and materials furnished.

24.7 Release of Liability: The acceptance by the Contractor of the last payment shall operate as, and shall be, a release to the town and every officer and agent thereof, from all claims and

liability hereunder for anything done or furnished for, or relating to the Work, or for any act or neglect of the town or of any person relating to or affecting the Work.

SUPPLEMENTARY CONDITIONS OF AGREEMENT

1. **GENERAL DESCRIPTION OF WORK:** The work to be performed under this Contract includes the furnishing of all supplies and appurtenances; providing all construction plant, equipment and tools; performing all work necessary for construction of various utility improvements in Fairview.
2. **CONTRACT SPECIFICATIONS:** The Specifications which are bound herewith and which shall govern the materials furnished and the work to be performed in the construction of the work under this Contract and based thereon, are identified and indexed in the Table of Contents at the beginning of this volume of the Contract Documents.
3. **COPIES OF SPECIFICATIONS:** The Contractor will be furnished, without cost to him, five (5) copies of all Specifications enumerated in the foregoing paragraphs 2 and 3, together with any and all addenda thereto. The Contractor shall keep one copy of all such Specifications constantly accessible on the work site.
4. **LIQUIDATED DAMAGES:** Should the Contractor fail to complete the work within the required annual contract time, or within such extra time as may have been allowed by extension, the Town will deduct from any moneys due or coming due the Contractor, the sum of Three Hundred Dollars (\$300.00) for each calendar day that the work shall remain uncompleted. This sum shall be considered and treated not as a penalty but as fixed, agreed and liquidated damages due the Town from the Contractor for reasons of inconvenience to the public, added cost of engineering, administration, supervision, inspection and other items which have caused an expenditure of public funds resulting from his failure to complete the work within the time specified in the Contract.
6. **INSURANCE:** The Contractor shall provide Certificates of Insurance in accordance with Paragraph 21.2 of the GENERAL CONDITIONS. Insurance coverage shall be in the amounts specified below:

6.1 Workmen's Compensation

A. Definitions:

Certificate of cover ("certificate"). A copy of a certificate of insurance, a certificate of authority to self insure issued by the commission, or a coverage agreement (TWCC - 81, TWCC - 82, TWCC -83, or TWCC - 84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project - includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by Town.

Persons providing services on the project ("subcontractor" in Texas Labor Code § 406.096) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other services related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

- B. The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011 (44) for all employees of the contractor providing services on the project, for the duration of the project.
- C. The Contractor must provide a certificate of coverage to the Town prior to being awarded the Contract.
- D. If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the Town showing that coverage has been extended.
- E. The contractor shall obtain from each person providing a service on a project, and provide to the Town:
 - (1) a certificate of coverage, prior to that person beginning work on the project, so the Town will have on file certificates of coverage showing coverage for all persons providing services on the project; and
 - (2) no later than seven days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
- F. The Contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.
- G. The Contractor shall notify the Town in writing by certified mail or personal delivery, within 10 days after the Contractor knew or should have known, of any changes that materially affects the provision of coverage of any person providing services on the project.

- H. The Contractor shall post on each project site a notice, in the text form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered and stating how a person may verify coverage and report lack of coverage.
- I. The Contractor shall contractually require each person with whom it contracts to provide services on a project, to:
- (1) provide coverage, based on proper reporting of classification codes, and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011 (44) for all of its employees providing services on the project, for the duration of the project;
 - (2) provide to the Contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;
 - (3) provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - (4) obtain from each other person with whom it contracts, and provide to the Contractor:
 - (a.) a certificate of coverage, prior to the other person beginning work on the project; and
 - (b.) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - (5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;
 - (6) notify the Town entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
 - (7) contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificate of coverage to be provided to the person for whom they are providing services.
- J. By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Town that all employees of the

Contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreement will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

K. The Contractor's failure to comply with any of these provisions is a breach of Contract by the Contractor which entitles the Town to declare the contract void if the Contractor does not remedy the breach within ten days after receipt of notice of breach from the Town.

L. A Contractor Shall:

- (1) provide coverage for its employees providing services on a project, for the duration of the project based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements;
- (2) provide a certificate of coverage showing workers' compensation coverage to the Town prior to beginning work on the project;
- (3) provide the Town, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project;
- (4) obtain from each person providing services on a project, and provide to the Town:
 - (a) a certificate of coverage, prior to that person beginning work on the project, so the Town will have on file certificates of coverage showing coverage for all person providing services on the project; and
 - (b) no later than seven days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage ends during the duration of the project;
- (5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;
- (6) notify the Town in writing by certified mail or personal delivery, within 10 days after the Contractor knew or should have known, of any change

that materially affects the provision of coverage of any person providing serviced on the project;

- (7) post a notice on each project site informing all persons providing services on the project that they are required to be covered, and stating how a person may verify current coverage and report failure to provide coverage. This notice does not satisfy other posting requirements imposed by the Act or other commission rules. This notice must be printed with a title in at least 30 point bold type and text in at least 19 point normal type, and shall be in both English and Spanish and any other language common to the worker population. The text for the notices shall be the following text in Figure 2 provided by the commission on the sample notice, without any additional works or changes:

REQUIRED WORKERS' COMPENSATION COVERAGE

"The law requires that each person working on this site or providing services related to this construction project must be covered by workers' compensation insurance. This includes persons providing, hauling, or delivering equipment or materials, or providing labor or transportation or other service related to the project, regardless of the identity of their employer or status as an employee "

"Call the Texas Workers' Compensation Commission at 512-440-3789 to receive information on the legal requirement for coverage, to verify whether your employer has provided the required coverage, or to report an employer's failure to provide coverage"

- (8) contractually require each person with whom it contracts to provide services on a project, to:
- (a) provide coverage based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements for all of its employees providing services on the project, for the duration of the project.
 - (b) provide a certificate of coverage to the Contractor prior to that person beginning work on the project;
 - (c) include in all Contracts to provide services on the project the language in subsection (e) (3) of this rule;
 - (d) provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(e) obtain from each other person with whom it contracts, and provide to the contractor:

(i) a certificate of coverage, prior to the other person beginning work on the project; and

(ii) prior to the end of the coverage showing extension of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(f) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

(g) notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

((h) contractually require each other person with whom it contracts, to perform as required by paragraphs (a) - (h), with the certificate of coverage to be provided to the person for whom they are providing services.

6.2 Employer's Liability Insurance: Liability limits for this insurance shall be not less than the following:

Employer's Liability	\$1,000,000 each person
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6.3 Bodily Injury and Property Damage Insurance: Liability limits for general liability insurance coverage under this policy shall be not less than the following:

Bodily	\$1,000,000 each person \$1,000,000 each accident
Property Damage	\$1,000,000 each accident \$1,000,000 aggregate

6.4 Comprehensive Automobile Liability Insurance: Liability limits for automobile liability insurance coverage under this policy shall be not less than the following:

Bodily	\$1,000,000 each person \$1,000,000 each person
Property Damage	\$1,000,000 each accident

7. LICENSES, PERMITS AND CERTIFICATES: All licenses, permits, certificates, etc., required for and in connection with the work to be performed under the provisions of these Contract Documents shall be secured by the Contractor entirely at his own expense except for any permits required for work to be performed within State Rights-of-Way. These permits will be obtained by the Town from the Texas Department of Transportation.

8. WATER: All water required for and in connection with the work to be performed may be obtained from the Town at no expense. The Town will provide a meter for measuring any water obtained from the Town for execution of the work. Upon completion of the work, the Contractor shall remove all of his temporary service installations. The Contractor shall inform the Utility Superintendent prior to taking water.

9. POWER: All power for lighting, operation of Contractor's plant or equipment, or for any other use as may be required in the execution of the work to be performed under the provision of these Contract Documents shall be provided by the Contractor at his expense.

10. RIGHT-OF-WAY: The Contractor shall confine his construction operations to the street right-of-way as shown on the Plans, and shall use due care in placing construction tools, equipment, excavated materials, pipe materials and supplies, so as to cause the least possible damage to property and interference with traffic. The placing of such tools, equipment and materials shall be subject to the approval of the Engineer.

Where space within the right-of-way is not available for construction plant, the Contractor shall provide, at his own expense, any working area he requires, shall construct and maintain any roadway or other facilities required for this purpose and the cost thereof shall be included in the prices bid for the various items in the Proposal.

11. DAMAGE TO EXISTING STRUCTURES, MATERIALS OR EQUIPMENT: The Contractor will be held responsible for any damage to existing structures, work, materials or equipment because of his operations and shall repair or replace any such damaged structures, work, materials or equipment to the satisfaction of the Town Engineer at no additional cost to the Town.

12. PROTECTION AND MAINTENANCE OF PUBLIC AND PRIVATE PROPERTY: The Contractor shall protect, shore, brace, support and maintain all underground construction uncovered or otherwise affected by the construction work performed by him. All surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, and other surface structures affected by construction operations in connection with the performance of the Contract, together with all sod and shrubs in areas crossed by or adjacent to the right-of-way, shall be maintained and, if removed or otherwise damaged, shall be restored to the original condition thereof as determined and approved by the Town Engineer. All replacements of such underground construction and surface structures or parts thereof shall be made with new materials conforming to the requirements of these Specifications or, if not specified, as approved by the Engineer. The Contractor shall be responsible for all damage to roads, railroads, shoulders, ditches, embankments, culverts, bridges, or other public or private property or facilities, regardless of location or character, which may be caused by moving, hauling, or otherwise transporting equipment, materials or men to or from the work or any part of site thereof, whether by him or his subcontractor or subcontractors. The Contractor shall make

satisfactory and acceptable arrangements with the Town, or with the agency or authority having jurisdiction over, the damaged property or facility concerning its repair or replacement or payment of costs incurred in connection with said damage.

13. **RESPONSIBILITY OF CONTRACTOR FOR EMBANKMENT AND BACKFILL SETTLEMENT:** The Contractor shall be responsible, financially and otherwise, for (a) any and all settlement of trench and other backfill and embankment which may occur from the time of original placement until the expiration of a period of one year from and after the date of final acceptance of the entire Contract under which the backfilling or embankment work was performed, (b) the refilling and repair of all backfill settlement and the repair or replacement to the original or a better condition of all tracks, pavement, top surfacings, driveways, walks, surface structures, utilities, drainage facilities, sod and shrubbery which have been damaged as a result of said settlement or which have been removed or destroyed in connection with replacement operations, and (c) any and all damage claims filed with or court actions brought against the Town for and on account of any damage or damages directly or indirectly caused by said settlement. The Contractor shall make or cause to be made, all necessary backfill or embankment replacements, and repairs or replacements appurtenant thereto, within thirty (30) days from and after due notification by the Town of settlement and resulting damage at any designated locations.

14. **GUARANTY:** The Contractor shall insure and guarantee the satisfactory operation of all the installation, the workmanship and restoration of the project area, including backfill settlement. The project shall be guaranteed to be complete and to function correctly for a period of one year from the date of its acceptance and the Contractor hereby agrees to repair or replace any defective items occurring within that year, free of expense to the Town.

15. **BARRICADES AND LIGHTS:** All open trench and other excavations shall be provided with suitable barriers, signs, and lights to the extent that adequate protection is provided to the public against accident by reason of such open construction. Obstructions, such as material piles and equipment, shall be provided with similar warning signs and lights.

16. **DIVISION OF WORK:** Items for this contract shall be bid as either lump sum or unit price as shown on the summary of quantities in the Proposal. Whenever two or more items about each other, the division of work shall be as defined in the Specifications and as shown on the Plans. If the Specifications do not define the division of work, the Contractor shall make such divisions at his own discretion. It is the intent of these Specifications that the completion of all bid items shall result in the completion of all work shown on the Plans.

17. **MANUFACTURER'S RECOMMENDATION:** When an item of work is stated to be in accordance with or conform to manufacturer's recommendations, that item shall be submitted to the Engineer in writing for approval and shall be done in accordance with the approved method.

18. **QUALITY ASSURANCE:** When manufacturer's names are specified herein, they are used to establish a specific minimum requirement for materials used in construction, performance, and dimensional compatibility. The naming of one manufacture is not intended to show preference, eliminate competition or prohibit other manufacturers from offering equipment conforming to the

requirements of the Contract Documents. The use of "or equal" items shall be done in accordance with Paragraph 18.8 of the GENERAL CONDITIONS.

19. PRE-CONSTRUCTION CONFERENCE: As stated in Paragraph 10 of the GENERAL CONDITIONS, a pre-construction conference will be set to discuss scheduling and coordination of the work under this Contract.

20. EXISTING UTILITIES: Certain pipe lines, sewers, culverts, drains, cables, and other existing subsurface structures in the vicinity of the work to be done are indicated on the Plans according to the best information available to the Town. However, the town does not guarantee the accuracy of the information. Any delay to the Contractor due to encountering pipe lines or structures shall not constitute a claim for payment or an extension of time. The Contractor shall be responsible for contacting the utility companies and arranging for an on-site inspection so that the company representatives may locate all facilities endangered by construction:

The Contractor shall be responsible for protecting such existing utilities and for repairs to such facilities in case of damage to same. Should there be relocations or adjustments of utilities necessary to accommodate construction activities, the Contractor shall cooperate with the Company(s) involved and will coordinate such relocations with the schedule of work herein.

21. PARTIAL USE OF IMPROVEMENTS: The Town, at its election, may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the Technical Specifications, and if in its opinion, each such section is reasonably safe, fit and convenient, for the use and accommodation for which it was intended, provided:

- a. The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.
- b. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
- c. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or poor workmanship.
- d. The period of guarantee stipulated in the Paragraph "Guaranty" of this Section, shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

22. PROTECTION OF TREES AND SHRUBBERY: No trees shall be removed on the right-of-way except where their removal is authorized in writing by the Engineer.

Main tree roots shall not be cut except where they fall within the area to be occupied by the improvements. Excavation shall be done by and where necessary to prevent injury to roots or protected from permanent damage by reason of construction operations. Trimming of standing trees where required shall be as directed by the Engineer. All shrubbery outside of the right-of-way

which is damaged or removed by the Contractor shall be replaced under the directions of and to the satisfaction of the Town Engineer and property owner, by and at the expense of the Contractor.

23. REMOVAL AND REINSTALLATION OF ITEMS: Street signs, street stop signs, mail boxes and other existing items found within construction limits shall without damage be removed, stored and reinstalled in a condition comparable to pre-existing condition. Unless approved by the town, no extra pay shall be given if existing items are damaged by the Contractor and have to be replaced.

24. MAINTENANCE OF LOCAL TRAFFIC: The Contractor shall notify the Town Engineer at least 72 hours in advance of closure to provide ample time for notifying the public and providing detours. When notice of intended closure is given, the Contractor shall give the Town Engineer an estimate of the period of time that closure of the street will be necessary. Detour signs shall be installed at the locations shown on the Plans.

