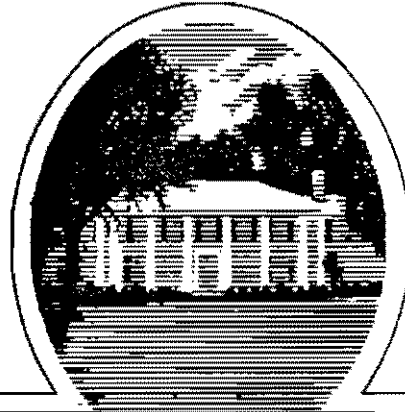


**CONTRACT DOCUMENTS
AND SPECIFICATIONS**

**ARAPAHO ROAD /
QUORUM DRIVE
IMPROVEMENTS
FROM ADDISON ROAD TO
BELTLINE ROAD**



T O W N O F
ADDISON

GINN, INC.

CONSULTING ENGINEERS

DALLAS, TEXAS

1983

PROJECT MANUAL INCLUDING
CONTRACT DOCUMENTS AND SPECIFICATIONS

FOR

ARAPAHO ROAD/GUORUM DRIVE
IMPROVEMENTS

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

1983

Prepared By:

GINN, INC.
Consulting Engineers

16135 Preston Road

Dallas, Texas 75248

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SECTION 00020 - ADVERTISEMENT FOR BIDS

Sealed proposals addressed to the TOWN OF ADDISON, Texas for ARAPAHO ROAD/QUORUM DRIVE IMPROVEMENTS will be received at the Town of Addison Town Hall (Council Chambers), 5300 Belt Line Road until 10:00 a.m., January 26, 1984, and then publicly opened and read aloud.

The Instructions to Bidders, Proposal Forms, Forms of Contract, Plans, Specifications and Forms of Bid Bond, Performance and Payment Bond, and other contract documents may be examined at the following:

Ginn, Inc., Consulting Engineers
16135 Preston Road, Suite 106
Dallas, Texas 75248
(214) 386-6611

Copies may be obtained at the office of Ginn, Inc. for a deposit of \$50.00 per set, REFUNDABLE ONLY TO BIDDERS who return the set in good condition within ten (10) days of bid opening.

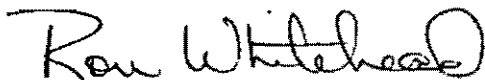
The Owner reserves the right to waive any informalities or to reject any or all bids.

Each bidder must deposit with his bid, a security in the amount, form and subject to the conditions provided in the Instructions to Bidders.

PRINCIPAL ITEMS OF WORK INCLUDED IN THIS PROJECT ARE:

Construction of approximately 1,190 feet of paving on Arapaho Road and 1,300 feet of paving on Quorum Drive. All paving will consist of eight inches (8") of reinforced concrete on lime stabilized subgrade. Also included will be storm sewer, sanitary sewer and water mains.

TOWN OF ADDISON



Ron Whitehead, City Manager

Date

(PLANS WILL BE AVAILABLE JANUARY 4, 1984)

SECTION 00100 - INSTRUCTIONS TO BIDDERS

PART 1: GENERAL

1.1 GENERAL

- A. **Defined Terms:** Terms used in these Instructions to Bidders which are in the General Conditions of the Construction Contract, have the meanings assigned to them in the General Conditions.

Owner: Wherever the word "OWNER" is used in the specifications and Contract Documents, it shall be understood as referring to the Town of Addison; Addison, Texas.

Engineer: Wherever the word "ENGINEER" is used in the specifications and Contract Documents, it shall be understood as referring to Ginn, Inc.; 16135 Preston Road, Suite 106; Dallas, Texas 75248; phone (214) 386-6611.

Inspector: The authorized representative of the Engineer, assigned to supervise and inspect any or all parts of the work and the materials to be used therein.

Bidder: An individual, firm or corporation or any combination thereof, submitting a proposal.

Contractor: The individual, firm or corporation or any combination thereof, party of the second part, with which the contract is made by the Town of Addison, Texas.

Superintendent: The representative of the Contractor authorized to receive and fulfill instructions from the Engineer and who shall supervise and direct the construction.

- B. **Documents:** Complete sets of the Bidding Documents in the number and for the deposit sum stated in the Advertisement may be obtained from the Engineer. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Contract Documents in good condition within ten days after opening of Bids. The deposit for the two lowest and/or best proposals will be retained until the required bonds have been furnished and the contract executed.

Plans and specifications may be examined at the place indicated above and copies may be obtained upon providing security indicated. Deposits will be forfeited unless bidder returns sets in good condition within ten days after opening of bids. No partial sets of plans or specifications will be issued.

Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

- C. **Discrepancies:** should a Bidder find any discrepancy, ambiguity, inconsistency, error or omission from the drawings, specifications or project manual or of the site and local conditions, or be in doubt as to their written meaning, it is requested that the Bidder promptly notify the Engineer who then will send a written instruction or interpretation to all known holders of the documents. Neither the Owner nor the Engineer will be responsible for any oral instructions.
- D. **Addenda:** Any addenda to the drawings, specifications, or project manual issued before or during the time of bidding shall be included in the proposal and become a part of the contract.

Addenda will be mailed or delivered to all Bidders receiving a complete set of Bidding Documents.

No Addenda will be issued later than four (4) days prior to the date for receipt of bids except an Addendum, if necessary, postponing the date for receipt of bids or withdrawing the request for bids.

Each Bidder shall acknowledge on bid proposal that he has received all Addenda issued.

Substitutions: The materials, products and equipment described in the specifications and/or shown on the drawings establish a standard or required function, dimension, appearance and quality as required by the Engineer. NO SUBSTITUTIONS WILL BE CONSIDERED DURING BIDDING.

1.2. BIDDING

- A. **Method of Bidding:** The proposal provides for quotation of a price, or prices, for one or more bid items, which may be lump sum bid prices, alternate bid prices, or a combination thereof. No payment will be made for items not set up on the proposal, unless otherwise provided by contract amendment. All Bidders are cautioned that they should include in the prices quoted for the various bid items all necessary allowances for the performance of all work required for the satisfactory completion of the project. Single bids received on general contract will include general, mechanical, and electrical construction.

- B. Subcontracts: The bidder is specifically advised that any person, firm or other party to whom it is proposed to award a subcontract under this contract must be acceptable to the Owner. It is further required that the name of the mechanical and electrical subcontractors and any other listed subcontractor be noted on the proposal form in the blank space provided. Failure to list these will be sufficient grounds to reject the proposal.

1.3 BID SECURITY

- A. Bid Security shall be made payable to the Town of Addison in an amount of five percent (5%) of the Bidder's maximum Bid price and in the form of certified or bank check or a Bid Bond issued by a Surety Company holding a permit from The State of Texas to act as surety.
- B. The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract Security, whereupon it will be returned; if the Successful Bidder fails to execute and deliver the Agreement and furnish the required Contract Security within fifteen (15) days of the Notice of Award, Owner may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the sixty-first day after the Bid Opening or until a contract is awarded. Bid security of other Bidders will be returned within seven (7) days of the Bid Opening.

1.4 QUALIFICATION OF BIDDERS

- A. To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five days of Owner's request written evidence of the types set forth in the Supplementary Conditions, such as financial data, previous experience and evidence of Bidder's qualification to do business in The State of Texas or covenant to obtain such qualification prior to award of the contract.
- B. Additionally, all Bidders shall be prepared to show that they are skilled, experienced in, and have been regularly engaged in the type of construction involved and that they have the necessary financial resources to finish the Work in a proper and satisfactory manner in the time specified.
- C. The Engineer and Owner reserve the right to require documented evidence of the foregoing from the Contractor prior to award of the contract.

1.5 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- A. **Conditions of Work:** Each Bidder must fully inform himself of the conditions relating to construction of the project and employment of labor thereon. Failure to do so will not relieve a Successful Bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible, the Contractor must employ methods or means to cause no interruption of or interference with the work of any other contractor.
- B. **Examination of Site:** All Bidders, including the general Contractor and subcontractors shall examine carefully the site of the Work to acquaint himself with working conditions and all difficulties that may be involved therein, and shall examine carefully all drawings, specifications and other Contract Documents to familiarize himself with all of the requirements, terms and conditions thereof. Any information relating to the Work furnished by the Owner or others, or failure to make these examinations shall in no way relieve any Bidder from the responsibility of fulfilling all of the terms of the contract, if awarded a contract. Also, failure to visit the site will in no way relieve the Successful Bidder from furnishing any materials or performing any work required to complete Work in accordance with drawings and project manual without additional cost to the Owner.
- C. **Laws, Regulations, Permits and Taxes:** The Bidder's attention is directed to the fact that all applicable state laws, municipal ordinances, rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they shall be deemed to be included in the contract the same as though herein written out in full as a part of these documents.
- Contractor shall secure, and include compensation for, in his proposal, all permits and all required taxes which are levied by governing bodies and which are assessable upon labor and materials entering into this Work.
- D. Reference is made to the Supplementary Conditions for the identification of those reports of investigations and test of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by Engineer in preparing the drawings and specifications. Owner will make copies of such reports available to any Bidder requesting them. These reports are not guaranteed as to accuracy or completeness, nor are they part of the Contract Documents. Before submitting his Bid each Bidder will, at his own expense, make such additional investigations and tests as the Bidder may deem necessary

to determine his Bid for performance of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

- E. On request, Owner will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid.
- F. The lands upon which the Work is to be performed, rights-of-way for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Supplementary Conditions, General Requirements or Drawings.
- G. The quantities of work or materials as set forth in the proposal form or on the plans are a calculated approximation and are for the purpose of comparing the Bids on a uniform basis. Payment will be made by the Owner to the Contractor only for the actual quantities of work performed or materials furnished in accordance with the contract. The quantity of work to be done and materials to be furnished may be increased or decreased as hereinafter provided.
- H. **Obligation of Bidder:** At the time of opening of bids, each Bidder will be presumed to have inspected the site and to have read and be thoroughly familiar with the drawings, specifications and the project manual, including all addenda.

The submission of Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this section, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

1.6 BID PROPOSALS

- A. **General:** Bid Proposals shall be based exactly on the documents as issued. No substitutions, revisions or omissions from the plans and/or specifications will be accepted unless authorized in writing by the Engineer.

The proposal form is attached hereto; additional copies may be obtained from the Engineer.

Bid proposals must be completed in ink or by typewriter. The Bid price of each item on the form must be stated in words and numerals; in case of a conflict, words will take precedence.

The Bid proposal must be signed with the full name of the Contractor and his address; if a partnership, by a member of the firm with the name and address of each member; if a corporation, by an officer thereof, the corporate name, and have a corporate seal affixed.

- B. Form: Make all proposals on forms provided and fill all applicable blank spaces without interlineation, alteration or erasure and must not contain recapitulation of the Work to be done. No oral, telegraphic, or telephonic proposals will be considered. Any addenda issued during the bidding shall be noted on the proposal form.
- C. Submittal: Each Bidder shall submit his Bid completely and properly on proposal forms provided. Each Bid, without the "Specifications and Contract Documents", shall be enclosed in a separate sealed envelope, with the words "Bid for" followed by the project title and the Bidder's name and address, and accompanied by the Bid Security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face thereof.

Specifications and Contract Documents shall not be returned with the Bids.

- D. Telegraphic Modifications: Any Bidder may modify his Bid by telegraphic communication at any time provided such communication is received by the Owner prior to the scheduled closing time. Written confirmation must be received within two days from the closing time or no consideration will be given the telegraph modifications.
- E. Withdrawal: If, within twenty-four hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of his Bid, that Bidder may withdraw his Bid and the Bid Security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work.

1.7 OPENING OF BIDS

- A. The Town of Addison, Texas (herein called the "Owner") invites all Bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at 10:00 AM, Thursday, January 26, 1984 in Town Hall, 5300 Belt Line Road, and then at said location publicly opened and read aloud. The envelopes containing the Bids must be sealed, addressed to the Town of Addison, and designated as "Bid for ARAPAHO ROAD/QUORUM DRIVE IMPROVEMENTS."

- B. When Bids are opened publicly they will be read aloud, and an abstract of the amounts of the base Bids and major alternates (if any) will be made available after the opening of Bids.

1.8 BIDS TO REMAIN OPEN

All Bids shall remain open for ninety (90) days after the day of Bid Opening, but Owner may, in his sole discretion, release any Bid and return the Bid Security prior to that date.

1.9 CONTRACT AWARD

- A. Owner reserves the right to reject any and all Bids, to waive any and all informalities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive or conditional Bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
- B. In evaluating Bids, Owner shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and alternates and unit prices if requested in the Bid forms. It is the Owner's intent to accept alternates (if any are accepted) in the order in which they are listed in the Bid form, but Owner may accept them in any order or combination.
- C. Owner may consider the qualifications and experience of subcontractors and other persons and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the Work as to which the identity of subcontractors and other persons and organizations must be submitted as provided in the Supplementary Conditions. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment may also be considered by Owner.
- D. Owner may conduct such investigations as he deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed subcontractors and other persons and organizations to do the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
- E. Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

- F. If the contract is to be awarded it will be awarded to the lowest Bidder whose evaluation by Owner indicated to Owner that the award will be in the best interests of the project.
- G. If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within ninety (90) days after the day of the Bid opening.
- H. After award of contract to Successful Bidder, the Contractor shall agree to begin work within ten (10) calendar days after the date of "Notice to Proceed" of the Owner and to fully complete the project within the stated number of consecutive calendar days thereafter as stipulated on the bid proposal and agreement between Owner and Contractor.

1.10 LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

In the event the Bidder's proposal is accepted, and he fails or refuses to enter into the contract and furnish the required Performance and Payment Bonds within ten (10) days after he has received notice of the acceptance of his Bid, unless given a written extension of time by the Owner, then the Bidder will be considered as having abandoned his proposal and his Bid Security will be retained by the Owner as liquidated damages, IT NOW BEING AGREED that the specified sum of the Bid Security is a fair estimate of the amount of damages that the Owner will sustain in case the Bidder fails to enter into the contract and furnish the Performance and Payment Bonds within the time stated in the proposal.

1.11 CONTRACT TIME

- A. The number of days within which, or the date by which, the Work is to be completed (the Contract Time) is set forth in the Bid Form and will be included in the Agreement. The Contract Time for this project is:

TWO HUNDRED SEVENTY (270) CALENDAR DAYS

- B. Extension of time of completion will be permissible in accordance with Section 4.02 of General Conditions of Agreement.

1.12 LIQUIDATED DAMAGES

Provisions for liquidated damages are set forth in the Proposal. Liquidated damages for this project are:

FIVE HUNDRED DOLLARS (\$500.00) PER CALENDAR DAY

1.13 SUBCONTRACTORS, ETC.

- A. If the apparent Successful Bidder, and any other Bidder so requested will within seven (7) days after the day of the Bid Opening submit to the Owner a list of all the subcontractors and other persons and organizations (including those who are to furnish the principal items of material and equipment) proposed for those portions of the Work as to which such identification is so required. Such list shall be accompanied by an experience statement with pertinent information as to similar projects and other evidence of qualification for each such Subcontractor, person and organization if requested by the Owner. If Owner or Engineer after due investigation has reasonable objection to any proposed Subcontractor, other person or organization, either may before giving the Notice of Award request the apparent Successful Bidder to submit an acceptable substitute without an increase to Bid price. If the apparent Successful Bidder declines to make any such substitution, the Contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any Subcontractor, other person or organization so listed and to whom Owner or Engineer does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer.
- B. In contracts where the Contract Price is on the basis of Cost-of-the-Work Plus a Fee, the apparent Successful Bidder, prior to the Notice of Award, shall identify in writing to Owner those portions of the Work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the Work with Owner's written consent.
- C. No Contractor shall be required to employ any Subcontractor, other person or organization against whom he has reasonable objection.

1.14 PERFORMANCE AND OTHER BONDS

- A. Security for Faithful Performance: Simultaneously with his delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this contract and for the payment of all persons performing labor on the project under the contract and furnish materials in connection with this contract. The surety on such bond or bonds shall be by a duly authorized surety company, satisfactory to the Owner, if requested by the Bidder.

1.15 SIGNING OF AGREEMENT

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least six unsigned counterparts of the Agreement and all other Contract Documents. Within fifteen (15) days thereafter, Contractor shall sign and deliver at least six counterparts of the Agreement to Owner with all other Contract Documents attached. Within ten (10) days thereafter, Owner will deliver all fully signed counterparts to Contractor. Engineer will identify those portions of the Contract Documents not fully signed by Owner and Contractor and such identification shall be binding on all parties.

1.16 CONTRACT PAYMENTS

The Bidder's attention is called to the fact that part payment of the contract price shall be in the form of paving assessment certificates. "Upon completion of a unit of work the City shall issue to the Contractor the certificates in part payment of its obligation, and Contractor shall assign such certificates to the City and be paid in cash the face value of such certificates without discount."

END OF SECTION

SECTION 00110 - GENERAL INSTRUCTIONS FOR BONDS

PART 1: GENERAL

1.1 GENERAL

- A. The surety on each bond must be a responsible surety company which is qualified to do business in Texas and satisfactory to the Owner.
- B. The name, including full Christian name, and residence of each individual party to the bond shall be inserted in the body thereof, and each such party shall sign the bond with his usual signature on the line opposite the scroll seal, and if signed in Maine, Massachusetts or New Hampshire, an adhesive seal shall be affixed opposite the signature.
- C. If the principals are partners, their individual names will appear in the body of the bond, with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.
- D. The signature of a witness shall appear in the appropriate place, attesting the signature of each individual party to the bond.
- E. If the principal or surety is a corporation, the name of the state in which incorporated shall be inserted in the appropriate place in the body of the bond, and said instrument shall be executed and attested under the corporate seal, the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.
- F. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary according to the form attached hereto. In lieu of such certificate, records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.
- G. The date of this bond must not be prior to the date of the contract in connection with which it is given.
- H. Amounts of bonds shall be as set forth in Paragraph 3.10 of the General Condition.

SECTION 0220 - SOIL INVESTIGATION DATA

1.1 GENERAL:

- A. A soil investigation report has been prepared for the proposed improvements and obtained by the Engineer for his own use in designing the project. Its accuracy or completeness is not guaranteed by the Owner or the Engineer and in no event is it to be considered as part of the contract plans or specifications. Contractor shall not rely on subsurface information obtained from Engineer, or indirectly from Owner.
- B. Bidders should visit the site and acquaint himself with conditions prior to bidding. Additionally, the Bidder/Contractor may make his own investigation of existing subsurface conditions. Neither the Owner, nor the Engineer will be responsible in any way for additional compensation for additional work performed under the contract due to Contractor's assumptions based on subsoil data prepared solely for Engineer's use.
- C. A copy of this soil investigation report may be inspected at the Engineer's office. It is available for information only and is not a warranty of subsurface conditions. The data is available for review by bidding contractors upon written request. Requests are required to be in the following form:

Please forward copy of soil investigation report for the subject project. The contracting firm herein named releases the Owner and Engineer from any responsibility or obligation as to its accuracy or completeness or for any additional compensation for work performed under the contract due to assumptions based on use of such furnished information.

END OF SECTION

SECTION 00300 - PROPOSAL AND BID FORM

FOR: ARAPAHO ROAD/GUORUM DRIVE IMPROVEMENTS
ADDISON, TEXAS

TO: TOWN OF ADDISON (hereinafter called "OWNER")
P. O. BOX 144
ADDISON, TEXAS 75001

Gentlemen:

The BIDDER, in compliance with your invitation for bids for the above referenced project, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the Contract Documents, of which this proposal is a part.

The undersigned, as BIDDER, declares that the only person or parties interested in this proposal as principals are those named herein, that this proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the form of contract, Notice to Bidders, Specifications, and the Plans herein referred to and has carefully examined the locations, conditions and classes of materials called for in the Contract and Specifications in the manner prescribed and according to the requirements of the Owner as herein set forth.

It is understood that the following quantities of work to be done at unit prices are approximate only, and are intended principally to serve as a guide in evaluating bids. Payments for such items will be made on the basis of the actual quantity incorporated in the work.

It is further agreed that the quantities of work to be done at unit prices and material to be furnished may be increased or diminished as may be considered necessary to complete the work fully as planned and contemplated, and that all quantities of work whether increased or decreased are to be performed at the unit prices set forth below, except as provided for in the Specifications.

It is further agreed that lump sum prices may be increased to cover additional work ordered by the OWNER, but not shown on the Plans or required by the Specifications, in accordance with the provisions of the General Conditions. Similarly, they may be decreased to cover deletion of work so ordered.

BIDDER hereby agrees to commence work under this contract on or before a date to be specified in written "Notice to Proceed" by the OWNER and to fully complete the project within 270 consecutive calendar days thereafter as stipulated in the Specifications. BIDDER further agrees to pay as liquidated damages, the sum of \$500.00 for each consecutive calendar day thereafter as hereinafter provided in Paragraph 1.4, E of the Special Conditions.

Accompanying this proposal is a Certified or Cashier's Check payable to the Town of Addison (Bid Bond) in the amount of _____ Dollars (\$ _____), which is five percent (5%) of the greatest amount bid.

BIDDER acknowledges receipt of the following addendum: (If non-issued, indicate N/A)

ADDENDA # _____ DATE _____

ADDENDA # _____ DATE _____

ADDENDA # _____ DATE _____

ADDENDA # _____ DATE _____

SUBCONTRACTORS:

BIDDER shall list below principal subcontractors proposed for use on this project:

<u>NAME</u>	<u>ADDRESS</u>	<u>PHONE NO.</u>
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----

BIDDER agrees to perform all the work described in the Specifications as shown on the Plans for the following unit prices:

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

BID FORM

PROJECT: ARAPAHO ROAD/QUORUM DRIVE
IMPROVEMENTS

LOCATION: ADDISON, TX

ITEM NO	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	UNIT PRICE WRITTEN	ITEM PRICE
100	Prepare Right-of-Way	24.2	STA.			
104.1	Sawed Break-out Groove	1,382	LF			
104.2	Remove Old Concrete Paving (where ind.)	410	SY			
104.3	Remove Old Concrete Curb & Gutter (where ind.)	200	LF			
110	Unclassified Road Excav. (Dens.Cont.)	6,129	CY			
120	Unclassified Channel Excav. (ord. compl.)	1,000	LF			
160	Placing 14" Topsoil (in Median-sandy loam)	838	SY			
248	Flexible Base, Type A, Gr. 2, Class III (Dens.Cont.)	100	CY			
260	Lime Treated Subgrade 6" Thick (Dens.Cont.)	15,196	SY			

BID FORM

ARAPAHO ROAD/QUORUM DRIVE
IMPROVEMENTS

LOCATION: ADDISON, TEXAS

PROJECT:

ITEM NO	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	UNIT PRICE WRITTEN	ITEM PRICE
264	Lime Slurry, Type A (6% Max.) -27#/s.y.	205	TON			
340.1	HMACP, Type D, Class A	178	TON			
340.2	HMACP, Type B Class A	60	TON			
360.1	8" Concrete Pavement (3,000 psi)	14,261	SY			
360.2	6" Monolithic Concrete Curb (3,000 psi)	5,289.5	LF			
360.3	Concrete-Street Header Concrete-Railroad Header	138	LF			
421.1	Sta. 0+05±, Junction Box Class A Concrete w/reinf. steel	1	LS			
421.2	Sta. 6+50±, Junction Box Class A Concrete w/reinf. steel	1	LS			
421.3	Sta. 11+34, Junction Box Class A Concrete w/reinf. steel	1	LS			