25. DUST CONTROL: Adequate precaution should be taken to insure excessive dust does not become airborne during construction. No separate payment will be made for performing dust control or for the water used for this purpose. The cost of these items shall be subsidiary to other items.

26. JOB SITE CONDITION: During the construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris, and rubbish as is practicable and shall remove same from any portion of the site, if in the opinion of the Town Engineer, such material, debris, or rubbish constitutes a nuisance or is objectionable.

The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need thereof develops.

27. DISPOSAL OF WASTE: All trees, stumps, existing surface, waste concrete and reinforcing and other debris, which result from the Contractor's excavation and operations, shall be removed from the property. All waste or excess earth shall be either removed from the site or neatly spread on the job site in a manner satisfactory to the Town Engineer. The disposal site for all such waste shall be the responsibility of the Contractor unless otherwise instructed by the Town Engineer.

28. FAILURE OF MATERIALS TO MEET TESTING REQUIREMENTS: Should any materials test specified herein fail to meet the minimum requirements specified, the Contractor shall furnish additional testing, by an independent laboratory approved by the Town Engineer, as necessary to satisfy the Town Engineer that the failed condition or material has been corrected.

29. CONSTRUCTION SEQUENCE: The Contractor shall submit to the Engineer for approval his proposed sequence of construction. The Construction Sequence shall be approved by the Engineer prior to starting the work, and shall be in accordance with the above sequence for placement of new facilities into service.

30. RESIDENT PROJECT REPRESENTATIVE: The Town intends to have a Project Inspector to inspect the Work. All pipe bedding will be inspected prior to backfilling, and any backfill over pipe not inspected shall be removed for inspection. The Project Inspector will observe the construction activities and note its conformance with the Plans and Specifications as well as the progress of the Work. The Inspector will notify the Contractor and Engineer of any discrepancies. He shall not authorize any deviations from the Contract Documents or interrupt the Contractor's progression of the Work without specific instructions from the Engineer.

31. STATE AND TOWN SALES TAX: The CONTRACTOR'S attention is directed to Texas House Bill 11 (72nd Legislature, 1st C.S.) which amended the Texas Tax Code Section 151.311 This amendment provides that by the CONTRACTOR entering into a separated contract, the CONTRACTOR will become a seller of materials purchased for the project, which will obviate paying taxes on materials incorporated into the project.

As a seller, the CONTRACTOR purchases materials and issues a resale certificate in lieu of paying the sales tax at the time of purchase. The Town, as an exempt entity, will at the time of the "sale" of the materials to the Town, thereby preclude the Town, and CONTRACTOR, from paying the sales tax on the materials. Execution of the Contract Agreement by the Town shall serve as the CONTRACTOR'S authorization to issue a resale certificate.

Services are not tax exempt. The CONTRACTOR will be required to pay all appropriate taxes for all services as set forth herein.

For purposes of these Contract Documents, the following definitions are provided for Materials and Services:

Materials: Materials are those items which are tax exempt and are items physically incorporated into the facility constructed for the Town. Materials include, but are not limited to, purchased items such as pipe, embedment, the storage tank, concrete, manhole rings and covers and barrel sections, riprap, asphalt, roadbase and subbase, etc.

Services: Services are those items that are not tax exempt and are items used by the CONTRACTOR but which are not physically incorporated into the Town's facility and/or are items which are consumed by construction. Services include, but are not limited to, items such as supplies, tools, concrete forms, scaffolding, temporary storage buildings, the purchase or rental or lease of equipment, skill and labor, etc.

For further information concerning taxes as they relate to materials and services, the CONTRACTOR shall refer to House Bill 11 and/or contact the Texas Comptroller of Public Accounts, Austin, Texas at (800) 252-5555.

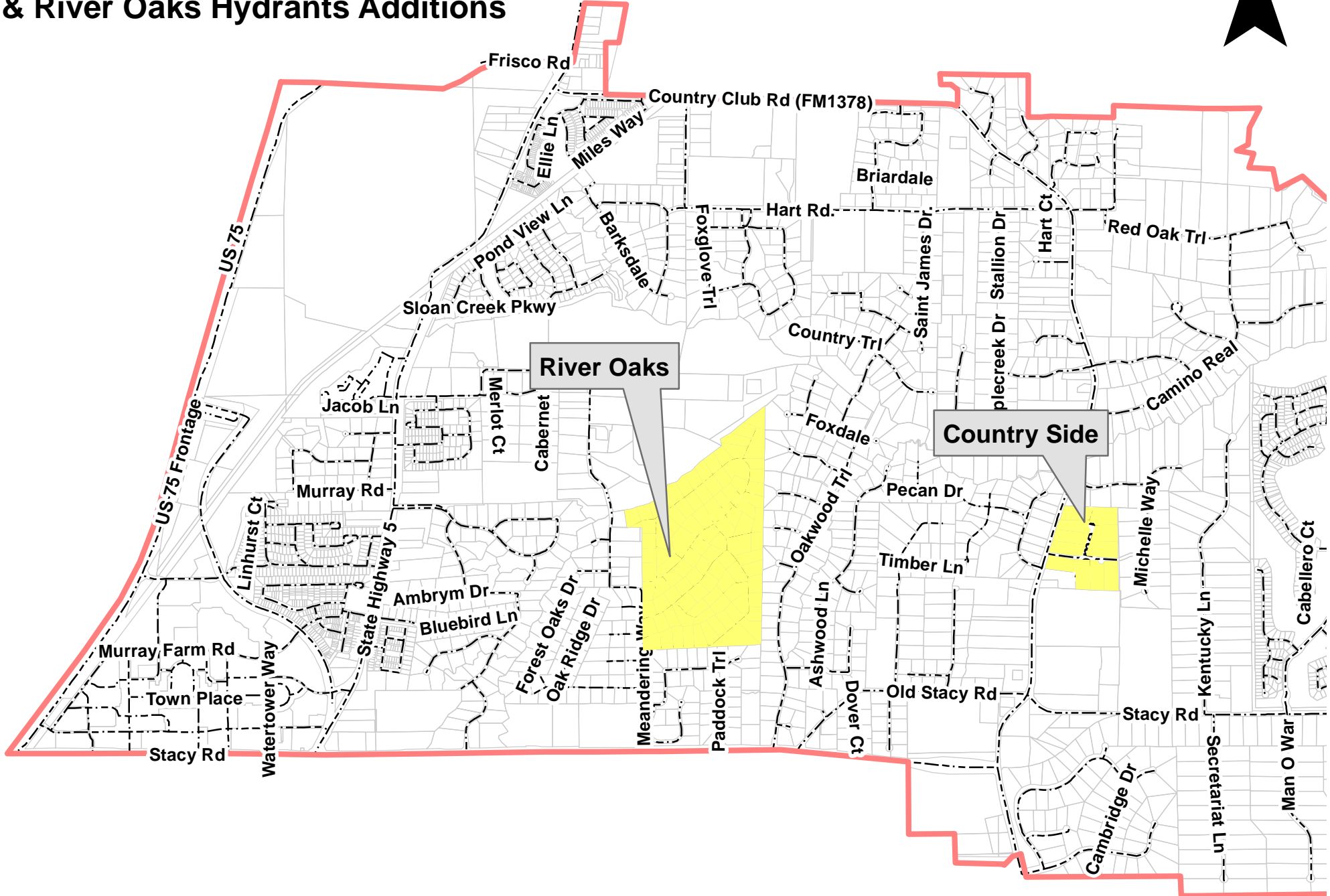
32. WAGE RATES: The Contractor and any subcontractors shall pay not less than the current prevailing wage rates for the Fairview area to all laborers, workmen and mechanics employed by them in the execution of this Contract. The Town will not provide wage rates for this project and will not require submission of documentation of wages.

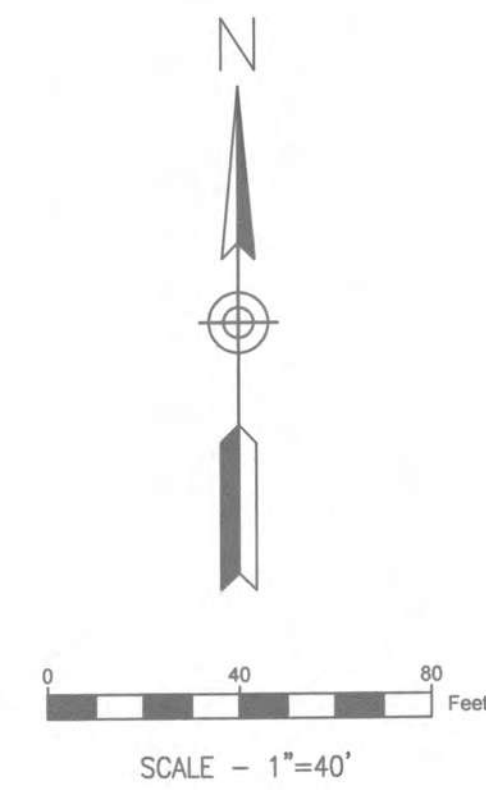
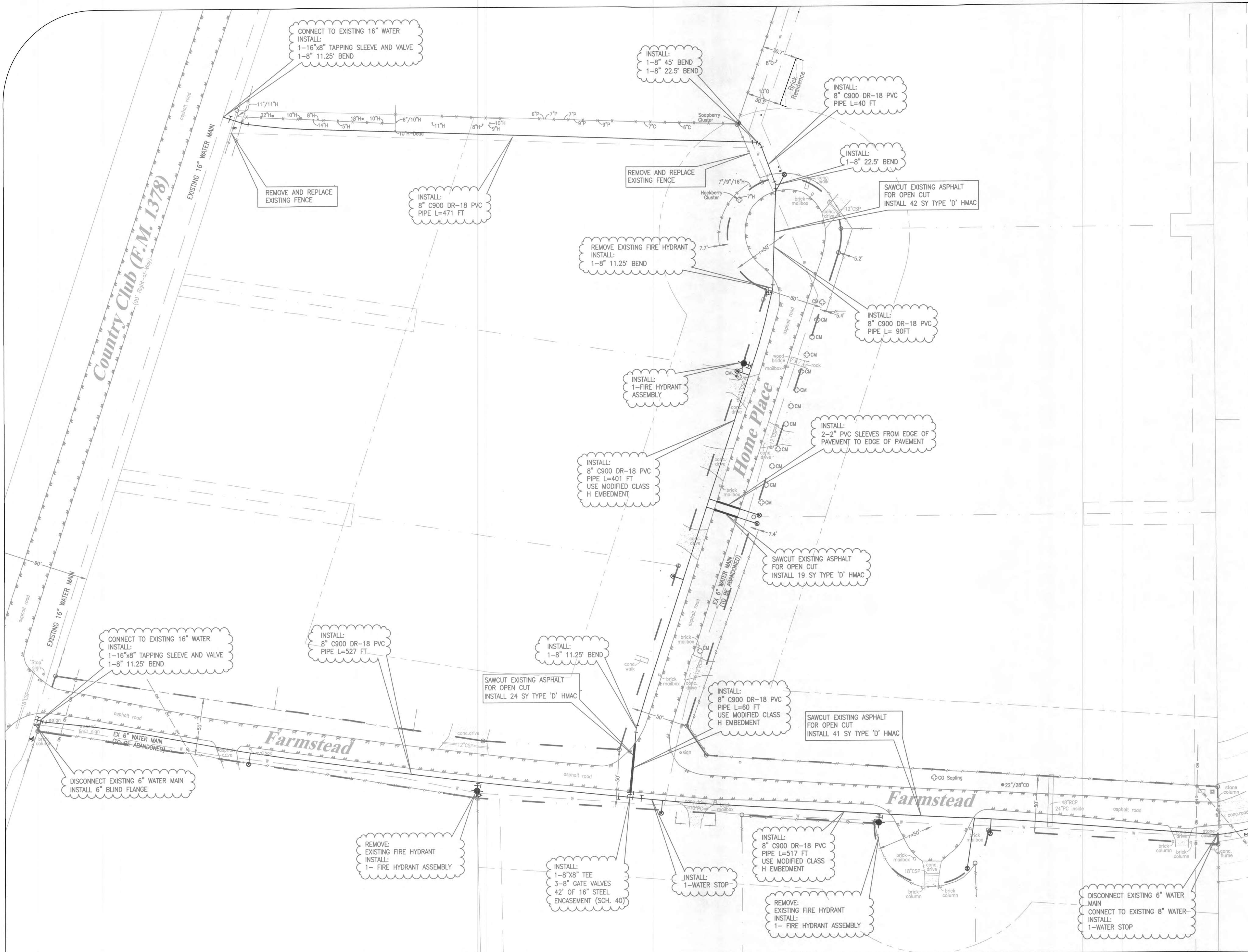
33. CONSTRUCTION STAKING: The Engineer has established a base line on the project, which is shown on the plans. Immediately prior to beginning of construction, the Town's Surveyor

shall traverse the project with the Contractor to determine location of control points and bench marks. The Surveyor shall replace any of these controls and bench marks which may have been disturbed. By using these control points and bench marks the Contractor shall provide all additional construction staking to establish proper line and grade for this project. It shall be the Contractor's responsibility to set any offset control points and bench marks deemed desirable such that, when construction activities disturb the base line, there will remain adequate horizontal and vertical control.