BID FORM

ARAPAHO ROAD/QUORUM DRIVE
IMPROVEMENTS

ADDISON, TEXAS

LOCATION:

PROJECT:

ITEM NO	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	UNIT PRICE WRITTEN	ITEM PRICE
464.1	18" RCP, Class III	316	LF			
464.2	24" RCP, Class III	649	LF			
464.3	30" RCP, Class III	61	LF			
464.4	36" RCP, Class III	627	LF			
464.5	42" RCP, Class III	340	LF			
464.6	48" RCP, Class III	383	LF			
464.7	54" RCP, Class III	56	LF			
464.8	60" RCP, Class III	50	LF			
470.1	X, Y Inlets (complete & in place w/riprap)	7	EA			

BID FORM

ARAPAHO ROAD/QUORUM DRIVE
IMPROVEMENTS

LOCATION: ADDISON, TEXAS

PROJECT:

ITEM NO	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	UNIT PRICE WRITTEN	ITEM PRICE
470.2	10' Mod. Recessed Inlet (compl.in place)	4	EA			
470.3	10' Mod. Dble. Recessed Inlet (compl.in place)	1	EA			
470.4	10' Recessed Inlet (compl.in place)	7	EA			
470.5	4' Dia. Manhole (10'-12' deep) (compl.in place)	5	EA			
476	Boring 36" RCP, Class IV	65	LF			
479.1	Adjust Water Valve	19	EA			
479.2	Relocate Fire Hydrant	5	EA			
479.3	Relocate Water Meter	5	EA			
479.4	Relocate Clean-out Sanitary Sewer	1	EA			

BID FORM

ARAPAHO ROAD/QUORUM DRIVE
IMPROVEMENTS

ADDISON, TEXAS

LOCATION:

PROJECT:

ITEM NO	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	UNIT PRICE WRITTEN	ITEM PRICE
479.5	Adjust Manhole	2	EA			
479.6	Relocate/Lower 8" Water Main	80	LF			
479.7	Concrete Encasement 8" Sanitary Sewer	60	LF			
479.8	Lower 2" Water Service	105	LF			
504	Field Office	1	LS			
530.1	6" Concrete Curb (Doweled In)	25	LF			
530.2	6" Concrete Sidewalk	58	SY			
530.3	5" Reinf. Concrete Driveway (3600 psi)	830.5	SY			
550	6' Chain Link Barrier Fence (Relocate)	360	LF			

BID FORM

ARAPAHO ROAD/QUORUM DRIVE
IMPROVEMENTS

LOCATION: ADDISON, TEXAS

PROJECT:

ITEM NO	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	UNIT PRICE WRITTEN	ITEM PRICE
481.1	8" PVC, SDR 35, Sanitary Sewer,	216	LF			
481.2	10" PVC, SDR 35, Sanitary Sewer,	488	LF			
582.1	24" R.C.C.P. Water Line	1,545	LF			
582.2	16" Ductile Iron Pipe Water Main	84	LF			
582.3	12" Ductile Iron Pipe Water Main	306	LF			
582.4	30" R.C.C.P. Water Line	25	LF			
582.5	30" Butterfly valve, complete in place	1	EA			
582.6	24" Butterfly valve, complete in place	5	EA			
582.7	16" Butterfly valve, complete in place	1	EA			

BID FORM

ARAPAHO ROAD/QUORUM DRIVE
IMPROVEMENTS

ADDISON, TEXAS

LOCATION:

ITEM NO	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	UNIT PRICE WRITTEN	ITEM PRICE
582.8	12" Gate Valve; compl. w/valve box	4	EA			
582.9	16" Tapping Sleeve	1	EA			
582.10	12" Cut-in Sleeve	1	EA			
582.11	8" Cut-in Sleeve	1	EA			
582.12	Fire Hydrant, complete w/valve	4	EA			
582.13	Tie-in to existing system, complete	3	EA			
582.14	54" diameter Steel Casing	120	LF			
618.1	Two-2" PVC Conduit, Sch. 40 (elec), compl. in place	1,230	LF			
618.2	Two-3" PVC Conduit, Sch. 40 (elec), compl. in place	340	LF			

BID FORM

ARAPAHO ROAD/QUORUM DRIVE
IMPROVEMENTS

LOCATION: ADDISON, TEXAS

PROJECT:

ITEM NO	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	UNIT PRICE WRITTEN	ITEM PRICE
618.3	Pull Box	16	EA			
618.4	4" PVC Conduit, Sch. 40 (water), compl. in place	275	LF			
674.1	4" Traffic Button Single Refl. P-15-W	134	EA			
674.2	4" Traffic Button Double Refl. P-117-Y	552	EA			
674.3	8" Traffic Button, Single Refl. P-18-1-W	38	EA			
676	4" Traffic Button, Non-Ref. P-7-W	670	EA			
666.1	18" White STOP Bar (Thermoplastic)	60	LF			
666.2	8' Left-Turn Arrows Thermoplastic	1	EA			
666.3	8' Right-Turn Arrows Thermoplastic	1	EA			
TOTAL BID PRICE					=	

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

BIDDER understands that the OWNER reserves the right to reject any or all bids and to waive any informalities in the bidding. In the event the OWNER elects to withdraw one or more of the deductive alternates, consideration will be in the following order:

None

The BIDDER agrees that this bid shall be good and may not be withdrawn for a period of ninety (90) calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, BIDDER will execute the formal contract attached within ten (10) days and deliver a Surety Bond or Bonds as required by the General Conditions. The Bid Security attached in the sum of _____ (\$ _____) is to become the property of the OWNER in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the OWNER caused thereby.

Respectfully submitted,

(Firm)

By: _____

Title: _____

(SEAL-if bid is by a
corporation)

(Business Address)

(Telephone Number)

END OF PROPOSAL

Sec. 00300

SECTION 00400 - BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____

as Principal, and _____
as Surety, are hereby held and firmly bound unto
----- as Owner in the
penal sum of _____
for payment of which, well and truly to be made, we hereby jointly
and severally bind ourselves, our heirs, executors,
administrators, successors and assigns.

SIGNED, this _____ day of _____, 19__.

The Condition of the above obligation is such that whereas
the Principal has submitted to _____ a
certain Bid, attached hereto and hereby made a part hereof to
enter into a contract in writing, for the

NOW, THEREFORE,

- a. If said Bid shall be rejected, or in the alternate,
- 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 the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise and 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.

----- (L.S.)
Principal

Surety

By: -----

Date: -----

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 where the project is located.

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GENERAL CONDITIONS OF AGREEMENT

1. DEFINITIONS OF TERMS

1.01 OWNER, CONTRACTOR AND ENGINEER. The OWNER, the CONTRACTOR and the ENGINEER are those persons or organizations identified as such in the Agreement and are referred to throughout the Contract Documents as if singular in number and masculine in gender. The term ENGINEER means the ENGINEER or his duly authorized representative. The ENGINEER shall be understood to be the ENGINEER of the OWNER, and nothing contained in the Contract Documents shall create any contractual or agency relationship between the ENGINEER and the CONTRACTOR.

1.02 CONTRACT DOCUMENTS. The Contract Documents shall consist of the Notice to Contractors (Advertisement), Special Conditions (Instructions to Bidders), Proposal, signed Agreement, Performance and Payment Bonds (when required), Special Bonds (when required), General Conditions of the Agreement, Technical Specifications, Plans, and all modifications thereof incorporated in any of the documents before the execution of the agreement.

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. In case of conflict between any of the Contract Documents, priority of interpretation shall be in the following order: Signed Agreement, Performance and Payment Bonds, Special Bonds (if any), Proposal, Special Conditions of Agreement, Notice to Contractors, Technical Specifications, Plans, and General Conditions of Agreement.

1.03 SUB-CONTRACTOR. The term Sub-Contractor, as employed herein, includes only those having a direct contract with the CONTRACTOR and it includes one who furnishes material worked to a special design according to the plans or specifications of this work, but does not include one who merely furnishes material not so worked.

1.04 WRITTEN NOTICE. Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered mail to the last business address known to him who gives the notice.

1.05 WORK. The CONTRACTOR shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, services, insurance, and all water, light, power, fuel, transportation and other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of a good quality. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials. Materials or work described in words which so applied have a well known technical or trade meaning shall be held to refer to such recognized standards.

1.06 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 ENGINEER or OWNER to be done by the CONTRACTOR to accomplish any change, alteration or addition to the work shown upon the plans, or reasonably implied by the specifications, and not covered by the CONTRACTOR'S Proposal, except as provided under "Changes and Alterations", herein.

1.07 WORKING DAY. A "Working Day" is defined as any day not including Saturdays, Sundays or any legal holidays, in which weather or other conditions, not under the control of the CONTRACTOR, will permit construction of the principal units of the work for a period of not less than seven (7) hours between 7:00 a.m. and 6:00 p.m.

1.08 CALENDAR DAY. "Calendar Day" is any day of the week or month, no days being excepted.

1.09 SUBSTANTIALLY COMPLETED. By the term "substantially completed" is meant that the structure has been made suitable for use or occupancy or the facility is in condition to serve its intended purpose, but still may require minor miscellaneous work and adjustment.

2. RESPONSIBILITIES OF THE ENGINEER AND THE CONTRACTOR

2.01 OWNER-ENGINEER RELATIONSHIP. The ENGINEER will be the OWNER'S representative during construction. The duties, responsibilities and limitations of authority of the ENGINEER as the OWNER'S representative during construction are as set forth in the Contract Documents and shall not be extended or limited without written consent of the OWNER and ENGINEER. The ENGINEER will advise and consult with the OWNER, and all of OWNER'S instructions to the CONTRACTOR shall be issued through the ENGINEER.

2.02 PROFESSIONAL INSPECTION BY ENGINEER. The ENGINEER shall make periodic visits to the site to familiarize himself generally with the progress of the executed work and to determine if such work generally meets the essential performance and design features and the technical and functional engineering requirements of the Contract Documents; provided and except, however, that the ENGINEER shall not be responsible for making any detailed, exhaustive, comprehensive or continuous on-site inspection of the quality or quantity of the work or be in any way responsible, directly or indirectly, for the construction means, methods, techniques, sequences, quality, procedures, programs, safety precautions or lack of same incident thereto or in connection therewith. Notwithstanding any other provision of this agreement or any other Contract Document, the ENGINEER shall not be in any way responsible or liable for any acts, errors, omissions or negligence of the CONTRACTOR, any subcontractor or any of the CONTRACTOR'S or subcontractor's agents, servants or employees or any other person, firm or corporation performing or attempting to perform any of the work.

2.03 PAYMENTS FOR WORK. The ENGINEER shall review CONTRACTOR'S applications for payment and supporting data, determine the amount owed to the CONTRACTOR and approve, in writing, payment to CONTRACTOR in such amounts; such approval of payment to CONTRACTOR constitutes a representation to the OWNER of ENGINEER'S professional judgment that the work has progressed to the point indicated to the best of his knowledge, information and belief, but such approval of an application for payment to CONTRACTOR shall not be deemed as a representation by ENGINEER that ENGINEER has made any examination to determine how or for what purpose CONTRACTOR has used the moneys paid on account of the Contract price.

2.04 INITIAL DETERMINATIONS. The ENGINEER initially shall determine all claims, disputes and other matters in question between the CONTRACTOR and the OWNER relating to the execution or progress of the work or the interpretation of the Contract Documents and the ENGINEER'S decision shall be rendered in writing within a reasonable time. Should the ENGINEER fail to make such decision within a reasonable time, appeal to arbitration may be taken as if his decision had been rendered against the party appealing.

2.05 OBJECTIONS. In the event the ENGINEER renders any decision which, in the opinion of either party hereto, is not in accordance with the meaning and intent of this contract, either party may file with the ENGINEER within thirty days his written objection to the decision, and by such action may reserve the right to submit the question so raised to arbitration as hereinafter provided.

2.06 LINES AND GRADES. Unless otherwise specified, all lines and grades shall be furnished by the ENGINEER or his representative. Whenever necessary, construction work shall be suspended to permit performance of this work, but such suspension will be as brief as practicable and the CONTRACTOR shall be allowed no extra compensation therefor. The CONTRACTOR shall give the ENGINEER ample notice of the time and place where lines and grades will be needed. All stakes, marks, etc., shall be carefully preserved by the CONTRACTOR, and in case of careless destruction or removal by him or his employees, such stakes, marks, etc., shall be replaced at the CONTRACTOR'S expense.

2.07 CONTRACTOR'S DUTY AND SUPERINTENDENCE. The CONTRACTOR shall give adequate attention to the faithful prosecution and completion of this contract and shall keep on the work, during its progress, a competent superintendent and any necessary assistants. The superintendent shall represent the CONTRACTOR in his absence and all directions given to him shall be as binding as if given to the CONTRACTOR.

The CONTRACTOR is and at all times shall remain an independent contractor, solely responsible for the manner and method of completing his work under this contract, with full power and authority to select the means, method and manner of performing such work, so long as such methods do not adversely affect the completed improvements, the OWNER and ENGINEER being interested only in the result obtained and conformity of such completed improvements to the plans, specifications and contract.

Likewise, the CONTRACTOR shall be solely responsible for the safety of himself, his employees and other persons, as well as for the protection of the safety of the improvements being erected and the property of himself or any other person, as a result of his operations hereunder. Engineering construction drawings and specifications as well as any additional information concerning the work to be performed passing from or through the ENGINEER shall not be interpreted as requiring or allowing CONTRACTOR to deviate from the plans and specifications, the intent of such drawings, specifications and any other such instructions being to define with particularity the agreement of the parties as to the work the CONTRACTOR is to perform. CONTRACTOR shall be fully and completely liable, at his own expense, for design, construction, installation and use, or non-use, of all items and methods incident to performance of the contract, and for all loss, damage or injury incident thereto, either to person or property, including, without limitation, the adequacy of all temporary supports, shoring, bracing, scaffolding, machinery or equipment, safety precautions or devices, and similar items or devices used by him during construction.

Any review of work in process, or any visit or observation during construction, or any clarification of plans and specifications, by the ENGINEER, or any agent, employee, or representative of either of them, whether through personal observation on the project site or by means of approval of shop drawings for temporary construction or construction processes, or by other means or method, is agreed by the CONTRACTOR to be for the purpose of observing the extent and nature of work completed or being performed, as measured against the drawings and specifications constituting the contract, or for the purpose of enabling CONTRACTOR to more fully understand the plans and specifications so that the completed construction work will conform thereto, and shall in no way relieve the CONTRACTOR from full and complete responsibility for the proper performance of his work on the project, including but without limitation the propriety of means and methods of the CONTRACTOR in performing said contract, and the adequacy of any designs, plans or other facilities for accomplishing such performance. Deviation by the CONTRACTOR from plans and specifications that may have been in evidence during any such visitation or observation by the ENGINEER, or any of his representatives, whether called to the CONTRACTOR'S attention or not shall in no way relieve CONTRACTOR from his responsibility to complete all work in accordance with said plans and specifications.

2.08 CONTRACTOR'S UNDERSTANDING. It is understood and agreed that the CONTRACTOR has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agent or employee of the OWNER or ENGINEER either before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.

2.09 CHARACTER OF WORKMEN. The CONTRACTOR agrees to employ only orderly and competent men, skillful in the performance of the type of work required under this contract, to do the work; and agrees that whenever the ENGINEER shall inform him in writing that any man or men on the work are, in his opinion, incompetent, unfaithful or disorderly, such man or men shall be discharged from the work and shall not again be employed on the work without the ENGINEER'S written consent.

2.10 CONTRACTOR'S BUILDINGS. The building of structures for housing men, or the erection of tents or other forms of protection, will be permitted only at such places as the ENGINEER shall direct, and the sanitary conditions of the grounds in or about such structures shall at all times be maintained in a manner satisfactory to the ENGINEER.

2.11 SANITATION. Necessary sanitary conveniences for the use of laborers on the work, properly secluded from public observation, shall be constructed and maintained by the CONTRACTOR in such manner and at such points as shall be approved by the ENGINEER, and their use shall be strictly enforced.

2.12 SHOP DRAWINGS. The CONTRACTOR shall submit to the ENGINEER, with such promptness as to cause no delay in his own work or in that of any other Contractor, four checked copies, unless otherwise specified, of all shop and/or setting drawings and schedules required for the work of the various trades, and the ENGINEER shall pass upon them with reasonable promptness, making desired corrections. The CONTRACTOR shall make any corrections required by the ENGINEER, file with him two corrected copies and furnish such other copies as may be needed. The ENGINEER'S approval of such drawings or schedules shall not relieve the CONTRACTOR from responsibility for deviations from drawings or specifications, unless he has in writing called the ENGINEER'S attention to such deviations at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop drawings or schedules. It shall be the CONTRACTOR'S responsibility to fully and completely review all shop drawings to ascertain their effect on his ability to perform the required contract work in accordance with the plans and specifications and within the contract time.

Such review by the ENGINEER shall be for the sole purpose of determining the sufficiency of said drawings or schedules to result in finished improvements in conformity with the plans and specifications, and shall not relieve the CONTRACTOR of his duty as an independent contractor as previously set forth, it being expressly understood and agreed that the ENGINEER does not assume any duty to pass upon the propriety or adequacy of such drawings or schedules, or any means or methods reflected thereby, in relation to the safety of either person or property during CONTRACTOR'S performance hereunder.

2.13 PRELIMINARY APPROVAL. The ENGINEER shall not have the power to waive the obligations of this contract for the furnishing by the CONTRACTOR of good material, and of his performing good work as herein described, and in full accordance with the plans and specifications. No failure or omission of the ENGINEER to discover, object to or condemn any defective work or material shall release the CONTRACTOR from the obligations to fully and properly perform the contract, including without limitations, the obligation to at once tear out, remove and properly replace the same at any time prior to final acceptance upon the discovery of said defective work or material; provided, however, that the ENGINEER shall, upon request of the CONTRACTOR, inspect and accept or reject any material furnished, and in event the material has been once accepted by the ENGINEER, such acceptance shall be binding on the OWNER, unless it can be clearly shown that such material furnished does not meet the specifications for this work.

Any questioned work may be ordered taken up or removed for re-examination, by the ENGINEER, prior to final acceptance, and if found not in accordance with the specifications for said work, all expense of removing, re-examination and replacement shall be borne by the CONTRACTOR, otherwise the expense thus incurred shall be allowed as EXTRA WORK, and shall be paid for by the OWNER; provided that, where inspection or approval is specifically required by the specifications prior to performance of certain work, should the CONTRACTOR proceed with such work without requesting prior inspection or approval he shall bear all expense of taking up, removing, and replacing this work if so directed by the ENGINEER.

2.14 DEFECTS AND THEIR REMEDIES. It is further agreed that if the work or any part thereof, or any material brought on the site of the work for use in the work or selected for the same, shall be deemed by the ENGINEER as unsuitable or not in conformity with the specifications, the CONTRACTOR shall, after receipt of written notice thereof from the ENGINEER, forthwith remove such material and rebuild or otherwise remedy such work so that it shall be in full accordance with this contract.

2.15 CHANGES AND ALTERATIONS. The CONTRACTOR further agrees that the OWNER may make such changes and alterations as the OWNER may see fit, in the line, grade, form, dimensions, plans or materials for the work herein contemplated, or any part thereof, either before or after the beginning of the construction, without affecting the validity of this contract and the accompanying Performance and Payment Bonds.

If such changes or alterations diminish the quantity of the work to be done, they shall not constitute the basis for a claim for damages, or anticipated profits on the work that may be dispensed with, except as provided for unit price items under Section 5 "Measurement and Payment." If the amount of work is increased, and the work can fairly be classified under the specifications, such increase shall be paid for according to the quantity actually done and at the unit price, if any, established for such work under this contract, except as provided for unit price items under Section 5 "Measurement and Payment;" otherwise, such additional work shall be paid for as provided under Extra Work. In case the OWNER shall make such changes or alterations as shall make useless any work already done or material already furnished or used in said work, then the OWNER shall recompense the CONTRACTOR for any material or labor so used, and for any actual loss occasioned by such change, due to actual expenses incurred in preparation for the work as originally planned.

3. GENERAL OBLIGATIONS AND RESPONSIBILITIES

3.01 KEEPING OF PLANS AND SPECIFICATIONS ACCESSIBLE. The ENGINEER shall furnish the CONTRACTOR with an adequate and reasonable number of copies of all plans and specifications without expense to him, and the CONTRACTOR shall keep one copy of the same constantly accessible on the work, with the latest revisions noted thereon.

3.02 OWNERSHIP OF DRAWINGS. All drawings, specifications and copies thereof furnished by the ENGINEER shall not be reused on other work, and, with the exception of the signed contract sets, are to be returned to him on request, at the completion of the work. All models are the property of the OWNER.

3.03 ADEQUACY OF DESIGN. It is understood that the OWNER believes it has employed competent engineers and designers. It is, therefore, agreed that the OWNER shall be responsible for the adequacy of the design, sufficiency of the Contract Documents, the safety of the structure and the practicability of the operations of the completed project; provided the CONTRACTOR has complied with the requirements of the said Contract Documents, all approved modifications thereof, and additions and alterations thereto approved in writing by the OWNER. The burden of proof of such compliance shall be upon the CONTRACTOR to show that he has complied with the said requirements of the Contract Documents, approved modifications thereof and all approved additions and alterations thereto.

3.04 RIGHT OF ENTRY. The OWNER reserves the right to enter the property or location on which the works herein contracted for are to be constructed or installed, by such agent or agents as he may elect, for the purpose of inspecting the work, or for the purpose of constructing or installing such collateral work as said OWNER may desire.

3.05 COLLATERAL CONTRACTS. The OWNER agrees to provide by separate contract or otherwise, all labor and material essential to the completion of the work specifically excluded from this contract, in such manner as not to delay the progress of the work, or damage said CONTRACTOR, except where such delays are specifically mentioned elsewhere in the Contract Documents.

3.06 DISCREPANCIES AND OMISSIONS. It is further agreed that it is the intent of this contract that all work must be done and all material must be furnished in accordance with the generally accepted practice, and in the event of any discrepancies between the separate contract documents, the priority of interpretation defined under "Contract Documents" shall govern. In the event that there is still any doubt as to the meaning and intent of any portion of the contract, specifications or drawings, the ENGINEER shall define which is intended to apply to the work.

3.07 EQUIPMENT, MATERIALS AND CONSTRUCTION PLANT. The CONTRACTOR shall be responsible for the care, preservation, conservation, and protection of all materials, supplies, machinery, equipment, tools, apparatus, accessories, facilities, all means of construction, and any and all parts of the work, whether the CONTRACTOR has been paid, partially paid, or not paid for such work, until the entire work is completed and accepted.

3.08 DAMAGES. In the event the CONTRACTOR is damaged in the course of the completion of the work by the act, neglect, omission, mistake or default of the OWNER, or of the ENGINEER, or of any other CONTRACTOR employed by the OWNER upon the work, thereby causing loss to the CONTRACTOR, the OWNER agrees that he will reimburse the CONTRACTOR for such loss. In the event the OWNER is damaged in the course of the work by the act, negligence, omission, mistake or default of the CONTRACTOR, or should the CONTRACTOR unreasonably delay the progress of the work being done by others on the job so as to cause loss for which the OWNER becomes liable, then the CONTRACTOR shall reimburse the OWNER for such loss.