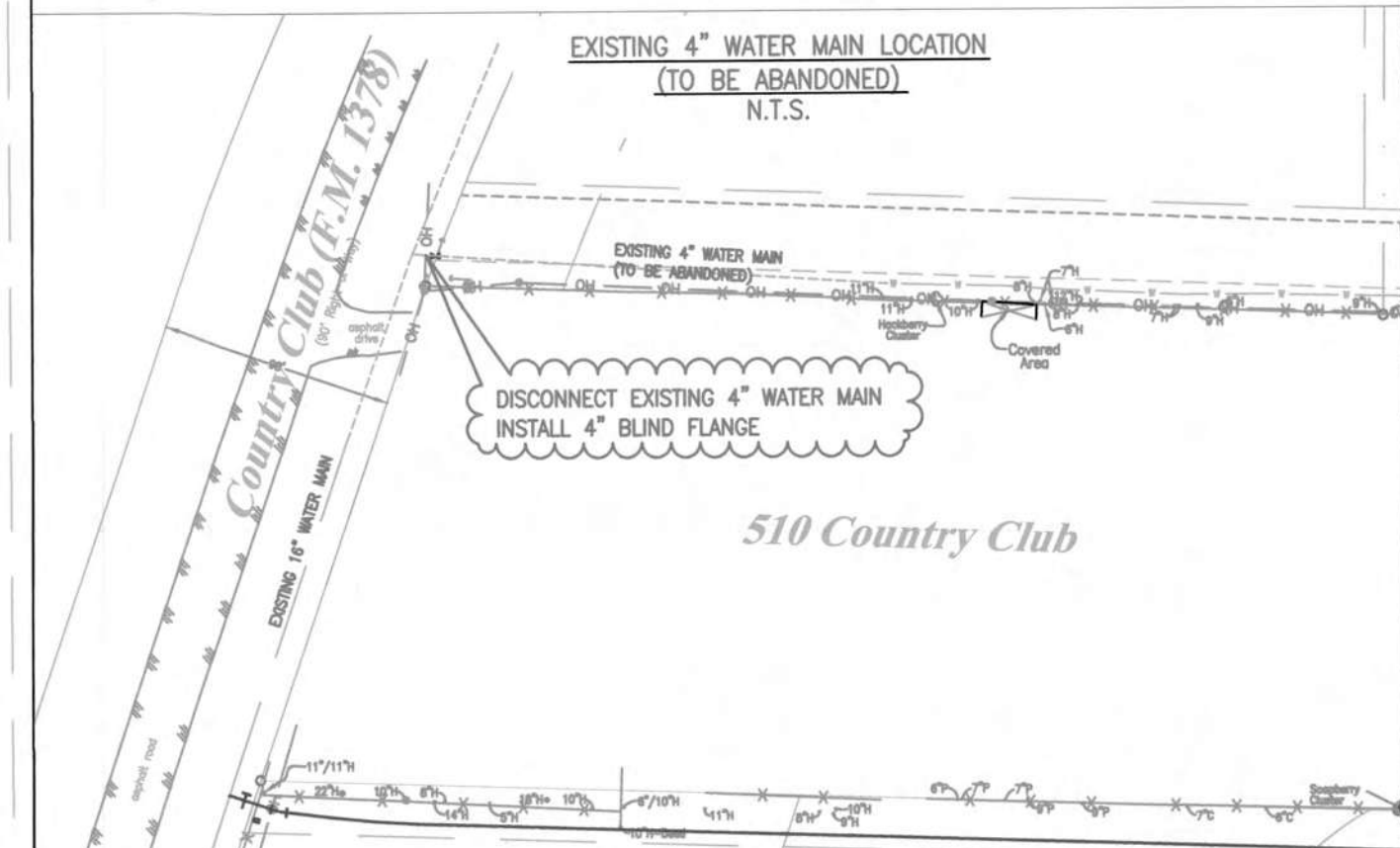
During this offset control staking procedure, the Contractor shall keep the Engineer informed regarding the controls being set. The Engineer may require additional control points if, in his opinion, those being set by the Contractor are not adequate to properly establish line and grade.

Location Map:
Country Side Water Main Replacement
& River Oaks Hydrants Additions





- Notes:
1. All materials, construction and testing shall conform to the NCTCOG Public Works Construction Standards
 2. All 8" Water Mains will be C900 PVC DR-18
 3. Minimum cover shall be 42" for 8" water mains
 4. All MJ fittings shall be Megalug or approved equal
 5. All 2" and smaller water services shall be continuous with no unions allowed between meter and water main
 6. Hydrants shall be CLOW, WATEROUS, or approved equal
 7. Contractor to trench in shallow rock identified in this area, cost will be included in bid
 8. Contractor will field verify the location of existing utilities prior to construction



Tree Legend

CM	Crape Myrtle
H	Hickory
BD	Bass Wood
C	Cedar
P	Pecan
O	Oak
CO	Cottonwood

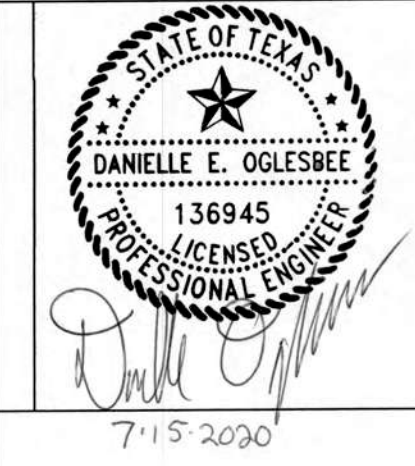
Legend

1"	New Valve
1"	New Hydrant Assembly
1"	Water Meter
1"	Existing Water Valve
1"	Existing Fire Hydrant
1"	Power Pole
1"	Reinforced Concrete Pipe
1"	Corrugated Steel Pipe
1"	Plastic Culvert
1"	Concrete
1"	AT&T Cable Splice Box
1"	Irrigation Control Valve
1"	Sprinkler Control Valve Box
1"	Gas Marker
1"	Existing Water Line
1"	New 8" Water Line
1"	Right of Way
1"	Edge of Asphalt Road
1"	Overhead Lines
1"	Wire Fence
1"	Wood Fence
1"	Guy

The Town of
Fairview

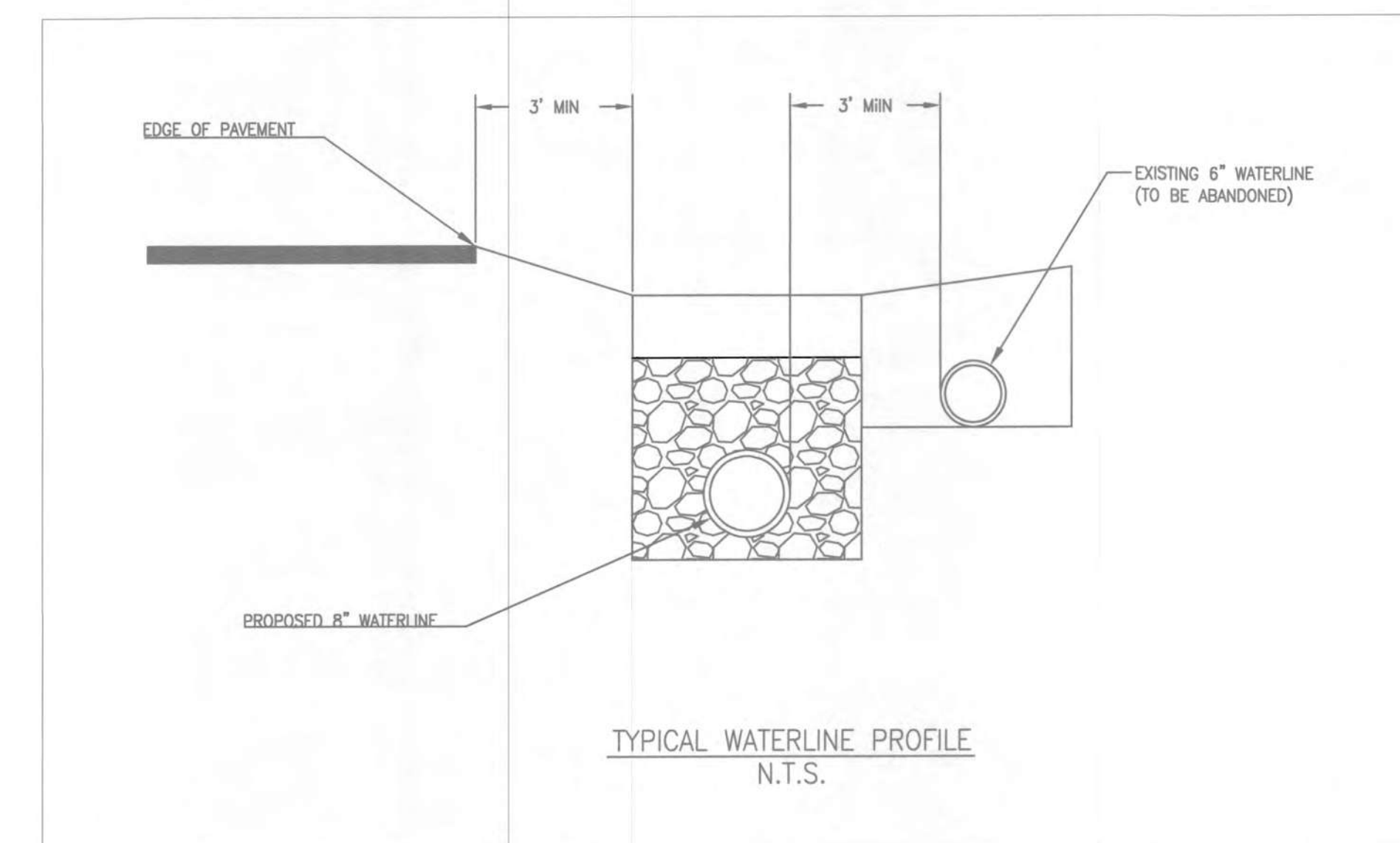
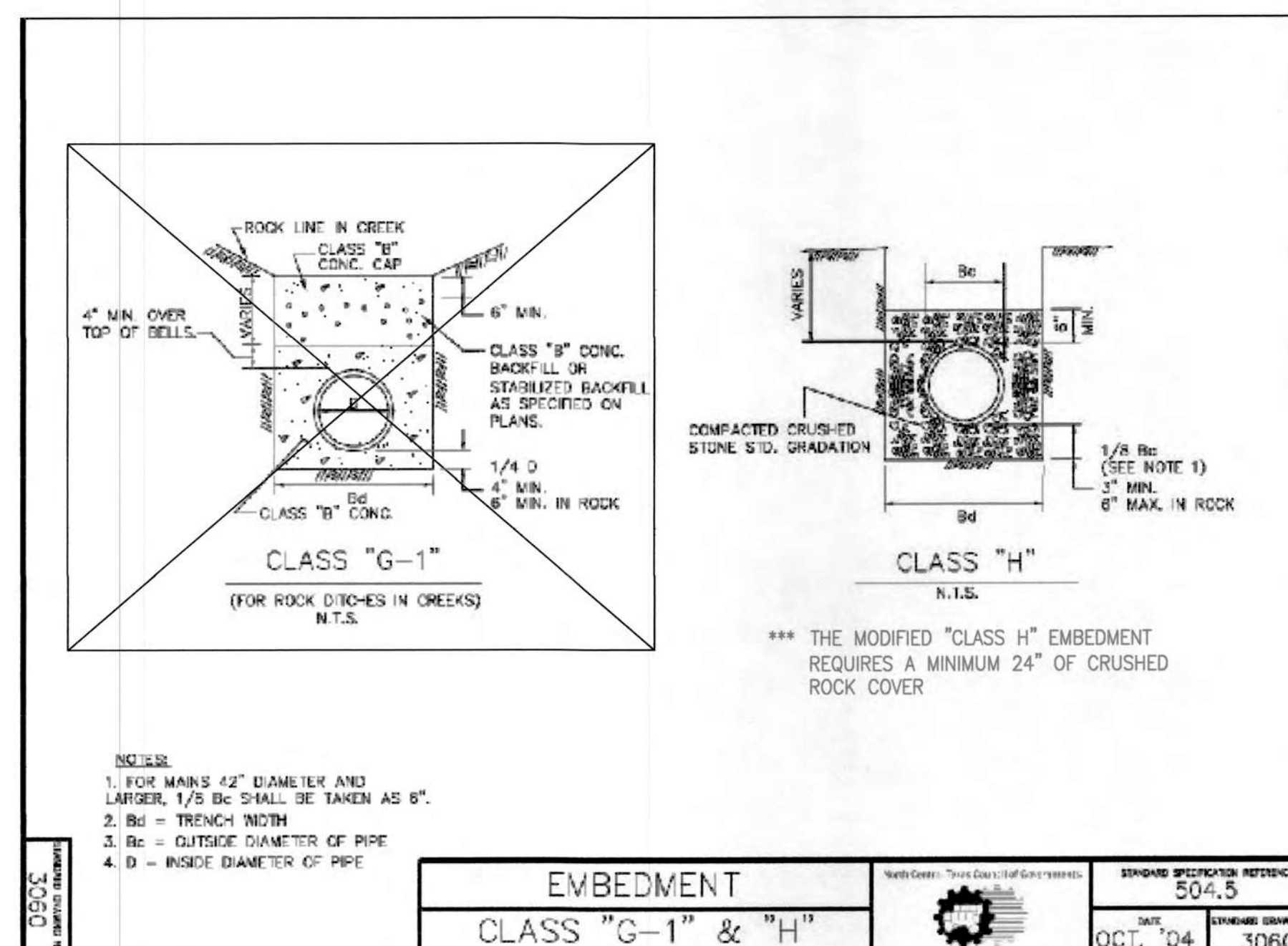
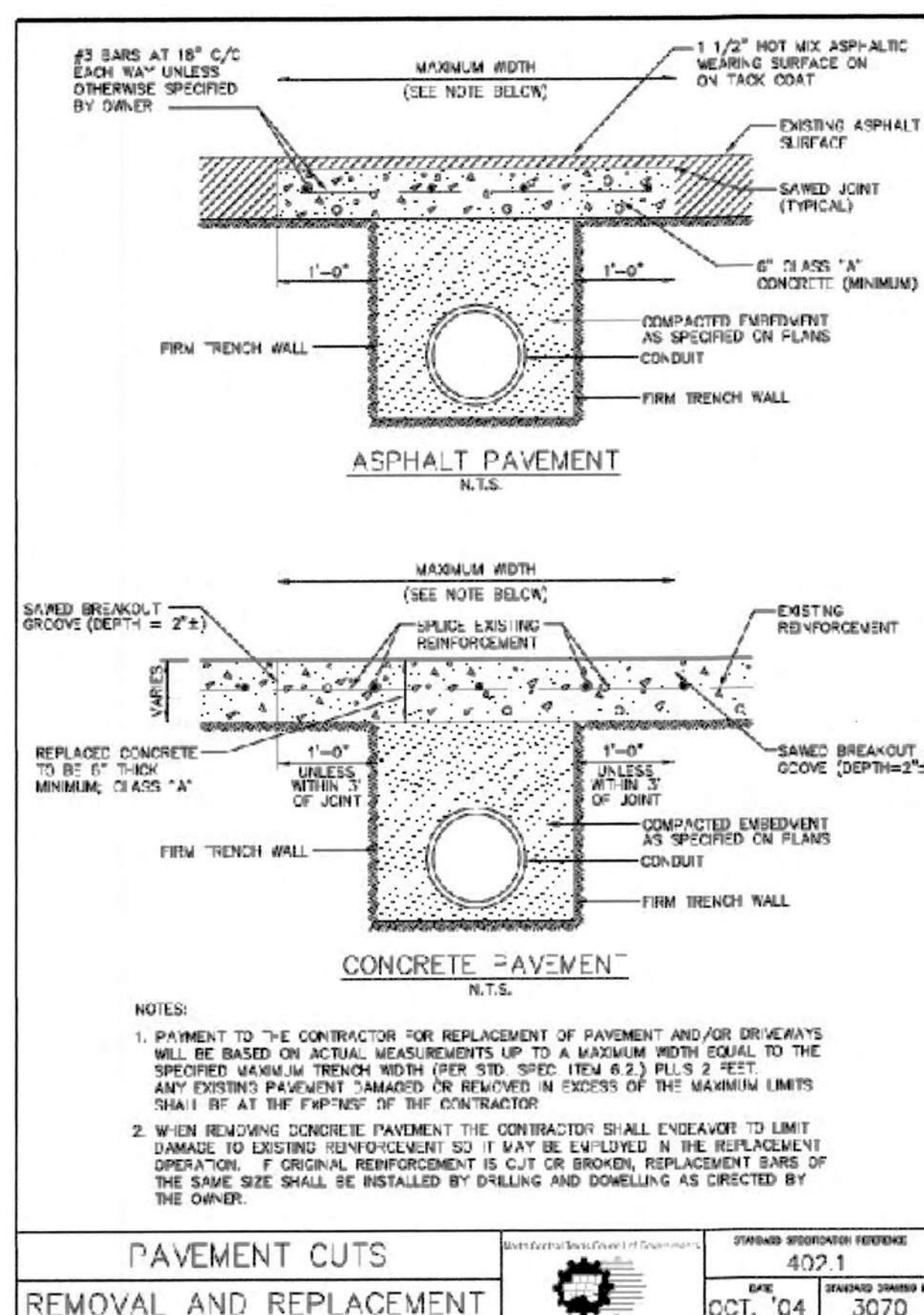
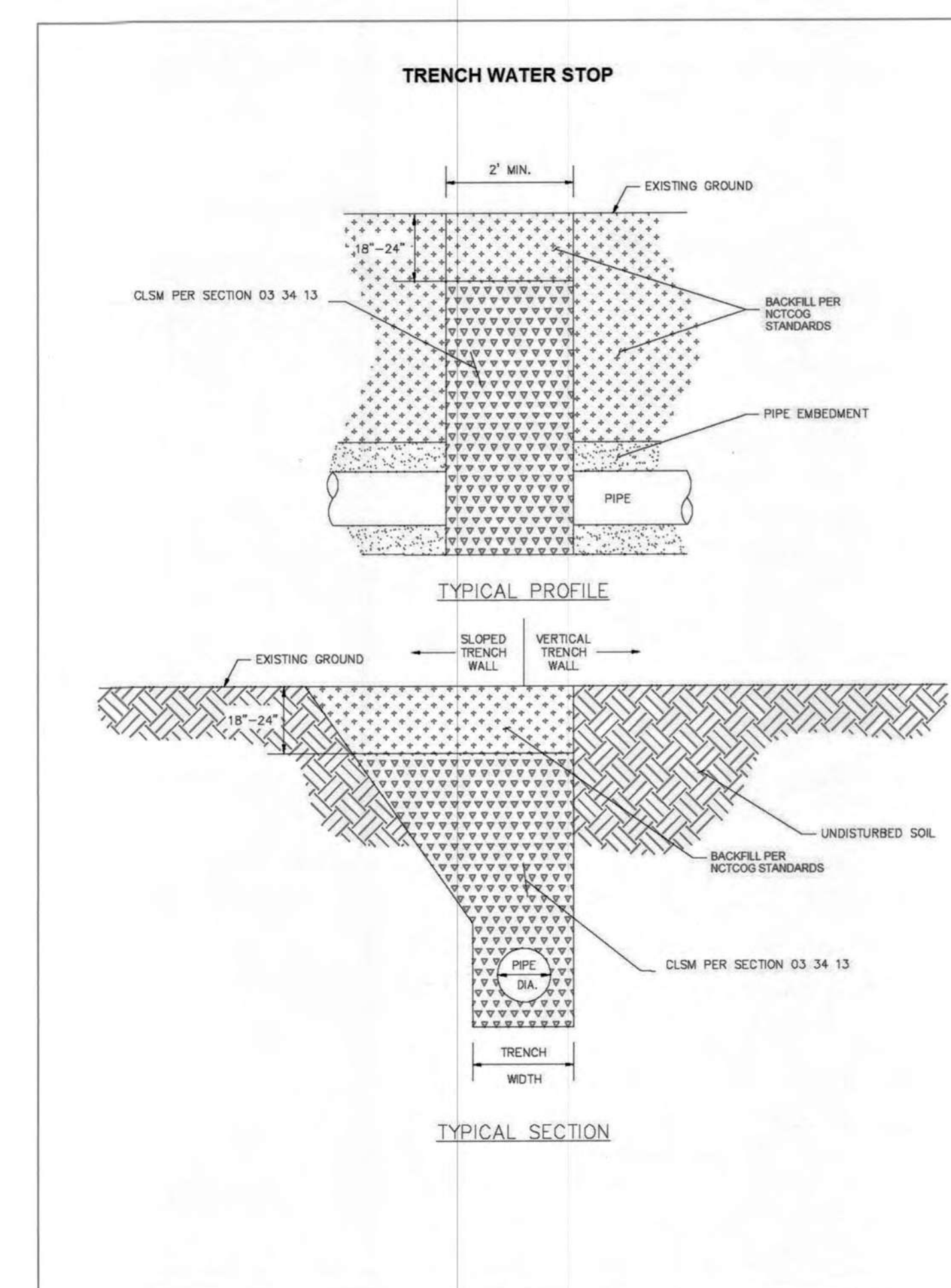
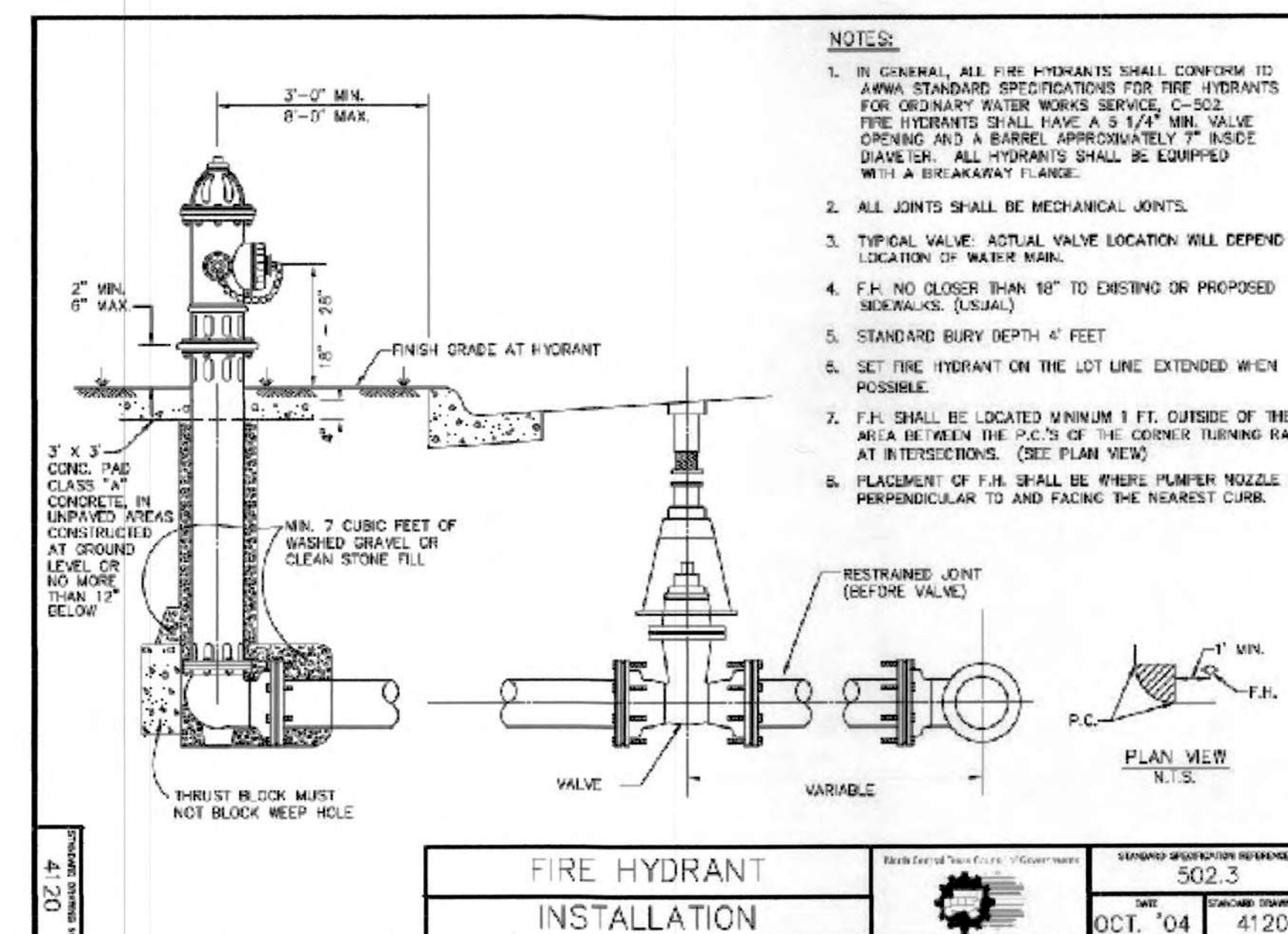
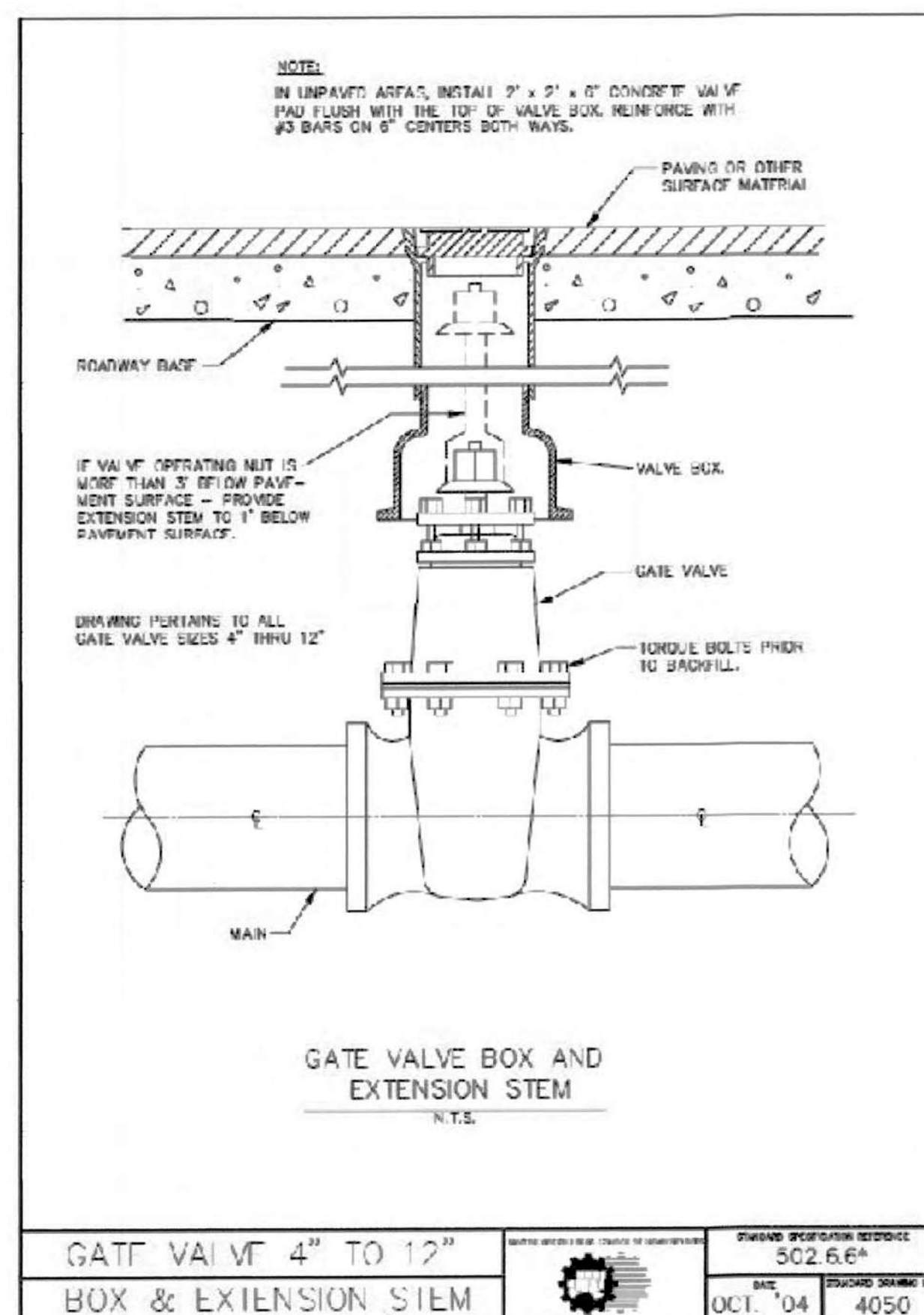


Country Side Water Line Replacement



Designed by:
Danielle Oglesbee, PE 7-15-2020

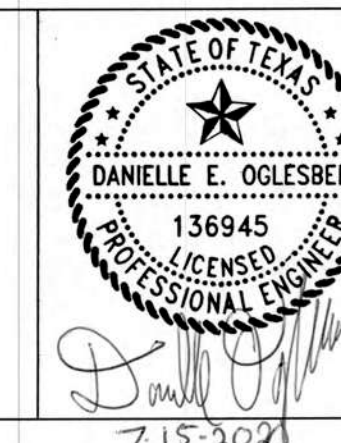
Reviewed by:
James Chancellor, PE 7-15-20