3.09 PROTECTION AGAINST ACCIDENT TO EMPLOYEES AND THE PUBLIC. The CONTRACTOR shall at all times exercise reasonable precautions for the safety of employees and others on or near the work and shall comply with all applicable provisions of Federal, State, and Municipal safety laws and building and construction codes. All machinery and equipment and other physical hazards shall be guarded in accordance with the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America except where incompatible with Federal, State, or Municipal laws or regulations. The CONTRACTOR shall provide such machinery guards, safe walkways, ladders, bridges, gangplanks, and other safety devices. The safety precautions actually taken and their adequacy shall be the sole responsibility of the CONTRACTOR, acting at his discretion as an independent contractor.

3.10 PERFORMANCE AND PAYMENT BONDS. Unless otherwise specified, it is further agreed by the parties to this Contract that the CONTRACTOR will execute separate performance and payment bonds, each in the sum of one hundred (100) percent of the total contract price, in standard forms for this purpose, guaranteeing faithful performance of the work and the fulfillment of any guarantees required, and further guaranteeing payment to all persons supplying labor and materials or furnishing him any equipment in the execution of the Contract, and it is agreed that this Contract shall not be in effect until such performance and payment bonds are furnished and approved by the OWNER.

Unless otherwise approved in writing by the OWNER, the surety company underwriting the bonds shall be acceptable according to the latest list of companies holding certificates of authority from the Secretary of the Treasury of the United States.

Unless otherwise specified, the cost of the premium for the performance and payment bonds shall be included in the CONTRACTOR'S proposal.

3.11 LOSSES FROM NATURAL CAUSES. Unless otherwise specified, all loss or damage to the CONTRACTOR arising out of the nature of the work to be done, or from the action of the elements, or from any unforeseen circumstance in the prosecution of the same, or from unusual obstructions or difficulties which may be encountered in the prosecution of the work, shall be sustained and borne by the CONTRACTOR at his own cost and expense.

3.12 PROTECTION OF ADJOINING PROPERTY. The said CONTRACTOR shall take proper means to protect the adjacent or adjoining property or properties in any way encountered, which might be injured or seriously affected by any process of construction to be undertaken under this Agreement, from any damage or injury by reason of said process of construction; and he shall be liable for any and all claims for such damage on account of his failure to fully protect all adjoining property. The CONTRACTOR agrees to indemnify, save and hold harmless the OWNER and ENGINEER against any claim or claims for damages due to any injury to any adjacent or adjoining property, arising or growing out of the performance of the contract; but any such indemnity shall not apply to any claim of any kind arising out of the existence or character of the work.

3.13 PROTECTION AGAINST CLAIMS OF SUB-CONTRACTORS, LABORERS, MATERIALMEN AND FURNISHERS OF MACHINERY, EQUIPMENT AND SUPPLIES. The CONTRACTOR agrees that he will indemnify and save the OWNER and ENGINEER harmless from all claims growing out of the lawful demands of sub-contractors, laborers, workmen, mechanics, materialmen and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this contract. When so desired by the OWNER, the CONTRACTOR shall furnish satisfactory evidence that all obligations of the

nature hereinabove designated have been paid, discharged or waived. If the CONTRACTOR fails so to do, then the OWNER may at the option of the CONTRACTOR either pay directly any unpaid bills, of which the OWNER has written notice, or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to liquidate any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged, whereupon payments to the CONTRACTOR shall be resumed in full, in accordance with the terms of this contract, but in no event shall the provisions of this sentence be construed to impose any obligation upon the OWNER by either the CONTRACTOR or his Surety.

3.14 PROTECTION AGAINST ROYALTIES OR PATENTED INVENTION. The CONTRACTOR shall pay all royalties and license fees, and shall provide for the use of any design, device, material or process covered by letters patent or copyright by suitable legal agreement with the patentee or owner. The CONTRACTOR shall defend all suits or claims for infringement of any patent or copyright rights and shall indemnify and save the OWNER and ENGINEER harmless from any loss on account thereof, except that the OWNER shall defend all such suits and claims and shall be responsible for all such loss when a particular design, device, material or process or the product of a particular manufacturer or manufacturers is specified or required by the OWNER; provided, however, if choice of alternate design, device, material or process is allowed to the CONTRACTOR, then CONTRACTOR shall indemnify and save OWNER harmless from any loss on account thereof. If the material or process specified or required by the OWNER is an infringement, the CONTRACTOR shall be responsible for such loss unless he promptly gives such information to the OWNER.

3.15 LAWS AND ORDINANCES. The CONTRACTOR shall at all times observe and comply with all Federal, State and local laws, ordinances and regulations, which in any manner affect the contract or the work, and shall indemnify and save harmless the OWNER and ENGINEER against any claim arising from the violation of any such laws, ordinances, and regulations whether by the CONTRACTOR or his employees, except where such violations are called for by the provisions of the Contract Documents. If the CONTRACTOR observes that the plans and specifications are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in the contract for changes in the work. If the CONTRACTOR performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the ENGINEER, he shall bear all costs arising therefrom. In case the OWNER is a body politic and corporate, the law from which it derives its powers, insofar as the same regulates the objects for which, or the manner in which, or the conditions under which the OWNER may enter into contract, shall be controlling, and shall be considered as part of this contract, to the same effect as though embodied herein.

3.16 ASSIGNMENT AND SUBLETTING. The CONTRACTOR further agrees that he will retain personal control and will give his personal attention to the fulfillment of this contract and that he will not assign by Power of Attorney, or otherwise, or sublet said contract without the written consent of the ENGINEER, and that no part or feature of the work will be sublet to anyone objectionable to the ENGINEER or the OWNER. The CONTRACTOR further agrees that the subletting of any portion or feature of the work, or materials required in the performance of this contract, shall not relieve the CONTRACTOR from his full obligations to the OWNER, as provided by this Agreement.

3.17 INDEMNIFICATION. The CONTRACTOR shall defend, indemnify and hold harmless the OWNER and the ENGINEER and their respective officers, agents and employees, from and against all damages, claims, losses, demands, suits, judgments and costs, including reasonable attorneys' fees and expenses, arising out of or resulting from the performance of the work, provided that any such damages, claim, loss, demand, suit, judgment, cost or expense:

- (1) 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,

- (2) Is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any one of them 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.

The obligation of the CONTRACTOR under this Paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, drawings, reports, surveys, Change Orders, designs or specifications, or the giving of or the failure to give directions or instructions by the ENGINEER, his agents or employees, provided such giving or failure to give is the primary cause of the injury or damage.

3.18 INSURANCE. The CONTRACTOR at his own expense shall purchase, maintain and keep in force such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S operations under the Contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- (1) Workmen's compensation claims, disability benefits and other similar employee benefit acts;
- (2) Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees, and claims insured by usual bodily injury liability coverages;
- (3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees, and claims insured by usual bodily injury liability coverages; and
- (4) Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

3.18.1 CERTIFICATE OF INSURANCE. Before commencing any of the work, CONTRACTOR shall file with the OWNER valid Certificates of Insurance acceptable to the OWNER and the ENGINEER. Such Certificates shall contain a provision that coverages afforded under the policies will not be cancelled until at least fifteen days' prior written notice has been given to the OWNER.

The CONTRACTOR shall also file with the OWNER valid Certificates of Insurance covering all sub-contractors.

4. PROSECUTION AND PROGRESS

4.01 TIME AND ORDER OF COMPLETION. It is the meaning and intent of this contract, unless otherwise herein specifically provided, that the CONTRACTOR shall be allowed to prosecute his work at such times and seasons, in such order of precedence, and in such manner as shall be most conducive to economy of construction: provided, however, that the order and the time of prosecution shall be such that the work shall be substantially completed as a whole and in part, in accordance with this contract, the plans and specifications, and within the time of completion designated in the Proposal; provided, also, that when the OWNER is having other work done, either by contract or by his own force, the ENGINEER may direct the time and manner of constructing the work done under this contract, so that conflict will be avoided and the construction of the various works being done for the OWNER shall be harmonized.

The CONTRACTOR shall submit, at such times as may reasonably be requested by the ENGINEER, schedules which shall show the order in which the CONTRACTOR proposes to carry on the work, with dates at which the CONTRACTOR will start the several parts of the work, and estimated dates of completion of the several parts.

4.02 EXTENSION OF TIME. Should the CONTRACTOR be delayed in the completion of the work by any act or neglect of the OWNER or ENGINEER, or of any employee of either, or by other contractors employed by the OWNER, or by changes ordered in the work, or by strikes, lockouts, fires, and unusual delays by common carriers, or unavoidable cause or causes beyond the CONTRACTOR'S control, or by any cause which the ENGINEER shall decide justifies the delay, then an extension of time shall be allowed for completing the work, sufficient to compensate for the delay, the amount of the extension to be determined by the ENGINEER, provided, however, that the CONTRACTOR shall give the ENGINEER prompt notice in writing of the cause of such delay.

4.03 HINDRANCES AND DELAYS. No claims shall be made by the CONTRACTOR for damages resulting from hindrances or delays from any cause (except where the work is stopped by order of the OWNER) during the progress of any portion of the work embraced in this contract. In case said work shall be stopped by the act of the OWNER, then such expense as in the judgment of the ENGINEER is caused by such stoppage of said work shall be paid by the OWNER to the CONTRACTOR.

5. MEASUREMENT AND PAYMENT

5.01 QUANTITIES AND MEASUREMENTS. No extra or customary measurements of any kind will be allowed, but the actual measured and/or computed length, area, solid contents, number and weight only shall be considered, unless otherwise specifically provided.

5.02 ESTIMATED QUANTITIES. This agreement, including the specifications, plans and estimate, is intended to show clearly all work to be done and material to be furnished hereunder. Where the estimated quantities are shown for the various classes of work to be done and material to be furnished under this contract, they are approximate and are to be used only as a basis for estimating the probable cost of the work and for comparing the proposals offered for the work. It is understood and agreed that the actual amount of work to be done and material to be furnished under this contract may differ somewhat from these estimates, and that where the basis for payment under this contract is the unit price method, payment shall be for the actual amount of such work done and the material furnished.

Where payment is based on the unit price method, the CONTRACTOR agrees that he will make no claim for damages, anticipated profits or otherwise on account of any differences which may be found between the quantities of work actually done, the material actually furnished under this contract and the estimated quantities contemplated and contained in the proposal; provided, however, that in case the actual quantity of any major item should become as much as 20% more than, or 20% less than the estimated or contemplated quantity for such items, then either party to this Agreement, upon demand, shall be entitled to a revised consideration upon the portion of the work above or below 20% of the estimated quantity.

A "Major Item" shall be construed to be any individual bid item incurred in the proposal that has a total cost equal to or greater than five (5) per cent of the total contract cost, computed on the basis of the proposal quantities and the contract unit prices.

Any revised consideration is to be determined by agreement between the parties, otherwise by the terms of this Agreement, as provided under "Extra Work."

5.03 PRICE OF WORK. In consideration of the furnishing of all the necessary labor, equipment and material, and the completion of all work by the CONTRACTOR, and on the completion of all work and of the delivery of all material embraced in this Contract in full conformity with the specifications and stipulations herein contained, the OWNER agrees to pay the CONTRACTOR the prices set forth in the Proposal hereto attached, which has been made a part of this contract. The CONTRACTOR hereby agrees to receive such prices in full for furnishing all material and all labor required for the aforesaid work, also for all expense incurred by him, and for well and truly performing the same and the whole thereof in the manner and according to this Agreement.

5.04 PARTIAL PAYMENTS. On or before the 10th day of each month, the CONTRACTOR shall prepare and submit to the ENGINEER for approval or modification a statement showing as completely as practicable the total value of the work done by the CONTRACTOR up to and including the last day of the preceding month; said statement shall also include the value of all sound materials delivered on the site of the work that are to be fabricated into the work.