The Town of
Fairview



Country Side Water Line
Replacement



Designed by:
Danielle Oglesbee, PE

Reviewed by:
James Chancellor, PE

7-15-2020

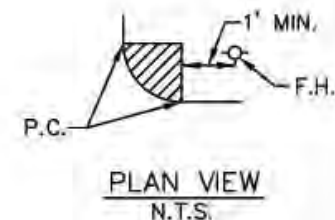
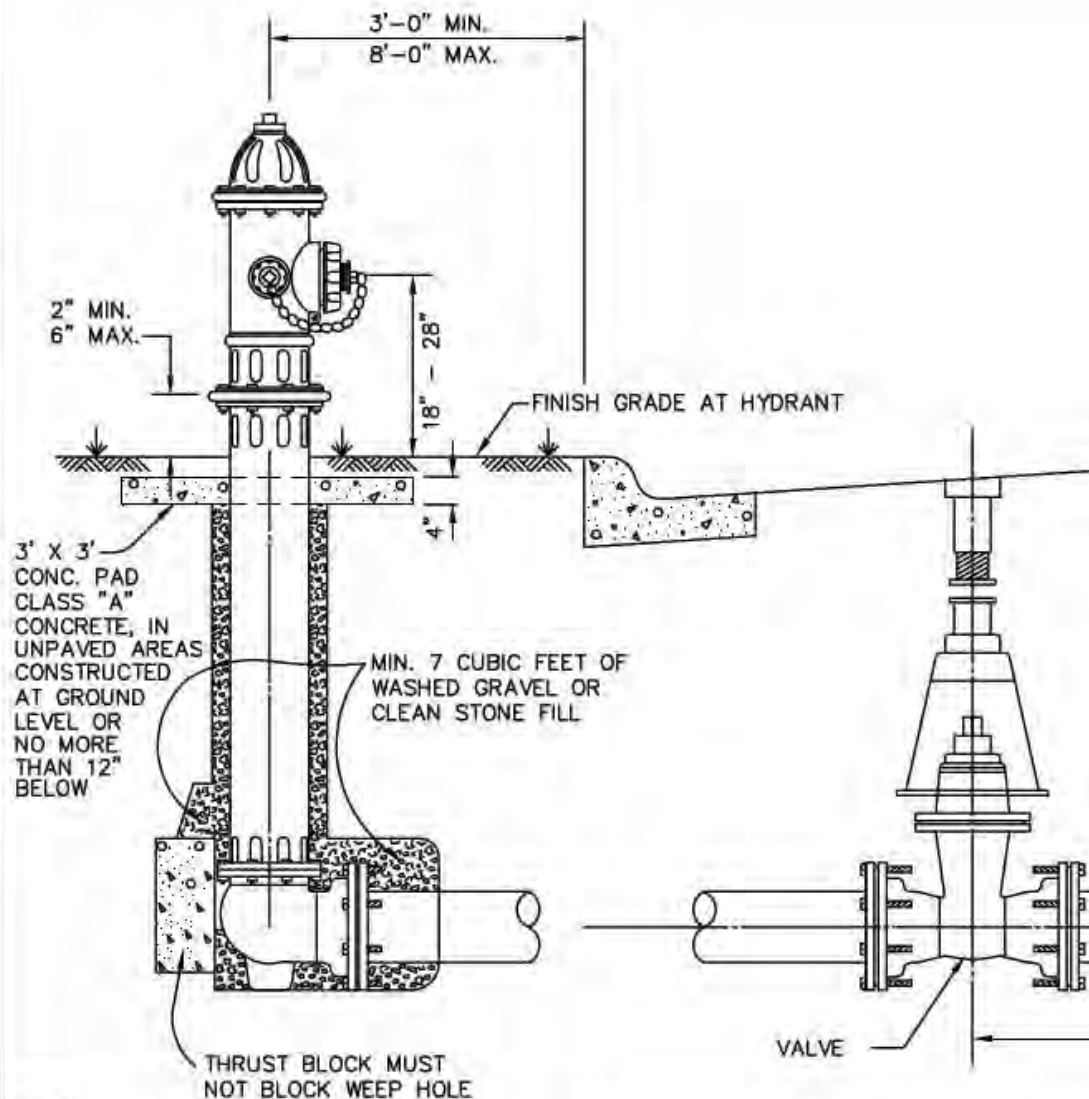
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2 of 2

River Oaks Hydrant Additions

- Proposed Hydrants
- Fairview Streets
- Fairview Parcels
- Existing Hydrants





NOTES:

1. IN GENERAL, ALL FIRE HYDRANTS SHALL CONFORM TO AWWA STANDARD SPECIFICATIONS FOR FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE, C-502. FIRE HYDRANTS SHALL HAVE A 5 1/4" MIN. VALVE OPENING AND A BARREL APPROXIMATELY 7" INSIDE DIAMETER. ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE.
2. ALL JOINTS SHALL BE MECHANICAL JOINTS.
3. TYPICAL VALVE: ACTUAL VALVE LOCATION WILL DEPEND ON LOCATION OF WATER MAIN.
4. F.H. NO CLOSER THAN 18" TO EXISTING OR PROPOSED SIDEWALKS. (USUAL)
5. STANDARD BURY DEPTH 4' FEET
6. SET FIRE HYDRANT ON THE LOT LINE EXTENDED WHEN POSSIBLE.
7. F.H. SHALL BE LOCATED MINIMUM 1 FT. OUTSIDE OF THE AREA BETWEEN THE P.C.'S OF THE CORNER TURNING RADII AT INTERSECTIONS. (SEE PLAN VIEW)
8. PLACEMENT OF F.H. SHALL BE WHERE PUMPER NOZZLE IS PERPENDICULAR TO AND FACING THE NEAREST CURB.

STANDARD DRAWING NO
4120

FIRE HYDRANT INSTALLATION

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
502.3

DATE
OCT. '04

STANDARD DRAWING NO
4120

Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe. Bituminous protected corrugated metal pipe or plates may be spray-coated in the field with a minimum dry film thickness of 0.05-in. prior to installation.

501.13.8. Section Properties. Section properties shall conform to those specified in AASHTO Standard Design Specifications for Highway Bridges, Section 16, Steel Tunnel Liner Plates.

501.13.9. Rejection. Structures on which the spelter coating has been bruised or broken either in the shop or in shipping or which shows defective workmanship shall be rejected. The requirement applies not only to the individual plates but also to the shipment on any contract as a whole. Among others, the following defects are specified as constituting poor workmanship, and the presence of any or all of them in any individual liner plate or in general in any shipment shall constitute sufficient cause for rejection:

- (1) uneven laps,
- (2) elliptical shaping,
- (3) variation from a straight centerline,
- (4) ragged edges,
- (5) unevenly lined or spaced bolt holes,
- (6) illegible brands,
- (7) bruised, scaled or broken spelter coating, or
- (8) dents or bends in the metal itself.

501.14. POLYVINYL CHLORIDE (PVC) WATER PIPE

501.14.1. General. Unplasticized polyvinyl chloride (PVC) water pipe shall meet the requirements of AWWA C900, sizes 4-in. to 60-in. diameter. In accordance with C900, Section III.A, purchaser options and alternatives shall be provided by the specifier, including working, occasional, and recurring surge pressures, pressure class, or dimension ratio (DR). Purchaser options and alternatives shall be specified in the supplemental conditions, plans, or technical specifications. Laying lengths shall be 20-ft \pm 1-in.

501.14.2. Approvals. PVC water pipe shall be approved by the Underwriters' Laboratories and shall be accepted by the State Fire Insurance Commission for use in water distribution systems in cities and towns of Texas. PVC water pipe shall also bear the seal of approval (or "NSF" mark) of the National Sanitation Foundation Testing Laboratory for potable water pipe.

501.14.3. Dimension Ratio. PVC water pipe shall meet the dimension ratios (DR's) and physical dimensions as shown in AWWA C900. The pressure classification refers to the maximum hydrostatic pressure to which the pipe shall be subjected in normal operations.

501.14.4. Joints. PVC water pipe shall be furnished with gasketed joints. Lubricant used for pipe and fittings assembly shall be nontoxic and in conformance to NSF61. The lubricant shall have no detrimental effect to either gasket or pipe.

501.14.5. Fittings. Fittings for PVC water pipe shall conform to one of the standards Table 501.14.5.(a) PVC Water Pipe Fittings unless otherwise specified. Fittings joints shall be push-on, integrally restrained, or mechanical. Bolts and nuts for mechanical and integrally restrained fittings joints shall be of a high-strength, corrosion-resistant, low-alloy steel and shall conform to ASTM A325 High Strength Bolts for Standard Steel Joints (Type 3) or shall be stainless steel in accordance with ASTM A304.

Table 501.14.5.(a) PVC Water Pipe Fittings Standards

Standard	Topic
AWWA C110 (ANSI A21.10)	Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in. for Water
AWWA C153	ANSI Standard for Ductile-Iron Compact Fittings for Water Service
AWWA C907	Polyvinyl Chloride (PVC) Pressure Fittings for Water—4 in. Through 8 in.
AWWA C900	Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4 in. Through 12 in. or Water Distribution

Included shall be all excavation, castings, reinforcing steel, concrete, backfill, and other materials, and all appurtenances for a complete and functional unit.

Cleanouts shall not be measured and paid for according to depth.

The contract price shall be the total compensation for the furnishing of all labor, materials, tools, equipment and incidentals necessary to complete the work, including earth excavation, disposal of surplus materials and backfill, all in accordance with the plans and these specifications.

502.3. FIRE HYDRANTS

502.3.1. Materials. Fire hydrants which are to be installed as shown on the plans or to be furnished for general installation shall be dry-barrel traffic model that conform to AWWA C502 Standard for Dry-Barrel Fire Hydrants, except for changes and/or additions specified as follows or as shown on the plans or in the contract specifications. All hydrant components covered by NSF-61 must comply with NSF-61 requirements.

502.3.1.1. Supplementary Details Specified. The type of shut-off may be either of the following:

- (1) Compression type with the flow.
- (2) Compression type against the flow.

The valve action shall provide positive shut-off at minimum closing torque. Wedge action closing gates shall not be permitted, and the scissors type main valves shall not be permitted unless approved by the OWNER.

Inlet connection shall be mechanical joint unless otherwise specified and shall be for a 6-in. cast iron pipe with minimum net valve opening of 5¼-in. unless otherwise specified.

Delivery classification: number and size of pumper and hose nozzles shall be as shown on the plans and contract specifications.

Bury length: ground to bottom of connecting pipe shall be 4-feet or as specified by the OWNER.

Diameter outlet connections: hose and pumper nozzle threads shall be of the size and type shown on the plans.

Gaskets shall be furnished on all nozzle caps and shall be long life, black rubber meeting ASTM D2000, Classification System for Rubber Products in Automotive Applications, or equal.

Unless otherwise specified in the special provisions or in the plans, the operating and nozzle cap nuts shall be tapered pentagon nuts with faces not less than 1-in. high.

Drain valve and outlet: hydrants shall be equipped with a minimum of two drainholes and provided with an automatic and positively operating noncorrodible drain or dip valve so as to drain the hydrant completely when the main valve is shut.

Direction to open is to be specified in the contract specifications. Number of turns to open shall be in accordance with AWWA Standard C502.

The outside of the hydrant shall be thoroughly cleaned and thereafter painted in the shop with one coat of primer. After shop priming, a finish coat of colored paint as specified by OWNER shall be applied to the exterior above ground surfaces.

502.3.1.2. Breakable Type Hydrants. Breakable or Sleeve Type Couplings. The barrel of the hydrant between the base and the nozzle section must be made in two parts connected by a swivel flange or breakable flange which shall permit facing of the nozzles in any desired direction in increments of 45° or less. The complete hydrant shall be of such design that when the hydrant barrel is broken through traffic collision or otherwise, it may be replaced without disturbing the base of the hydrant.

The materials used for gaskets between the upper and lower barrels and the base and nozzle section shall be compounded to conform to ASTM D2000 or an equal material that shall have OWNER approval prior to substitution unless otherwise specified in the plans.

Provision shall be made in the design of the stem to disconnect the stem from the hydrant parts above the standpipe break point in the event of traffic accidents. Design of the coupling shall be such that when the coupling is broken, no parts shall come loose and fall into the hydrant barrel, and the break shall not occur through the pins or bolts holding the coupling to the stem.

502.3.1.3. Main Valve Seats. Main valve seats shall be of such design that incorrect positioning is impossible.

502.3.1.4. Nozzle Cap Chains. When required by the OWNER, the nozzle cap chains shall be in accordance with AWWA C502 Dry-Barrel Fire Hydrants.

502.3.1.5. Flanges. All flanges other than barrel flanges shall be equipped with mechanical joints. Gland bolts shall be high-strength, low-alloy, corrosion-resistant steel conforming to ASTM A325 Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength, Type 3.

502.3.1.6. Operating Stems. The spindle of the operating stem and the stem nuts for hydrants having the operating threads located in the barrel or waterway shall be manganese bronze, Everdur or other high-quality noncorrodible metal. Barrel bolts and nuts shall meet the requirements of ASTM A307 Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

All working parts in the waterway, except for sliding stem support mechanisms, shall be bronze-to-bronze or bronze-to-iron unless otherwise specified in the special provisions or in the plans.

502.3.1.7. O-Ring. Hydrant stem packing boxes, where needed, shall be provided with O-ring grooves and sealed with O-rings. O-rings shall be furnished in lieu of stem packing. They shall be of the double O-ring type designed so that the rubber rings shall move against a bronze, stainless steel or other noncorrodible metal surface. O-ring shall be in accordance with ASTM D2000, Classification System for Rubber Products in Automotive Applications.

502.3.1.8. Extensions. Fire hydrants shall be designed to accept a 6 in., 12 in. or 18 in. extension and no more than one extension and maximum of 18 in.

502.3.1.9. Hydrant Heads. The hydrant shall be constructed so that the nozzles may be faced in any desired direction.

502.3.1.10. Drawings. Proposals shall be accompanied by catalogue cuts, photographs or drawings in duplicate showing complete detailed dimensions of the hydrants when requested by the OWNER.

502.3.1.11. Upperstem Thread Lubrication. Upperstem thread lubrication may be accomplished with oil or grease. When oil is used, it shall be in conjunction with a functional oil reservoir and an oil filler port. The hydrant shall be factory filled with a USP white mineral oil such as Lubriplate No. 3-V (SAE 20), Mobile Whiterex 425 or equal. Means for field check of oil lubrication level shall be provided. When grease is used, the hydrant shall be factory lubricated with a food grade grease such as Lubriplate No. 630-AA (medium soft), or equal. Means for field lubrication without disassembly shall be provided.

502.3.1.12. Tests and Affidavit of Compliance. Manufacturers shall be required to furnish the OWNER certificate of compliance with AWWA C502 and this specification.

Technical manufacturing drawings or certificate of tests relating to fire hydrants for contract installation must be supplied by the CONTRACTOR to OWNER not later than two weeks after beginning construction when identical hydrants have previously been approved by the OWNER, or prior to installation when identical hydrants have not previously been approved by the OWNER. Technical manufacturing drawings or certificate of tests must be supplied for all hydrants purchased by the OWNER. Technical drawings or certificates shall have the OWNER'S approval before final payment shall be made.

502.3.1.13. Sample Hydrant. The OWNER may purchase one sample hydrant for verification of compliance with these and manufacturer's specifications. The OWNER may test this sample; and, if it fails to meet any of the specifications, the hydrant shall be returned to CONTRACTOR at CONTRACTOR'S expense. CONTRACTOR shall refund to the OWNER the full purchase price of the hydrant.

502.3.1.14. Rejection. Fire hydrants or materials specified in this section may be rejected for failure to meet any of the provisions of this specification or for any defects causing them to be unsuitable for their intended use.

502.3.2. Installation. Fire hydrants shall be installed as shown in Standard Drawing 4120, on the appurtenance sheets or as directed by the OWNER.

Set fire hydrant on the lot line extended when possible. The horizontal center of the hydrant shall be placed not less than 3-feet and not more than 8-feet from the back of the nearest curb or edge of pavement no closer than 18-inches to existing or proposed sidewalks, and located at least 1-foot outside of the area

between the Points of Curvature of the corner turning radii at intersections unless otherwise indicated on the plans.

The hydrant shall set truly vertical and be securely braced and blocked on well-compacted or undisturbed soil surrounded by a minimum of 7-CF clean gravel or stone to permit free draining of the hydrant, with the large pumper nozzle facing the nearest curb.

Fire hydrants shall be braced and blocked on a Class B or Class PB concrete per [Item 702](#), Concrete Structures, or as specified by the OWNER. Concrete slab shall not be less than 4-in thick and not less than 3-ft. by 3-ft. square buried to a depth between 6- and 12-inches below finished grade. A splash pad that extends to the sidewalk, or to curb in the absence of a sidewalk, shall be installed if directed by the OWNER. Hydrant shall be set perpendicular with the pumper nozzle facing the nearest curb, and to a depth such that the center of the nozzle is between 18- and 28-inches from the top of finished grade.

Any adjustment needed after installation shall be made by the CONTRACTOR without extra compensation.

502.3.3. Measurement and Payment. Fire hydrants shall be paid for at the contract unit price per each, complete in place, as provided in the proposal and contract. The contract price shall be the total compensation for the furnishing of all labor, material, tools, equipment, hydrant extensions, concrete, gravel drains, paint or protective coating and incidentals necessary to complete the work.

The hydrant lead shall be paid for at the unit price bid for installing pipe. The gate valve and box installed in leads shall be paid for at the unit price bid for installing gate valves and boxes, or as specified by OWNER.

Fire hydrant extensions shall be paid for at the unit price bid per foot if a separate pay item is established in the contract.

Refer to Standard Drawing 4120.

502.4. THRUST RESTRAINT

Each change in direction of a pressure conduit, fittings, and plugs in pressure conduits shall be restrained in such a manner as shall substantially brace the same against undisturbed trench walls. Type of thrust restraint shall be as specified on the plans.

502.4.1. Concrete Blocking. Standard thrust blocking shall conform to appropriate details and tables of Standard Drawings 4010A through 4040. Special blocking shall be accomplished with Class B or Class PB concrete per [Item 702](#), Concrete Structures, or as specified by the OWNER and as detailed on the appurtenance sheet or as detailed on the plans.

502.4.2. Mechanical Joint Restraint. Mechanical joint restraint may be used on ductile iron or PVC pipe. Installation shall follow manufacturer's recommendations.

Restraining mechanisms for PVC pipe and fittings shall be tested and pressure rated in accordance with ASTM F1674 Standard Test Method for Joint Restraint Products for Use with PVC Pipe.

502.4.2.1. Ring and Wedging. Ring and wedging mechanical joint restraint shall be incorporated into the design of the follower gland. The restraint shall be sized and selected for material compatibility according to manufacturer's instructions. The restraining mechanism shall consist of individually actuated wedges that increase their resistance to pull-out as pressure or external forces increase. The device shall be capable of full mechanical joint deflection during assembly and the flexibility of the joint shall be maintained after burial. The joint restraint ring and its wedging components shall be of grade 60-42-10 ductile iron conforming to ASTM A536 Ductile Iron Castings. The wedges shall be ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell conforming to AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings and AWWA C153 Ductile-Iron Compact Fittings for Water Service. Torque limiting twist-off nuts shall be used to insure proper actuation of the restraining wedges. Necessary spacers, gaskets and bolts shall be supplied by the manufacturer of ring and wedging restraint. Ring and wedging shall be coated as specified for pipe and fittings.

Restraint for nominal pipe sizes greater than 48-inches shall be engineered.

502.4.2.2. Integrally Restrained Mechanical Joints. In addition to specifications for Ductile Iron fittings in [Item 501.7](#), Ductile-Iron Pressure Pipe and Fittings or [Item 501.14](#), Polyvinyl Chloride (PVC)

Water Pipe, integrally restrained mechanical joints shall conform to the applicable provisions of the standards listed in Table 502.4.2.2.(a) Integrally Restrained Mechanical Joint Standards.

Table 502.4.2.2.(a) Integrally Restrained Mechanical Joint Standards

Standard	Topic
AWWA C111	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C116	Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings for Water Supply Service
ASTM D3139	Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
ASTM F477	Elastomeric Seals (Gaskets) for Joining Plastic Pipe

502.4.3. Welding. Reinforced Concrete Cylinder Pipe (RCCP) may be internally or externally welded, as specified by the OWNER, according to manufacturer criteria in conformance with appropriate AWWA Standards.

502.4.4. Measurement and Payment. No separate payment shall be made for restraint, unless specified otherwise by the OWNER.

502.5. FITTINGS

502.5.1. Brass Stops, Cocks, and Fittings for Waterworks Service.

502.5.1.1. General. Stops, cocks, and other fittings furnished under these specifications shall be in accordance with AWWA C800 Standards for Underground Service Line Valves and Fittings of the size and type specified, except cast solder-joint fittings shall conform to alloy 83-4-6-7, ASTM B584 Practice for Copper Alloy Sand Castings for General Applications. All stops, cocks and fittings shall be full size throughout the size specified.

502.5.1.2. Physicals. Any pipe, fitting, solder or flux used in the installation or repair of any public water system shall be lead-free. For the purpose of these Specifications, the term 'lead free' means (1) Not containing more than 0.2 percent lead when used with respect to solder and flux; and (2) Not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

The weighted average lead content of a pipe, pipe fitting, plumbing fitting, or fixture shall be calculated by using the following formula: For each wetted component, the percentage of lead in the component shall be multiplied by the ratio of the wetted surface area of that component to the total wetted surface area of the entire product to arrive at the weighted percentage of lead of the component. The weighted percentage of lead of each wetted component shall be added together, and the sum of these weighted percentages shall constitute the weighted average lead content of the product. The lead content of the material used to produce wetted components shall be used to determine compliance. For lead content of materials that are provided as a range, the maximum content of the range shall be used.

Brass used shall have a tensile strength (as determined from test bars) of not less than 30,000-psi when tested as prescribed by ASTM B208 Practice for Preparing Tension Test Specimens for Copper-Base Alloys for Sand, Permanent Mold, Centrifugal, and Continuous Castings (Fig. 5).

Fittings shall be designed for 200-psi working pressure and, when subjected to hydrostatic test pressures $1\frac{1}{2}$ times working pressure or when subjected to a minimum of 85-psi air pressure while submerged in water, shall not leak or show signs of structural failure.

Stops and cocks containing brass parts shall be shipped prelubricated with a light fluid lubricant between key and body. Lubricant shall remain fluid indefinitely, either in storage or in service.

502.5.1.3. Design Features of Stops and Cocks. Seating surfaces of the ground key type shall be tapered and shall be accurately fitted together by turning the key and reaming the body. Seating surfaces shall be lapped together using suitable abrasives to insure accurate fit. The large end to the tapered surface of the key shall be reduced in diameter for a distance that shall bring the largest end of the seating surface of the key into the largest diameter of the seating surface of the body, and the taper

seat in the body shall be relieved on the small end, so that the small end of the key may extend through to prevent wearing of a shoulder and to facilitate proper seating of the key. The stem end of the key, key nut and washer shall be so designed that if the key nut is tightened to failure point, the stem of the key shall not fracture. The nut and the stem shall withstand a torque on the nut of at least three-times the necessary effort to properly seat the key without failure in any manner.

The ball stop shall have a full-size round-way opening with straight-through flow, teflon coated bronze ball with a minimum of 0.5-mil thickness coating. The stop must be so constructed that it may be disassembled and the ball removed without special tools.

Plug type stop shall have full size round way opening with straight-through flow. Seating surfaces shall be brass (or teflon coated brass) to rubber O-rings, providing positive pressure seal without mechanical means. The stop must be so constructed that the plug may be removed without special tools. Rubber O-rings should conform to requirements of ASTM D2000 Classification System for Rubber Products in Automotive Applications and test method shall conform to ASTM D1414 for Test Methods for Rubber O-Rings.

Inlet and outlet threads, of the types specified, shall conform to the applicable tables of AWWA Standard C300 Reinforced Concrete Pressure Pipe, Steel-Cylinder Type, and inlet threads shall be protected in shipment by a plastic coating or other equally satisfactory means. If used, coupling nuts shall have a bearing skirt machined to fit the outside diameter of the pipe for a length at least equal to the outside of the pipe.

Corporation stops shall be so designed as to rotate about the axis of the flow passageway within a circle of rotation small enough to properly clear the inside of any standard tapping machine of appropriate size.

The outlet side of ¾-in. brass curb stops shall be female iron pipe with flared copper pipe, compression or female iron pipe thread on the inlet, as specified. The outlet side of 1-in., 1½-in. and 2-in. brass curb stops shall be female iron pipe with compression, streamline or female iron pipe thread on the inlet, as specified.

The outlet side of ¾-in. and 1-in. corporation stops shall be flared copper pipe or compression with male AWWA "tapered" thread or male iron pipe thread on inlet side, as specified. The outlet side of 1½-in. and 2-in. corporation stops shall be compression or streamline with male AWWA "tapered" thread or male iron pipe thread on inlet side, as specified.

502.5.1.4. Design Features of Fittings. All castings shall be smooth, free from burrs, scales, sand holes and defects of every nature which would make them unfit for the use for which they are intended.

Nuts shall be smooth cast and shall have symmetrical hexagonal wrench flats.

Flare-joint fittings shall be smooth cast. Seating surfaces for metal-to-metal seal shall be machined to proper taper or curve, free from any pits or protrusions.

Solder-joint fittings shall be smooth cast. Inside surfaces of solder-joint ends shall be machined smooth to proper inside diameter.

All thread fittings, of all types, shall have N.P.T. threads, and male threaded ends shall be protected in shipment by a plastic coating or other equally satisfactory means.

Compression tube fittings shall have a Buna-N beveled gasket or equal. Compression nut shall have:

- (1) for plastic or copper pipe and tubing, an approved restraining device.
- (2) for iron pipe, a stainless steel set screw to bite in and lock on the pipe.

502.5.1.5. Tests. All brass stops, cocks and fittings included in this section shall be tested in accordance with the applicable provisions of the specifications relating thereto.

502.5.1.6. Rejection. Brass stops, cocks, and fittings may be rejected for failure to meet any of the requirements of this specification.

502.5.2. All Other Fittings. All other fittings shall conform to respective provisions of [Item 501](#), Underground Conduit Materials, listed according to conduit type. In water pipe, Ductile Iron or Ductile Iron Compact fittings shall consist of standard crosses, tees, bends, reducers, sleeves, plugs, blind flanges, etc. Fittings for reinforced concrete pressure pipe, steel cylinder type, shall consist of special crosses, tees, bends, reducers, dished plugs, closure sections, flanged outlets, blind flanges, bored flanges, etc.

502.5.3. Measurement and Payment. Payment for fittings shall be made only if a separate bid item is established in the Contract. If a separate bid item is not established, the fittings shall be included in the price of the pipe bid item.

Ductile Iron and Ductile Iron Compact Fittings shall be measured for payment per ton if a separate bid item is established in the Contract. Special fittings for reinforced concrete pressure pipe, steel cylinder type, shall be measured for payment per each, grouped as to size and kind. Fittings that are an integral part of a special item, such as a bored flange in an air valve installation, shall not be measured for payment per each, but shall be included in the contract unit price for that special item.

502.6. VALVES

502.6.1. Metal Seated Gate Valves for Ordinary Waterworks Service.

502.6.1.1. General Description. All gate valves 3-in. through 48-in. shall conform to AWWA Standards C500 Metal-Seated Gate Valves for Water Supply Service, except for changes or specified alternatives as detailed in this specification or as shown on the plans and contract documents. Materials must comply with NSF Standard 61 – Drinking Water System Components – Health Effects. Tests and design data may be as designated on the plans and contract specifications.

Valves over 16-in. in diameter shall be installed in a special vault, as indicated in appropriate Division 4000 Standard Drawings, or the gear box shall be enclosed in a manhole and supported on a concrete pad. Smaller valves shall be supported with concrete, all as detailed in appurtenance sheets attached to the plans.

Gate valves larger than 48-in. shall be a special consideration. The OWNER shall hydrostatically test all gate valves larger than 48-in. for a reasonable period after receipt of a specified test pressure.

All gate valves shall be iron body, bronze mounted, double disc, parallel seat, nonrising stem, internal wedging type. Valves must embody the best workmanship and finish. Valve design shall provide minimum torque designs effectively reducing friction and drag through thrust collar design and tracks for gates.

502.6.1.2. Bonnet Bolting. Body bolts, studs and nuts shall be 304 stainless steel.

502.6.1.3. Ends. Valves shall have flanged, push-on, or mechanical-joint ends, or any combination of these as may be specified.

Mechanical-joint ends shall conform to AWWA C111 (ANSI A21.11) American National Standard for Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings. Push-on joint ends shall conform to AWWA C111 (ANSI A21.11). Flanged ends shall conform to AWWA C110 (ANSI A21.10) American National Standard for Gray-Iron and Ductile-Iron Fittings, 3 In. through 48 In. for Water and Other Liquids, Class 125-lb. Bolts and nuts for mechanical joints shall be of a high-strength, low-alloy corrosion-resistant steel conforming to ASTM A325 (A325M) High-Strength Bolts for Structural Steel Joints (Type 3). All mechanical-joint glands shall be ductile iron.

502.6.1.4. Gates and Rings. Gates and rings shall conform to AWWA Standards C500 except as follows: All gates above 4-in. shall be cast iron with bronze-gate rings, and 4-in. gates may be solid bronze. Gates 3-in. and smaller shall be solid bronze.

502.6.1.5. Wedging Device. Wedging devices shall conform to the requirements of AWWA C500, except as follows: Gate valves 4-in. and smaller shall have solid bronze wedges. Wedges for valves above 4-in. may be solid bronze or cast-iron with an integral bronze nut. Wedging surfaces may be bronze, monel, or stainless steel cast integral with the wedge. Stem nuts or wedging surfaces that are attached with fasteners are not acceptable. Wedging surfaces on valves up to 16-in. shall be bronze-, monel-, or stainless-steel-to-iron. Wedging surfaces on valves 16-in. and larger shall be bronze-to-bronze, monel-to-monel, or stainless-to-stainless. Other moving surfaces integral to the wedging action shall be bronze to iron.

502.6.1.6. Rollers and Tracks and Scrapers for Horizontal Valves. Rollers and tracks and scrapers for horizontal valves shall conform to AWWA Standards C500, with the following exception: Babbitt tracks shall not be acceptable.

502.6.1.7. Valve Stems and Nuts. Stem and nuts shall be in accordance with AWWA Standards C500, except as follows: Stem nuts shall be of a nongalling, high-grade brass or bronze and shall have threads of sufficient length to develop the full strength of the stem. Stems as received shall meet the minimum strengths as specified. Upset stems on valves larger than 16-in. shall not be permitted under these specifications. Upset stems shall conform to the requirements of AWWA C500.