The OWNER shall then pay the CONTRACTOR on or before the 15th day of the current month the total amount of the approved statement, less 10 per cent of the amount thereof, which 10 per cent shall be retained until final payment, and further less all previous payments and all further sums that may be retained by the OWNER under the terms of this Agreement. It is understood, however, that in case the whole work be near to completion and some unexpected and unusual delay occurs due to no fault or neglect on the part of the CONTRACTOR, the OWNER may—upon written recommendation of the ENGINEER—pay a reasonable and equitable portion of the retained percentage to the CONTRACTOR, or the CONTRACTOR at the OWNER'S option, may be relieved of the obligation to fully complete the work and, thereupon, the CONTRACTOR shall receive payment of the balance due him under the contract subject only to the conditions stated under "Final Payment."

5.05 USE OF COMPLETED PORTIONS. The OWNER shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding the time for completing the entire work or such portions may not have expired but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of or delays the work, the CONTRACTOR shall be entitled to such extra compensation, or extension of time, or both, as the ENGINEER may determine.

The CONTRACTOR shall notify the ENGINEER when, in the CONTRACTOR'S opinion, the contract is "substantially completed" and when so notifying the ENGINEER, the CONTRACTOR shall furnish to the ENGINEER in writing a detailed list of unfinished work. The ENGINEER will review the CONTRACTOR'S list of unfinished work and will add thereto such items as the CONTRACTOR has failed to include. The "substantial completion" of the structure or facility shall not excuse the CONTRACTOR from performing all of the work undertaken, whether of a minor or major nature, and thereby completing the structure or facility in accordance with the Contract Documents.

5.06 FINAL COMPLETION AND ACCEPTANCE. Within ten (10) days after the CONTRACTOR has given the ENGINEER written notice that the work has been completed, or substantially completed, the ENGINEER and the OWNER shall inspect the work and within said time, if the work be found to be completed or substantially completed in accordance with the Contract Documents, the ENGINEER shall issue to the OWNER and the CONTRACTOR his Certificate of Completion, and thereupon it shall be the duty of the OWNER within ten (10) days to issue a Certificate of Acceptance of the work to the CONTRACTOR or to advise the CONTRACTOR in writing of the reason for non-acceptance.

5.07 FINAL PAYMENT. Upon the issuance of the Certificate of Completion, the ENGINEER shall proceed to make final measurements and prepare final statement of the value of all work performed and materials furnished under the terms of the Agreement and shall certify same to the OWNER, who shall pay to the CONTRACTOR on or after the 30th day, and before the 35th day, after the date of the Certificate of Completion, the balance due the CONTRACTOR under the terms of this Agreement, provided he has fully performed his contractual obligations under the terms of this contract; and said payment shall become due in any event upon said performance by the CONTRACTOR. Neither the Certificate of Acceptance nor the final payment, nor any provision in the Contract Documents, shall relieve the CONTRACTOR of the obligation for fulfillment of any warranty which may be required.

5.08 PAYMENTS WITHHELD. The OWNER may, on account of subsequently discovered evidence, withhold or nullify the whole or part of any certificate to such extent as may be necessary to protect himself from loss on account of:

- (a) Defective work not remedied.
- (b) Claims filed or reasonable evidence indicating probable filing of claims.
- (c) Failure of the CONTRACTOR to make payments properly to sub-contractors or for material or labor.
- (d) Damage to another contractor.
- (e) Reasonable doubt that the work can be completed for the unpaid balance of the contract amount.
- (f) Reasonable indication that the work will not be completed within the contract time.

When the above grounds are removed or the CONTRACTOR provides a Surety Bond satisfactory to the OWNER, which will protect the OWNER in the amount withheld, payment shall be made for amounts withheld because of them.

5.09 DELAYED PAYMENTS. Should the OWNER fail to make payment to the CONTRACTOR of the sum named in any partial or final statement, when payment is due, then the OWNER shall pay to the CONTRACTOR, in addition to the sum shown as due by such statement, interest thereon at the rate of six (6) per cent per annum, unless otherwise specified, from date due as provided under "Partial Payments" and "Final Payments," until fully paid, which shall fully liquidate any injury to the CONTRACTOR growing out of such delay in payment, but the right is expressly reserved to the CONTRACTOR in the event payments be not promptly made, as provided under "Partial Payments," to at any time thereafter treat the contract as abandoned by the OWNER and recover compensation, as provided under "Abandonment of Contract," unless such payments are withheld in accordance with the provisions of "Payments Withheld."

6. EXTRA WORK AND CLAIMS

6.01 CHANGE ORDERS: Without invalidating this Agreement, the OWNER may, at any time or from time to time, order additions, deletions or revisions to the work; such changes will be authorized by Change Order to be prepared by the ENGINEER for execution by the OWNER and the CONTRACTOR. The Change Order shall set forth the basis for any change in contract price, as hereinafter set forth for Extra Work, and any change in contract time which may result from the change.

In the event the CONTRACTOR shall refuse to execute a Change Order which has been prepared by the ENGINEER and executed by the OWNER, the ENGINEER may in writing instruct the CONTRACTOR to proceed with the work as set forth in the Change Order and the CONTRACTOR may make claim against the OWNER for Extra Work involved therein, as hereinafter provided.

6.02 MINOR CHANGES: The ENGINEER may authorize minor changes in the work not inconsistent with the overall intent of the Contract Documents and not involving an increase in Contract Price. If the CONTRACTOR believes that any minor change or alteration authorized by the ENGINEER involves Extra Work and entitles him to an increase in the Contract Price, the CONTRACTOR shall make written request to the ENGINEER for a written Field Order.

In such case, the CONTRACTOR by copy of his communication to the ENGINEER or otherwise in writing shall advise the OWNER of his request to the ENGINEER for a written Field Order and that the work involved may result in an increase in the Contract Price.

Any request by the CONTRACTOR for a change in Contract Price shall be made prior to beginning the work covered by the proposed change.

6.03 EXTRA WORK: It is agreed that the basis of compensation to the CONTRACTOR for work either added or deleted by a Change Order or for which a claim for Extra Work is made 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) be agreed upon before the Extra Work is commenced, then the CONTRACTOR shall be paid the "actual field cost" of the work, plus fifteen (15) percent.

In the event said Extra Work be performed and paid for under Method (C), then the provisions of this paragraph shall apply and the "actual field cost" is hereby defined to include the cost to the CONTRACTOR of all workmen, such as foreman, timekeepers, mechanics and laborers, and materials, supplies, teams, trucks, rentals on machinery and equipment, for the time actually employed or used on such Extra Work, plus actual transportation charges necessarily incurred, together with all power, fuel, lubricants, water and similar operating expenses, also all necessary incidental expenses incurred directly on account of such Extra Work, including Social Security, Old Age Benefits and other payroll taxes, and, a rateable proportion of premiums on Performance and Payment Bonds and Maintenance Bonds, Public Liability and Property Damage and Workmen's Compensation, and all other insurance as may be required by any law or ordinance, or directed by the OWNER, or by them agreed to. The ENGINEER may direct the form in which accounts of the "actual field cost" shall be kept and the records of these accounts shall be made available to the ENGINEER. The ENGINEER or OWNER may also specify in writing, before the work commences, the method of doing the work and the type and kind of machinery and equipment to be used; otherwise these matters shall be determined by the CONTRACTOR. Unless otherwise agreed upon, the prices for the use of machinery and equipment shall be determined by using 100 per cent, unless otherwise specified, of the latest schedule of Equipment Ownership Expense adopted by the Associated General Contractors of America. Where practicable the terms and prices for the use of machinery and equipment shall be incorporated in the Written Extra Work Order. The fifteen (15%) per cent of the "actual field cost" to be paid the CONTRACTOR shall cover and compensate him for his profit, overhead, general superintendence and field office expense, and all other elements of cost and expense not embraced within the "actual field cost" as herein defined, save that where the CONTRACTOR'S Camp or Field Office must be maintained primarily on account of such Extra Work; then the cost to maintain and operate the same shall be included in the "actual field cost."

No claim for Extra Work of any kind will be allowed unless ordered in writing by the ENGINEER. In case any orders or instructions, either oral or written, appear to the CONTRACTOR to involve Extra Work for which he should receive compensation or an adjustment in the construction time, he shall make written request to the ENGINEER for written order authorizing such Extra Work. Should a difference of opinion arise as to what does or does not constitute Extra Work, or as to the payment therefor, and the ENGINEER insists upon its performance, the CONTRACTOR shall proceed with the work after making written request for written order and shall keep an accurate account of the "actual field cost" thereof, as provided under Method (C). The CONTRACTOR will thereby preserve the right to submit the matter of payment to arbitration, as hereinbelow provided.

6.04 TIME OF FILING CLAIMS. It is further agreed by both parties hereto that all questions of dispute or adjustment presented by the CONTRACTOR shall be in writing and filed with the ENGINEER within thirty (30) days after the ENGINEER has given any directions, order or instruction to which the CONTRACTOR desires to take exception. The ENGINEER shall reply within thirty (30) days to such written exceptions by the CONTRACTOR and render his final decision in writing. In case the CONTRACTOR should appeal from the ENGINEER'S decision, any demand for arbitration shall be filed with the ENGINEER and the OWNER in writing within ten (10) days after the date of delivery to CONTRACTOR of the ENGINEER'S final decision. It is further agreed that final acceptance of the work by the OWNER and the acceptance by the CONTRACTOR of the final payment shall be a bar to any claims by either party, except where noted otherwise in the Contract Documents.

6.05 ARBITRATION. All questions of dispute under this Agreement shall be submitted to arbitration at the request of either party to the dispute. The parties may agree upon one arbiter, otherwise, there shall be three, one named in writing by each party, and the third chosen

by the two arbiters so selected; or if the arbiters fail to select a third within ten (10) days, he shall be chosen by a District Judge serving the County in which the major portion of the project is located, unless otherwise specified. Should the party demanding arbitration fail to name an arbiter within ten (10) days of the demand, his right to arbitrate shall lapse, and the decision of the ENGINEER shall be final and binding on him. Should the other party fail to choose an arbiter within ten (10) days, the ENGINEER shall appoint such arbiter. Should either party refuse or neglect to supply the arbiters with any papers or information demanded in writing, the arbiters are empowered by both parties to take ex parte proceedings.

The arbiters shall act with promptness. The decision of any two shall be binding on both parties to the contract. The decision of the arbiters upon any question submitted to arbitration under this contract shall be a condition precedent to any right of legal action. The decision of the arbiter or arbiters may be filed in court to carry it into effect.

The arbiters, if they deem the case demands it, are authorized to award the party whose contention is sustained, such sums as they deem proper for the time, expense and trouble incident to the appeal, and if the appeal was taken without reasonable cause, they may award damages for any delay occasioned thereby. The arbiters shall fix their own compensation, unless otherwise provided by agreement, and shall assess the cost and charges of the arbitration upon either or both parties. The award of the arbiters must be made in writing.

7. ABANDONMENT OF CONTRACT

7.01 ABANDONMENT BY CONTRACTOR. In case the CONTRACTOR should abandon and fail or refuse to resume work within ten (10) days after written notification from the OWNER, or the ENGINEER, or if the CONTRACTOR fails to comply with the orders of the ENGINEER, when such orders are consistent with the Contract Documents, then, and in that case, where performance and payment bonds exist, the Sureties on these bonds shall be notified in writing and directed to complete the work, and a copy of said notice shall be delivered to the CONTRACTOR.

After receiving said notice of abandonment the CONTRACTOR shall not remove from the work any machinery, equipment, tools, materials or supplies then on the job, but the same, together with any materials and equipment under contract for the work, may be held for use on the work by the OWNER or the Surety on the performance bond, or another contractor in completion of the work; and the CONTRACTOR shall not receive any rental or credit therefor (except when used in connection with Extra Work, where credit shall be allowed as provided for under Section 6, Extra Work and Claims), it being understood that the use of such equipment and materials will ultimately reduce the cost to complete the work and be reflected in the final settlement.