502.6.1.8. Stuffing Boxes. Stuffing boxes shall conform to the requirements of AWWA Standards C500 with the following exceptions: All valves 2-in. through 16-in. shall be equipped with double O-rings, provided arrangement is made for replacement under pressure of the upper O-ring when the valve is fully open. All geared valves shall be equipped with double O-rings in the main stuffing box. All horizontal valves shall have attached stuffing boxes as per the above AWWA Standards. Stuffing box bolts and nuts shall be 304 stainless steel.

502.6.1.9. Follower Glands and Gland Bolts and Nuts. Glands, gland bolts and nuts shall conform to the requirements of AWWA Standards C500 with the following exceptions: Gland flanges or followers that are a separate part may be cast iron or bronze. Glands for valves over 12-in. in diameter shall be solid bronze or cast-iron bronze bushed. Gland bolts and nuts shall be either bronze or Type 302 stainless steel. For either choice both bolts and nuts shall be of the same material.

502.6.1.10. Hand Wheels and Operating Nuts. All valves 2-in. in diameter and above shall be nut operated unless otherwise ordered. All operating nuts shall be ductile iron or cast iron. Handwheels shall be furnished only when called for on plans or in the contract specifications. All valves shall open by turning counterclockwise or as specified by OWNER.

502.6.1.11. Gearing. Gearing shall be in accordance with AWWA C500. Spur or bevel gearing as called for on the plans or as applicable shall be provided on all valves 18-in. in diameter and larger.

502.6.1.12. Gear Cases. Gear cases shall be furnished on all geared valves. All geared valves shall be equipped with extended type gear cases, with cast iron side plates. Stuffing boxes shall be located on top of the bonnet and shall be outside the gear case. Gear cases shall be lubricated and enclosed with oil seal or O-ring at all shaft openings to prevent the entrance of water which may be in the manhole or vault. Valves equipped with ball or roller type thrust bearings inside the grease case shall have all shaft openings sealed with double O-rings. Gear cases shall be cast iron.

502.6.1.13. Bypass Valves. Bypass valves shall conform to the requirements of AWWA C500 with the following exceptions: Bypass valves are required on all 18-in. valves and larger AWWA C500 valves. Properties, construction and design requirements herein specified are applicable to bypass valves, except stems on bypass valves over 4-in. shall have the same physical qualities as for 30-in. and larger.

502.6.1.14. Cast Iron. All gray cast iron shall conform to the requirements of ASTM A126 Gray Iron Castings for Valves, Flanges, and Pipe Fittings, Class B or ductile iron shall conform to ASTM A536 Ductile Iron Castings.

502.6.1.15. Horizontal Valves. All valves over 16-in. in diameter shall be designated for horizontal installation in a horizontal pipeline unless shown otherwise on the plans. All other valves shall be vertical.

502.6.1.16. Valves for Installation in Vertical Pipeline. Valves 14-in. and larger AWWA C500 valves ordered for installation in vertical pipeline shall be equipped with disc face tracks and wedge springs to prevent pre-wedging. Valves 4-in. through 12-in. shall be double disc, square-bottom valves.

502.6.1.17. Tapping Valves. Tapping valves shall conform to the requirements of AWWA C500, and the other requirements of this section with the following exceptions: Tapping valves shall have oversize seat rings to permit entry of standard tapping machine cutters. In the open position, valve gates shall be clear of the ports so that the cutter shall pass through without making contact with the gates. Valves shall have an inlet flange conforming to AWWA C110 (ANSI A21.10) Class 125, with a machined projection to mate with tapping sleeve outlet flange recess to assure correct alignment. This alignment ring shall comply with MSS Standard SP-60 Connecting Flange Joint Between Tapping Sleeves and Tapping Valves. Valves shall have standard mechanical joint outlet and shall fit any standard tapping machine.

502.6.1.18. Tests and Inspection. All valves shall be tested by the manufacturer in accordance with AWWA C500. Any leaking at the test pressure through any casting or between the bronze ring and the cast iron body shall cause the said casting to be rejected. No plugging or patching to stop any leakage shall be allowed.

When requested at any time, notarized certificates of material and test compliance for these valves shall be provided. Such reports furnished shall be identified by purchase order or contract. The material shall also be identified as to location within the valve and specification or composition.

502.6.2. Resilient-Seated Gate Valves for Ordinary Waterworks Service.

502.6.2.1. General Description. All gate valves 3-in. through 36-in. shall conform to AWWA Standards C515 for Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service, or C509 for Resilient-Seated Gate Valves for Water-Supply Service, except for changes or specified alternatives as detailed in this specification or as shown on the plans and contract documents. Materials must comply with NSF Standard 61 – Drinking Water System Components – Health Effects. Tests and design data may be as designated on the plans and contract specifications.

Gate valves larger than 36-in. shall be a special consideration. The OWNER shall hydrostatically test all gate valves larger than 36-in. for a reasonable period after receipt.

All gate valves shall be iron body, resilient seated, nonrising bronze stem and bronze stem nut. Valves must have the resilient seat bonded and vulcanized to the wedge and employ the best workmanship and finish. Valve design shall provide minimum torque designs effectively reducing friction and drag through thrust collar design and guide tracks for the gate.

502.6.2.2. Bonnet Bolting. Bonnet Bolting shall conform to [Item 502.6.1.2. Bonnet Bolting](#).

502.6.2.3. Ends. Ends shall conform to [Item 502.6.1.3. Ends](#).

502.6.2.4. Gate. Gate shall be encapsulated with an elastomer that meets all requirements of AWWA C515 or C509. The bonding of the rubber to the gate shall meet the requirements of ASTM D429, Test Method A or Method B. Gates 3-in. and smaller shall be rubber encapsulated bronze.

502.6.2.5. Valve Stems and Nuts. Stem and nuts shall be in accordance with AWWA Standards C515 or C509 except as follows: Stem nuts shall be of a nongalling, high-grade brass or bronze and shall have threads of sufficient length to develop the full strength of the stem. Stems as received shall meet the minimum strengths as specified. Upset stems on valves larger than 16-in. shall not be permitted under these specifications.

502.6.2.6. Stuffing Boxes. Stuffing boxes shall conform to the requirements of AWWA Standards C515 or C509 with the following exceptions: Arrangement is made for replacement under pressure of the upper O-ring when the valve is fully open. All geared valves shall be equipped with double o-rings in the main stuffing box. All horizontal valves shall have attached stuffing boxes as per the above AWWA Standards.

502.6.2.7. Follower Glands and Gland Bolts and Nuts. Glands, gland bolts and nuts shall conform to the requirements of AWWA Standards C515 or C509 with the following exceptions: Gland flanges or followers, if used, that are a separate part may be cast iron or bronze. Glands for valves over 12-in. in diameter shall be solid bronze or cast-iron bronze bushed. Gland bolts and nuts shall be either bronze or Type 302 stainless steel. For either choice both bolts and nuts shall be of the same material.

502.6.2.8. Hand Wheels and Operating Nuts. Hand wheels and operating nuts shall conform to [Item 502.6.1.10.](#)

502.6.2.9. Gearing. Gearing shall be in accordance with AWWA Standards C515 or C509. Spur or bevel gearing as called for on the plans or as applicable shall be provided on all valves 18-in. in diameter and larger.

502.6.2.10. Gear Cases. Gear cases shall be furnished on all geared valves. Gear cases shall be lubricated and enclosed with oil seal or O-ring at all shaft openings to prevent the entrance of water which may be in the manhole or vault. Valves equipped with ball or roller type thrust bearings inside the grease case shall have all shaft openings sealed with double O-rings. Gear cases shall be gray iron or ductile iron.

502.6.2.11. Bypass Valves. Bypass valves are not required on resilient seated gate valves.

502.6.2.12. Cast Iron. Cast iron shall conform to [Item 502.6.1.14.](#)

502.6.2.13. Horizontal Valves. Valves for horizontal installation shall be equipped with wedge guide caps or inserts to guide and support the wedge during travel. All valves over 16-in. in diameter shall be designated for horizontal installation in a horizontal pipeline unless shown otherwise on the plans. All other valves shall be vertical.

502.6.2.14. Valves for Installation in Vertical Pipeline. All resilient seated gate valves shall be suitable for horizontal mounting in a vertical pipeline without special modifications.

502.6.2.15. Tapping Valves. Tapping valves shall conform to the requirements of AWWA Standards C515 or C509 and the other requirements of this section with the following exceptions: Tapping valves shall have a port opening to permit entry of standard tapping machine cutters. In the open position, valve gates shall be clear of the ports so that the cutter shall pass through without making contact with the gate. Valves shall have an inlet flange conforming to AWWA C110 (ANSI A21.10) Class 125, with a machined projection to mate with tapping sleeve outlet flange to assure correct alignment. This alignment ring shall comply with MSS Standard SP-60 Connecting Flange Joint Between Tapping Sleeves and Tapping Valves. Valves shall have standard mechanical joint outlet and shall fit any standard tapping machine.

502.6.2.16. Tests and Inspection. All valves shall be tested by the manufacturer in accordance with AWWA Standards C515 or C509. Any leaking at the test pressure through any casting shall cause the said casting to be rejected. No plugging or patching to stop any leakage shall be allowed.

When requested at any time, notarized certificates of material and test compliance for these valves shall be provided. Such reports furnished shall be identified by purchase order or contract. The material shall also be identified as to location within the valve and specification or composition.

502.6.3. Air Valves.

502.6.3.1. General. Unless otherwise indicated in the plans or contract specifications, air valves shall meet the requirements of AWWA C512 Air Release, Air/Vacuum and Combination Air Valves for Water Works Service with exceptions specified herein. Only wastewater air valves shall be used for wastewater applications.

502.6.3.2. Description. Air valves shall be of two types as follows:

- (1) An air valve called for on the plans shall mean an air and vacuum valve of the ball type designed to permit the escape of air from a pipeline when the line is being filled and to permit air to enter the pipeline when the line is being emptied.
- (2) A combination air valve called for on the plans shall mean a combination air and vacuum and air release valve designed to fulfill the functions of air and vacuum valve and also designed to permit the escape of air accumulated in the line at the high point when the line is under pressure while in operation. Air valves 3-in. and smaller shall be self-contained in one unit. Air valves larger than 3-in. may be a combination of two valves.

502.6.3.3. Material. The valves shall be stainless steel or iron body, stainless steel, brass or bronze fulcrum levers and links, stainless steel ball floats and pins, steel flange bolts and nuts, Buna-N synthetic rubber seats or equal against bronze or stainless steel, and brass for other parts.

502.6.3.4. Inlets and Outlets. Inlets shall be threaded for 2-in. and smaller and flanged for 3-in. and larger. Outlets shall be threaded through 4-in.

502.6.3.5. Operating Pressure and Testing. The valves shall be designed to operate under an operating pressure of 200-psi and shall be tested to 1½ times that pressure.

502.6.4. Brass Wheel Valves.

502.6.4.1. General. Valves furnished under this specification shall be wedge disc, non-rising stem gate valves with threaded ends. They shall be equipped with bronze hand wheels and nuts and shall have bronze packing gland followers. They shall be of all brass and/or bronze construction.

502.6.4.2. Pressure Rating. Valves shall be rated for 125-psi saturated steam working pressure and 200-psi for liquids and gases up to 150°F.

502.6.4.3. Tests. Each valve furnished under these specifications shall be tested at a hydrostatic pressure of 250-psi with the valve open. Under this test the valve shall not show any indication of leakage at the packing or anywhere on the body. Each valve shall also be tested at hydrostatic pressure of 250-psi applied to one end only with the valve closed. There shall be no indication of leakage by the gate or through the packing under this test.

502.6.4.4. Direction to Open. Valve shall open by turning the handwheel counterclockwise.

502.6.4.5. Material Specifications. The materials used in the manufacture of these valves shall equal or exceed the specifications shown in Table 502.6.4.5.(a) Brass Wheel Valve Materials.

Table 502.6.4.5.(a) Brass Wheel Valve Materials

Part	Material	Designation/Specification
Packing	Teflon impregnated asbestos or approved equal	
Body	Bronze	ASTM B62 Standard Specification for Composition Bronze or Ounce Metal Castings
Bonnet	Bronze	ASTM B62
Gates	Bronze	ASTM B62
Handwheel	Bronze	ASTM B62
Handwheel Nut	Bronze	ASTM B62
Gland & Packing Nut	Lead-free Brass	ASTM B16/B16M Standard Specification for Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines
Stem	Bronze	ASTM B62, 50,000-psi minimum tensile strength

502.6.4.6. Stem. Stem shall be completely free of visible flaw, and matching shall be smooth and free of defect. A back seating surface shall be provided on the wedge or on the lifting nut to seat tightly against the bonnet when the valve is open to seal the packing gland against line pressure so that the valve may be repacked against line pressure.

502.6.4.7. Threaded Ends. Valve ends shall be threaded internally with American National Taper pipe threads. Thread shall be clean, smooth, true to form and concentric with the axis of the valve. Variations in alignment of thread shall not exceed $\frac{1}{16}$ -in.-per-foot. Thread shall be chamfered approximately to the major diameter of the thread at the face of the valve at an angle approximately 45° with the axis of the thread for the purpose of easy entrance in making a joint and for protection of the thread.

502.6.4.8. Valve Body. The body of the valve shall offer sufficient support to the gate while it is moving to keep the gate wedge in place and to accurately align the gate on the body seat. The waterway opening shall be equal to or greater than the nominal pipe size.

502.6.4.9. Gate. The gate shall be of wedge design and may be furnished either solid or two-piece. Two-piece or "split" disc gates shall be equipped with lifting nut. Gate faces shall be accurately machined and fitted into the valve body in such a manner that the center of the gate circle is very slightly above the center of the seat circle when the valve is tightly closed.

502.6.4.10. Workmanship. All valve parts shall be true to form, free from injurious defects and shall be seated and finished in a workmanlike manner. Casting shall be free from blow holes, porosity, hard spots, excessive shrinkage, cracks or other injurious defects. They shall be smooth and well cleaned both inside and outside, and all fins and similar roughness shall be removed. Castings shall not be repaired, plugged, brazed or burned in.

502.6.4.11. Packaging. Valve shall be closed for shipment and wrapped or packaged in accordance with best commercial practice as necessary for mechanical protection and ease in handling.

502.6.5. Butterfly Valves.

502.6.5.1. General. Butterfly valves and actuators shall conform to AWWA C504 Rubber-Seated Butterfly Valves and to these specifications:

- (1) Type of body shall be short body, flanged.
- (2) Body material shall be cast iron or ductile iron.
- (3) Class shall be as specified on the plans or contract specifications.
- (4) Shafts shall be Type 304 or 316 stainless steel.
- (5) Flange holes shall be drilled full size.
- (6) Valve seats shall be natural rubber or Buna-N and polished stainless steel, Type 304 or 316, 90° seating angle only, with a 360° uninterrupted seating surface.
- (7) Shaft seals shall be standard split-V packing or double O-ring seal cartridges.
- (8) Discs shall be ductile iron, cast iron, or fabricated steel.
- (9) Operating nuts shall be ductile iron.