Where there is no performance bond provided or in case the Surety should fail to commence compliance with the notice for completion hereinbefore provided for, within ten (10) days after service of such notice, then the OWNER may provide for completion of the work in either of the following elective manners:

7.01.1 The OWNER may thereupon employ such force of men and use such machinery, equipment, tools, materials and supplies as said OWNER may deem necessary to complete the work and charge the expense of such labor, machinery, equipment, tools, materials and supplies to said CONTRACTOR, and expense so charged shall be deducted and paid by the OWNER out of such moneys as may be due, or that may thereafter at any time become due to the CONTRACTOR under and by virtue of this Agreement. In case such expense is less than the sum which would have been payable under this contract, if the same had been completed by the CONTRACTOR, then said CONTRACTOR shall receive the difference. In case such expense is greater than the sum which would have been payable under this contract, if the same had been completed by said CONTRACTOR, then the CONTRACTOR and/or his Surety shall pay the amount of such excess to the OWNER; or

7.01.2 The OWNER under sealed bids, after five (5) days notice published one or more times in a newspaper having general circulation in the county of the location of the work, may let the contract for the completion of the work under substantially the same terms and conditions which are provided in this contract. In case any increase in cost to the OWNER under the new contract as compared to what would have been the cost under this contract, such increase shall be charged to the CONTRACTOR and the Surety shall be and remain bound therefor. However, should the cost to complete any such new contract prove to be less than what would have been the cost to complete under this contract, the CONTRACTOR and/or his Surety shall be credited therewith.

When the work shall have been substantially completed the CONTRACTOR and his Surety shall be so notified and Certificates of Completion and Acceptance, as provided in Paragraph 5.06 hereinabove, shall be issued. A complete itemized statement of the contract accounts, certified to by the ENGINEER as being correct, shall then be prepared and delivered to the CONTRACTOR and his Surety, whereupon the CONTRACTOR and/or his Surety, or the OWNER as the case may be, shall pay the balance due as reflected by said statement, within fifteen (15) days after the date of such Certificate of Completion.

In the event the statement of accounts shows that the cost to complete the work is less than that which would have been the cost to the OWNER had the work been completed by the CONTRACTOR under the terms of this contract; or when the CONTRACTOR and/or his Surety shall pay the balance shown to be due by them to the OWNER, then all machinery, equipment, tools, materials or supplies left on the site of the work shall be turned over to the CONTRACTOR and/or his Surety. Should the cost to complete the work exceed the contract price, and the CONTRACTOR and/or his Surety fail to pay the amount due the OWNER within the time designated hereinabove, and there remains any machinery, equipment, tools, materials or supplies on the site of the work, notice thereof, together with an itemized list of such equipment and materials, shall be mailed to the CONTRACTOR and his Surety at the respective addresses designated in this contract, provided, however, that actual written notice given in any manner will satisfy this condition. After mailing, or other giving of such notice, such property shall be held at the risk of the CONTRACTOR and his Surety subject only to the duty of the OWNER to exercise ordinary care to protect such property. After fifteen (15) days from the date of said notice the OWNER may sell such machinery, equipment, tools, materials or supplies and apply the net sum derived from such sale to the credit of the CONTRACTOR and his Surety. Such sale may be made at either public or private sale, with or without notice, as the OWNER may elect. The OWNER shall release any machinery, equipment, tools, materials, or supplies, which remain on the work, and belong to persons other than the CONTRACTOR or his Surety, to their proper owners. The books on all operations provided herein shall be open to the CONTRACTOR and his Surety.

7.02 ABANDONMENT BY OWNER. In case the OWNER shall fail to comply with the terms of this contract, and should fail or refuse to comply with said terms within ten (10) days after written notification by the CONTRACTOR, then the CONTRACTOR may suspend or wholly abandon the work, and may remove therefrom all machinery, tools and equipment, and all materials on the site of work that have not been included in payments to the CONTRACTOR and have not been wrought into the work. And thereupon the ENGINEER shall make an estimate of the total amount earned by the CONTRACTOR, which estimate shall include the value of all work actually completed by said CONTRACTOR (at the prices stated in the attached proposal where unit prices are used), the value of all partially completed work at a fair and equitable price, and the amount of all Extra Work performed at the prices agreed upon, or provided for by the terms of this contract, and a reasonable sum to cover the cost of any provisions made by the CONTRACTOR to carry the whole work to completion and which cannot be utilized. The ENGINEER shall then make a final statement of the balance due the CONTRACTOR by deducting from the above estimate all previous payments by the OWNER and all other sums that may be retained by the OWNER under the terms of this Agreement and shall certify same to the OWNER who shall pay to the CONTRACTOR on or before thirty (30) days after the date of the notification by the CONTRACTOR the balance shown by said final statement as due the CONTRACTOR, under the terms of this Agreement.

STANDARD FORM OF AGREEMENT

As Adopted By
THE TEXAS SECTION OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS
October 7, 1971

Revised November 17, 1928
Revised April 15, 1932
Revised October 27, 1934
Revised October 19, 1945
Revised April 8, 1954
Revised April 21, 1960
Revised October 7, 1971

Approved as to Legal Form by
Legal Counsel

STATE OF TEXAS }
COUNTY OF _____ }

THIS AGREEMENT, made and entered into this _____ day of _____,
A. D. 19____, by and between _____

_____ of the County of _____ and State of Texas, acting through

_____ thereunto duly authorized so to do,
Party of the First Part, hereinafter termed OWNER, and _____

_____ of the City of _____, County of _____
and State of _____, Party of the Second Part, hereinafter termed
CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements herein-
after mentioned, to be made and performed by the Party of the First Part (OWNER), and under
the conditions expressed in the bond bearing even date herewith, the said Party of the Second
Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to
commence and complete the construction of certain improvements described as follows:

and all extra work in connection therewith, under the terms as stated in the General Conditions
of the Agreement and at his (or their) own proper cost and expense to furnish all the materials,
supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories
and services necessary to complete the said construction, in accordance with the conditions and
prices stated in the Proposal attached hereto, and in accordance with the Notice to Contractors,
General and Special Conditions of Agreement, Plans and other drawings and printed or written
explanatory matter thereof, and the Specifications and addenda therefor, as prepared by _____

_____ herein entitled the ENGINEER, each of which has been identified by the CONTRACTOR and
the ENGINEER, together with the CONTRACTOR'S written Proposal, the General Conditions
of the Agreement, and the Performance and Payment Bonds hereto attached; all of which are made
a part hereof and collectively evidence and constitute the entire contract.

The CONTRACTOR hereby agrees to commence work within ten (10) days after the date written notice to do so shall have been given to him, and to substantially complete the same within _____ calendar days working days after the date of the written notice to commence work, subject to such extensions of time as are provided by the General and Special Conditions.

THE OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this contract, such payments to be subject to the General and Special Conditions of the contract.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

Party of the First Part (OWNER)

Party of the Second Part (CONTRACTOR)

By: _____

By: _____

ATTEST:

ATTEST:

PERFORMANCE BOND

STATE OF TEXAS
COUNTY OF _____ }
}

KNOW ALL MEN BY THESE PRESENTS: That _____
_____ of the City of _____
County of _____, and State of _____, as
principal, and _____
authorized under the laws of the State of Texas to act as surety on bonds for principals, are held
and firmly bound unto _____ (Owner),
in the penal sum of _____ Dollars (\$ _____)
for the payment whereof, the said Principal and Surety bind themselves, and their heirs,
administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner,
dated the _____ day of _____, 19____, to

which contract is hereby referred to and made a part hereof as fully and to the same extent
as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the
said Principal shall faithfully perform said Contract and shall in all respects duly and faithfully
observe and perform all and singular the covenants, conditions and agreements in and by said
contract agreed and covenanted by the Principal to be observed and performed, and according to
the true intent and meaning of said Contract and the Plans and Specifications hereto annexed,
then this obligation shall be void; otherwise to remain in full force and effect;

"PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of (Article
5160 for Public Work) (Article 5472d for Private Work)* of the Revised Civil Statutes of Texas as
amended and all liabilities on this bond shall be determined in accordance with the provisions of
said Article to the same extent as if it were copied at length herein."

Surety, for value received, stipulates and agrees that no change, extension of time, alteration
or addition to the terms of the contract, or to the work performed thereunder, or the plans, speci-
fications, or drawings accompanying the same, shall in anyway affect its obligation on this

*Not applicable for federal work. See "The Miller Act," 40 U.S.C. S270.

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 work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 19_____.

Principal	Surety
By _____	By _____
Title _____	Title _____
Address _____	Address _____
_____	_____
_____	_____

The name and address of the Resident Agent of Surety is:

PAYMENT BOND

STATE OF TEXAS }
COUNTY OF _____ }

KNOW ALL MEN BY THESE PRESENTS: That _____
_____ of the City of _____,
County of _____, and State of _____, as
principal, and _____
authorized under the laws of the State of Texas to act as surety on bonds for principals, are held
and firmly bound unto _____ (Owner),
in the penal sum of _____ Dollars (\$ _____)
for the payment whereof, the said Principal and Surety bind themselves and their heirs, adminis-
trators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner,
dated the _____ day of _____, 19____, to

which contract is hereby referred to and made a part hereof as fully and to the same extent as
if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the
said Principal shall pay all claimants supplying labor and material to him or a subcontractor
in the prosecution of the work provided for in said contract, then, this obligation shall be void;
otherwise to remain in full force and effect;

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Article 5160 of
the Revised Civil Statutes of Texas as amended and all liabilities on this bond shall be determined in
accordance with the provisions of said Article to the same extent as if it were copied at length herein.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration
or addition to the terms of the contract, or to the work performed thereunder, or the plans,
specifications or drawings accompanying the same, shall in anywise 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 work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 19_____.

Principal	Surety
By _____	By _____
Title _____	Title _____
Address _____	Address _____
_____	_____
_____	_____

The name and address of the Resident Agent of Surety is:

SECTION 00630 - CERTIFICATE OF INSURANCE

After award of contract, Contractor will provide Owner with Certificate of Insurance which will be executed and bound here with final documents.

SECTION 00650 - SPECIAL CONDITIONS

1.1 INDEX TO SPECIAL CONDITIONS

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SECTION 00650 - SPECIAL CONDITIONS

1.2 GENERAL

- A. These Special Conditions supplement, modify, change, delete from and/or add to the Specifications and the "General Conditions of Agreement". Where any Article of the General Conditions is modified or any Paragraph, subparagraph or Clause thereof is modified or deleted by these supplements, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

1.3 DEFINITION OF TERMS

- A. Owner: Wherever the word "OWNER" is used in the Specifications and the Contract Documents, it shall be understood as referring to the Town of Addison.
- B. Engineer: Wherever the word "ENGINEER" is used in the Specifications and the Contract Documents, it shall be understood as referring to Ginn, Inc.; 16135 Preston Rd., Suite 106, Dallas, Texas 75248.
- C. Contractor: Wherever the word "CONTRACTOR" is used in the Specifications and the Contract Documents, it shall be understood as denoting the General Contractor signing this Contract.

1.4 MODIFICATIONS OF GENERAL CONDITIONS OF AGREEMENT

The following designated items of the General Conditions of Agreement are modified as follows:

- A. Paragraph 2.06 - Lines and Grades is deleted in its entirety and the following substituted therefore . . .

"The Engineer will establish bench marks and horizontal control points in close proximity to the Work. From these control points, the Contractor shall provide all surveying necessary to lay out the Work. Contractor shall be responsible for establishing all lines and grades necessary to control the Work and shall be responsible for the precise location of all facilities."

"The Engineer may make checks as the Work progresses to verify lines and grades established by the Contractor to determine the conformance of the completed work as it progresses with the requirements of the Contract Specifications and Drawings. Such checking by the Engineer shall not relieve the Contractor of his responsibility to perform all Work in connection with the Contract Drawings and Specifications and the lines and grades given therein."