502.6.5.2. Submittals. The following shall be furnished to the OWNER. Incomplete data shall be cause for rejection of bid.

- (1) Weights and drawings in accordance with AWWA C504.
- (2) Guaranteed delivery time after receipt of purchase order.
- (3) Number of turns of handwheel required to close valve.
- (4) The required actuator torque (To) in foot-pounds for each butterfly valve based on the specified operating conditions of pressure and flows.
- (5) Seating-unseating torque (To) in foot-pounds required for each butterfly valve.
- (6) Rated torque capability of each butterfly valve actuator.

The following data shall be furnished if not previously available to the OWNER:

- (7) Experience: evidence of at least five years satisfactory experience building butterfly valves to AWWA Standards.
- (8) Torque tests in accordance with rubber seated butterfly valves AWWA C504.
- (9) Proof of design tests in accordance with AWWA C504.

502.6.5.3. Ends. Valves shall have flanged ends. Flanged ends shall conform to AWWA C110 (ANSI A 21.10), Class 250-lb.

502.6.5.4. Actuators.**502.6.5.4.1. Manual Actuators.**

Location. All actuators shall be located at the right end of a horizontal shaft with the input shaft vertical and upward looking in the direction of flow, unless otherwise noted.

Closure. The valve shall close by turning the input shaft clockwise. All handwheels shall turn clockwise to close the valve. All operators shall be equipped with a disc position indicator with each valve. The indicator shall be highly visible, clearly showing the legends "Open" and "Closed" at the ends of a 90° arc, with a pointer to show the disc position (Closed — 0° and Open — 90°). The arc shall be graduated in degrees.

Type. All manual actuators shall be totally enclosed worm gear type and traveling-nut type. All manual worm gear type actuators shall be Limitorque, Type HBC or approved equal.

Sizing. Each valve actuator shall be sized for the maximum valve torque requirements based on the operating pressures and flow rates as specified.

502.6.5.4.2. Electric Motor Actuator. Each electric actuator shall conform to AWWA C504 and shall be of sufficient size to open and close the valve against maximum differential pressure and maximum required torque conditions when voltage at motor terminals is 90-percent of nominal voltage and shall have totally enclosed worm gear reducer with spur gear attached. Limit switches shall be of the four train gear with switches adjustable to operate at any point in the opening or closing cycle of the valve.

Limit switches and torque switches shall be located in a special compartment that is an integral part of the actuator and shall be readily accessible. Each limit switch shall have two normal closed contacts. Limit switch gearing shall be in step at all times whether in power or manual operation.

ITEM 506. OPEN CUT – WATER CONDUIT INSTALLATION

506.1. DESCRIPTION

This work shall include the installation and construction, complete in place, of water conduit and appurtenances as specified herein and in conformity with the lines, grades, dimensions, materials and designs shown on the plans.

506.2. MATERIALS

The pipe shall be of the kind and strength shown on the plans and provided in the proposal and contract. Unless otherwise specified, materials shall meet the requirements of [Item 501](#), Underground Conduit Materials and [Item 502](#), Appurtenances. Materials for corrosion protection of water conduits and appurtenances shall be of the type as may be called for on the plans or in the special specifications.

Any pipe, fitting, solder or flux which is used in the installation or repair of any public water system must be lead-free. For the purpose of these Specifications, the term 'lead free' means:

- (1) Not containing more than 0.2 percent lead when used with respect to solder and flux; and
- (2) Not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

506.3. LAYING WATER CONDUIT

Laying pipe shall not begin until after the initial embedment has been placed in the trench and after the condition of trench, line and grade have been approved by the OWNER.

The pipe, after being visually inspected and approved for laying by the OWNER, shall be laid, beginning at an existing opening, unless otherwise approved by the OWNER and, in any event, shall be laid with the bell or collar away from the last section placed.

All pipe shall be so laid that the contact in the joint between 2 lengths of pipe shall be uniform throughout the circumference of the joint. Where curves in the alignment are indicated on the drawings and the curves are flat, standard pipe shall be used with the outside edge of the joint pulled away from the seat to make a smooth curve. Deflection of the joint to form curves shall not exceed the limits of Table 2, AWWA C600 Installation of Ductile-Iron Water Mains and Their Appurtenances. Where curves are sharp, short sections of pipe, bevels or bends shall be used and blocked.

When pipe is cut by the CONTRACTOR to insert a valve or fitting, the bell and remaining section may be laid beyond the valve or fitting.

All pipe, fittings, valves, and hydrants shall be carefully delivered to the site and lowered into the trench, piece by piece, by means of a derrick, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to water conduit materials, protective coatings, and linings. Under no circumstance shall water conduit materials be dropped or dumped into the trench.

The pipe and fittings shall be inspected for defects. All lumps, blisters, and excess coating material shall be removed from the bell and spigot ends of each pipe. Additionally, the inside of the bell or coupling and the outside of the spigot shall be wire brushed and wiped clean, dry, and free of all foreign and objectionable material before the pipe is laid. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in line.

506.4. PIPE JOINTS

All joints in pipe shall be thoroughly cleaned at the time the joint is made.

506.4.1. Rubber Gasket Joints. Rubber gaskets shall conform to the applicable specifications under which the pipe is supplied. Loose gaskets shall be protected from sunlight, contamination and contact with gasoline or fuels.

Rubber gasket joints for water conduits consist of 4 general types:

- (1) Push-on type used for ductile iron, steel and plastic pipe.
- (2) Mechanical type used for ductile iron and fittings.
- (3) Rubber and steel joint ring type used for steel cylinder type, reinforced concrete pipe.
- (4) Double rubber gasket couplings used for pressure pipe.

SECTION 03 34 13
CONTROLLED LOW STRENGTH MATERIAL (CLSM)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Controlled low strength material (CLSM) for use in the following:
 - a. Flowable backfill
- B. Deviations from this City of Fort Worth 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
 - 3. Section 03 30 00 - Cast-in-Place Concrete

1.2 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. Measurement
 - a. This Item is considered subsidiary to the structure or Items being placed.
 - 2. Payment
 - a. The work performed and the materials furnished in accordance with this Item are subsidiary to the structure or Items being placed and no other compensation will be allowed.

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.
- B. ASTM International (ASTM):
 - 1. C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 - 2. C33 - Standard Specification for Concrete Aggregates.
 - 3. C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - 4. C143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
 - 5. C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 - 6. C260 - Standard Specification for Air-Entraining Admixtures for Concrete.

7. C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.

1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

1.5 SUBMITTALS

- A. Provide submittals in accordance with Section 01 33 00.
- B. All submittals shall be approved by the City prior to delivery and/or fabrication for specials.

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

- A. Product data
- B. Sieve analysis
 1. Submit sieve analyses of fine and coarse aggregates being used.
 - a. Resubmit at any time there is a significant change in grading of materials.
 2. Mix
 - a. Submit full details, including mix design calculations for mix proposed for use.
- C. Trial batch test data
 1. Submit data for each test cylinder.
 2. Submit data that identifies mix and slump for each test cylinder.

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 CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS

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

2.2 PRODUCT TYPES AND MATERIALS

- A. Materials
 1. Portland cement: Type II low alkali portland cement as specified in Section 03 30 00.
 2. Fly ash: Class F fly ash in accordance with ASTM C618.
 3. Water: As specified in Section 03 30 00.
 4. Admixture: Air entraining admixture in accordance with ASTM C260.

5. Fine aggregate: Concrete sand (does not need to be in accordance with ASTM C33). No more than 12 percent of fine aggregate shall pass a No. 200 sieve, and no plastic fines shall be present.
6. Coarse aggregate: Pea gravel no larger than 3/8 inch.

B. Mixes

1. Performance requirements
 - a. Total calculated air content
 - 1) Not less than 8.0 percent or greater than 12.0 percent.
 - b. Minimum unconfined compressive strength
 - 1) Not less than 50 psi measured at 28 days.
 - c. Maximum unconfined compressive strength
 - 1) Not greater than 150 psi measured at 28 days.
 - 2) Limit the long-term strength (90 days) to 200 psi such that material could be re-excavated with conventional excavation equipment in the future if necessary.
 - d. Wet density
 - 1) No greater than 132 pounds per cubic foot.
 - e. Color
 - 1) No coloration required unless noted.
 - 2) Submit dye or other coloration means for approval.
2. Suggested design mix

Material	Weight	Specific Gravity	Absolute Volume Cubic Foot
Cement	30 pounds	3.15	0.15
Fly Ash	300 pounds	2.30	2.09
Water	283 pounds	1.00	4.54
Coarse Aggregate	1,465 pounds	2.68	8.76
Fine Aggregate	1,465 pounds	2.68	8.76
Admixture	4-6 ounces	-	2.70
TOTAL	3,543 pounds	-	27.00

2.3 ACCESSORIES [NOT USED]

2.4 SOURCE QUALITY CONTROL

A. Trial batch

1. After mix design has been accepted by Engineer, have trial batch of the accepted mix design prepared by testing laboratory acceptable to Engineer.
2. Prepare trial batches using specified cementitious materials and aggregates proposed to be used for the Work.
3. Prepare trial batch with sufficient quantity to determine slump, workability, consistency, and to provide sufficient test cylinders.

B. Test cylinders:

1. Prepare test cylinders in accordance with ASTM C31 with the following exceptions:
 - a. Fill the concrete test cylinders to overflowing and tap sides lightly to settle the mix.
 - b. Do not rod the concrete mix.
 - c. Strike off the excess material.
2. Place test cylinders in a moist curing room. Exercise caution in moving and transporting the cylinders since they are fragile and will withstand only minimal bumping, banging, or jolting without damage.
3. Do not remove the test cylinder from mold until the cylinder is to be capped and tested.
4. The test cylinders may be capped with standard sulfur compound or neoprene pads:
 - a. Perform the capping carefully to prevent premature fractures.
 - b. Use neoprene pads a minimum of 1/2 inch thick, and 1/2 inch larger in diameter than the test cylinders.
 - c. Do not perform initial compression test until the cylinders reach a minimum age of 3 days.

C. Compression test 8 test cylinders: Test 4 test cylinders at 3 days and 4 at 28 days in accordance with ASTM C39 except as modified herein:

1. The compression strength of the 4 test cylinders tested at 28 days shall be equal to or greater than the minimum required compression strength, but not exceed maximum compression strength.

D. If the trial batch tests do not meet the Specifications for strength or density, revise and resubmit the mix design, and prepare additional trial batch and tests. Repeat until an acceptable trial batch is produced that meets the Specifications.

1. All the trial batches and acceptability of materials shall be paid by the CONTRACTOR.
2. After acceptance, do not change the mix design without submitting a new mix design, trial batches, and test information.

E. Determine slump in accordance with ASTM C143 with the following exceptions:

1. Do not rod the concrete material.
2. Place material in slump cone in 1 semi-continuous filling operation, slightly overfill, tap lightly, strike off, and then measure and record slump.

PART 3 - EXECUTION

3.1 INSTALLERS [NOT USED]

3.2 EXAMINATION [NOT USED]

3.3 PREPARATION [NOT USED]

3.4 INSTALLATION

- A. Place CLSM by any method which preserves the quality of the material in terms of compressive strength and density:
 - 1. Limit lift heights of CLSM placed against structures and other facilities that could be damaged due to the pressure from the CLSM, to the lesser of 4 feet or the lift height indicated on the Drawings. Do not place another lift of CLSM until the last lift of CLSM has set and gained sufficient strength to prevent lateral load due to the weight of the next lift of CLSM.
 - 2. The basic requirement for placement equipment and placement methods is the maintenance of its fluid properties.
 - 3. Transport and place material so that it flows easily around, beneath, or through walls, pipes, conduits, or other structures.
 - 4. Use a slump of the placed material greater than 9 inches, and sufficient to allow the material to flow freely during placement:
 - a. After trial batch testing and acceptance, maintain slump developed during testing during construction at all times within ± 1 inch.
 - 5. Use a slump, consistency, workability, flow characteristics, and pumpability (where required) such that when placed, the material is self-compacting, self-densifying, and has sufficient plasticity that compaction or mechanical vibration is not required.
 - 6. When using as embedment for pipe take appropriate measures to ensure line and grade of pipe.

3.5 REPAIR [NOT USED]

3.6 RE-INSTALLATION [NOT USED]

3.7 FIELD QUALITY CONTROL

- A. General
 - 1. Make provisions for and furnish all material for the test specimens, and provide manual assistance to assist the Engineer in preparing said specimens.
 - 2. Be responsible for the care of and providing curing condition for the test specimens.
- B. Tests by the City
 - 1. During the progress of construction, the City will have tests made to determine whether the CLSM, as being produced, complies with the requirements specified hereinbefore. Test cylinders will be made and delivered to the laboratory by the Engineer and the testing expense will be borne by the City.
 - 2. Test cylinders
 - a. Prepare test cylinders in accordance with ASTM C31 with the following exceptions:

- 1) Fill the concrete test cylinders to overflowing and tap sides lightly to settle the mix.
 - 2) Do not rod the concrete mix.
 - 3) Strike off the excess material.
 - b. Place the cylinders in a safe location away from the construction activities. Keep the cylinders moist by covering with wet burlap, or equivalent. Do not sprinkle water directly on the cylinders.
 - c. After 2 days, place the cylinders in a protective container for transport to the laboratory for testing. The concrete test cylinders are fragile and shall be handled carefully. The container may be a box with a Styrofoam or similar lining that will limit the jarring and bumping of the cylinders.
 - d. Place test cylinders in a moist curing room. Exercise caution in moving and transporting the cylinders since they are fragile and will withstand only minimal bumping, banging, or jolting without damage.
 - e. Do not remove the test cylinder from mold until the cylinder is to be capped and tested.
 - f. The test cylinders may be capped with standard sulfur compound or neoprene pads:
 - 1) Perform the capping carefully to prevent premature fractures.
 - 2) Use neoprene pads a minimum of 1/2 inch thick, and 1/2 inch larger in diameter than the test cylinders.
 - 3) Do not perform initial compression test until the cylinders reach a minimum age of 3 days.
3. The number of cylinder specimens taken each day shall be determined by the Inspector.
 - a. Test 1 cylinder at 3 days and 2 at 28 days in accordance with ASTM C39 except as modified herein.
 - b. The compression strength of the cylinders tested at 28 days shall be equal to or greater than the minimum required compression strength, but not exceed maximum compression strength.
 4. The City will test the air content of the CLSM. Test will be made immediately after discharge from the mixer in accordance with ASTM C231.
 5. Test the slump of CLSM using a slump cone in accordance with ASTM C143 with the following exceptions:
 - a. Do not rod the concrete material.
 - b. Place material in slump cone in 1 semi-continuous filling operation, slightly overfill, tap lightly, strike off, and then measure and record slump.
 6. If compressive strength of test cylinders does not meet requirements, make corrections to the mix design to meet the requirements of this specification.

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