- B. Paragraph 3.09 - Protection Against Accident to Employees and the Public is modified by adding the following:

"Contractor's attention is specifically directed to the Texas Occupational Safety Law."

"The Contractor shall so conduct his operations as to offer the least possible obstruction and inconvenience to public traffic. After the "Notice to Proceed" is issued, the Contractor shall notify the Engineer, at the earliest possible date, of the starting of hauling of materials and any construction work which might in any way inconvenience or endanger traffic."

"The Contractor shall provide and maintain flagmen at all points where his operations interfere in any manner with traffic flow. Flagmen shall be English speaking, courteous, well informed, physically and mentally able effectually to perform their duties in safeguarding and directing traffic and protecting the Work, and shall be neatly attired and groomed at all times when on duty. Flagmen, when directing traffic, shall use standard flagging procedures set forth in the 'Instructions to Flagmen' published by the Texas State Department of Highways and Public Transportation."

"The Contractor shall provide, construct and maintain suitable barricades as shown on the Plans and elsewhere when directed by the Engineer. The Contractor shall provide and maintain such standard barricades or special barricades, signs, lights and flags at points along the project as may be necessary to protect the Work and safeguard all traffic. All signs, barricades and working area layouts shall be provided and maintained in accordance with requirements of Part VI of the Manual on Uniform Traffic Control Devices, 'Traffic Controls for Street and Highway Construction and Maintenance Operations.' Signs and barricades to facilitate the flow of traffic will be the responsibility of the Contractor. The use of sufficient vertical panels with flashers in conjunction with necessary warning signs and barricades will be required to direct traffic."

"No direct payment will be made for the work involved in carrying out the public safety measures herein provided, the cost thereof being included in the prices paid for the various contract items of work and no additional allowance will be made therefore."

- C. Paragraph 3.10 - Performance and Payment Bonds is modified as follows:

1. With the execution and delivery of the Contract, the Contractor shall execute and furnish separate Performance and Payment Bonds on the forms provided as follows:

- a. **Performance Bond:** A Performance Bond in the amount of one hundred percent (100%) of the Contract price, or only increases or deletions therefrom due to contract modifications, guaranteeing faithful performance of the work and fulfillment of the obligations of the Contract. The Performance Bond shall guarantee that the Contractor shall repair and/or replace any defects in the work arising from defective or inferior workmanship or materials used therein, for a period of one (1) year from date of final acceptance of the work by the Owner.
- b. **Payment Bond:** A Payment Bond in the amount of one hundred percent (100%) of the Contract price, or any increases or deletions therefrom due to contract modifications, guaranteeing payment to all persons supplying labor and materials or furnishing equipment in the execution of the Contract.

2. Performance and Payment bonds shall be from an approved surety company holding a permit from The State of Texas to act as surety or other surety or sureties acceptable to the Owner.

D. Paragraph 3.18 - Insurance is modified by the addition of the following . . .

Contractor's and Subcontractor's Public Liability, Vehicle Liability, and Property Damage Insurance:

As required under Paragraph 3.18 of the General Conditions, the Contractor's Public Liability Insurance and Vehicle Liability Insurance shall be an amount not less than \$200,000.00 for injuries, including accidental death, to any one person, and subject to the same limit for each person, in an amount not less than \$500,000.00 on account of one accident, and Contractor's Property Damage Insurance in an amount not less than \$100,000.00 per accident and \$200,000.00 aggregate.

The Contractor shall either (1) require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage of the type and in the same amounts as specified in the preceding paragraph, or (2) insure the activities of his subcontractors in his own policy.

Builder's Risk Insurance: The Contractor will maintain Builder's Risk Insurance (fire and extended coverage) on a 100% completed value basis on the insurable portions of the project for the benefit of the Owner, the Contractor, and all subcontractors, as their interests may appear.

E. Section 4 - PROSECUTION AND PROGRESS is deleted in its entirety and the following substituted therefore:

4. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

4.01 TIME FOR COMPLETION: The time allotted for completion of all items of work for this project shall be 270 consecutive calendar days. It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the Contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the Notice to Proceed.

The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such a rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed by and between the Contractor and the Owner, that the time for the completion of the work described herein is a reasonable time for the completion of same, taking into consideration the average climatic range and usual conditions prevailing in this locality.

4.02 LIQUIDATED DAMAGES: If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Owner FIVE HUNDRED DOLLARS (\$500.00) FOR EACH CALENDAR DAY, not as penalty, but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after time stipulated in the Contract for completing the work.

The said amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount shall be retained from time to time by the Owner from current periodical estimates.

It is further agreed that time is of the essence of each and every portion of this Contract and of the Specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract. Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner; Provided further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the Work is due:

- a. To any preference, priority or allocation order duly issued by the Government;
- b. To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and
- c. To any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections (a) and (b) of this article; Provided further, that the Contractor shall within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the Contract, notify the Owner, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.

F. Paragraph 5.04 - Partial Payments, is deleted in its entirety and the following substituted therefore:

"On or before the tenth of the month, the Contractor shall prepare and submit to the Engineer for approval a statement showing as completely as practicable the total

value of the work done by the Contractor up to the last day of the previous month; said statement shall also include the value of all sound materials delivered and stored on the job site of the work that are to be fabricated into the work.

"The Owner shall then pay the Contractor after the fourth (4th) Tuesday after receiving City Council Approval. The amount paid shall be the total amount less five (5) percent of the amount if total project estimated cost exceeds \$400,000 or ten (10) percent of the amount if the estimated project cost is less than \$400,000, which percent retained shall be held until final payment, and further less all previous payments and all further sums that may be retained by the Owner under the terms of this agreement.

"It is understood, however, that in case the whole work be near to completion and some unexpected and unusual delay occurs due to no fault or neglect on the part of the Contractor, the Owner may---upon written recommendation of the Engineer--- pay a reasonable and equitable portion of the retained percentage to the Contractor, or the Contractor at the Owner's option, may be relieved of the obligation to fully complete the work and, thereupon, the Contractor shall receive payment of the balance due him under the Contract subject only to the conditions stated under 'Final Payment'."

1.5 CONTRACT EXECUTION AND ISSUANCE OF WORK ORDER

It is the intention of the Owner to notify the Successful Bidder in writing, within ninety (90) days after receiving bids, of his acceptance of the Proposal. The Contractor shall complete the execution of the required Bonds and Contract within ten (10) days of such notice. Upon completion of the execution of the Contract Documents, the Owner will issue a "Notice to Proceed with Construction".

1.6 STATE AND CITY SALES TAX

A. The Contractor's attention is directed to Amendment No. 7 to Section 6a, Article 20.01, Chapter 20, Title 122A, Taxation-General of the Revised Civil Statutes of Texas. This amendment provides that all items used or consumed by a contractor, whether incorporated into the project or not, can be purchased free of State and City sales tax when the project is being performed for an exempt agency. Included are equipment rentals and other items which are consumed by the contractor but are not incorporated into the project.

- B. This contract is issued by an organization which qualifies for exception pursuant to the provisions of Article 20.04 (F) of the Texas Limited Sales, Excise and Use Tax.
- C. The contractor performing this contract may purchase, rent or lease all materials, supplies, and equipment used or consumed in the performance of this contract by issuing to his supplier an exemption certificate in lieu of the tax, said exemption certificate complying with State Comptroller's ruling No. 95-0.07. Any such exemption certificate issued by the contractor in lieu of the tax shall be subject to the provisions of the State Comptroller's ruling No. 95-0.09 as amended to be effective October 2, 1968.

1.7. EXISTING STRUCTURES

The plans show the locations of all known surface and subsurface structures believed to be involved in this proposed construction. However, the Owner assumes no responsibility for failure to show any or all of these structures on the plans, or to show them in their exact location. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for extra work, unless the obstruction encountered is such as to necessitate changes in the lines or grades, or requires the building of special work, provisions for which are not made in the plans and specifications, in which case the provisions in the General Conditions of Agreement for extra work shall apply.

1.8. PROTECTION AND RESTORATION OF PROPERTY

The Contractor shall be responsible for the preservation from injury and damage, resulting directly or indirectly from the execution of the work under his contract, of all public and private property adjacent to the work. He shall use every precaution to prevent the damage or destruction of buildings, poles, trees, shrubbery and lawns. Also, underground structures such as wires, cables, etc.; within or without the work area. He shall protect and carefully preserve all official survey monuments, properties and section markers or other similar markers until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed.

When or where direct or indirect damages or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work or in consequences of the nonexecution of same on the part of the Contractor, such property shall be restored at the Contractor's expense to a condition similar or equal to that existing before such damage or injury was done, he shall make good such damage or injury in an acceptable manner.

In case of failure on the part of the Contractor to restore such property, or make good such damage, or injury, the Engineer may upon twenty-four (24) hours written notice, proceed to repair, rebuild or otherwise restore such property as may be deemed necessary and the cost thereof shall be deducted from any moneys due the Contractor under the Contract.

1.9 REFERENCE SPECIFICATIONS

Reference to ASTM, or others as listed below, shall be considered as referring to the Specifications or Method of Test as set forth by those various organizations and shall be considered as part of these Specifications when designated as such. Abbreviations and meanings are as follow:

A.S.A.....American Standards Association
A.S.T.M.....American Society of Testing Materials
A.A.S.H.T.O....American Association of State Highway &
Transportation Officials
A.C.I.....American Concrete Institute
A.W.S.....American Welding Society
A.W.W.A.....American Water Works Association
S.S.P.C.....Steel Structures Painting Council, Federal
Specifications Treasury Department
Procurement Division, United States Government
U.L.....Underwriters Laboratories
N.E.M.A.....National Electrical Manufacturers Association
W.P.C.F.....Water Pollution Control Federation
T.S.D.H.P.T....Texas State Department of Highways and
Public Transportation
C.D.G.S.....City of Dallas General Specifications

1.10 SUBSURFACE CONDITIONS

Contractor shall make his own investigation of subsurface conditions. No claims for extra compensation due to unusual soil conditions that are found to exist will be allowed.

1.11 SERVICE OF MANUFACTURER'S REPRESENTATIVE

The contract price for the project shall include the cost of furnishing competent and experienced engineers or superintendents who shall represent the manufacturers and shall assist the Contractor, when required, to install, adjust and test the equipment in conformity with the Contract Documents. After the equipment is placed in permanent operation by the Owner, such engineer or superintendent shall make all adjustments and tests required by the Engineer to prove that such equipment is in proper and satisfactory operating condition, and shall instruct the Owner's representatives in the proper operation and maintenance of such equipment or system.

1.12 PURCHASE OF OWNER'S SELECTED EQUIPMENT

The Owner will not receive separate bids on equipment items for this project.

1.13 SUBCONTRACTORS

The name and address of each supplier, manufacturer and subcontractor which the Contractor proposes to use on work under this contract shall be submitted in writing to the Engineer for approval.

1.14 CONTRACTOR'S RESPONSIBILITY FOR UTILITIES AND SERVICES

The Contractor shall make his own investigations and be fully responsible for locating and taking care not to damage any gas, water, sewer, or telephone lines. The Contractor shall not begin any operations which may interfere with or impair the normal service being rendered by public utility operators. The Contractor will be held responsible for the protection of the property or service of public utilities within the limits of the Work. In case that such physical properties conflict with the performance of the contract, it shall be the Contractor's responsibility to anticipate such conflicts and to give advance notice thereof to the owners of the utility.

The Contractor will be responsible for any damages done by him to any utility structure whether owned by a public or private agency. Damage of whatever nature to the existing facilities shall be repaired immediately at the Contractor's own expense as directed by the Engineer.

Contractor shall be responsible for the relocation of any water, sewer, gas, telephone or other utility which interferes with the performance of the contract. No extra claims for compensation will be allowed for any utility relocation, unless approved in writing by Engineer, prior to relocation.

Delays and interruptions to the work schedule caused by the adjustment or repairs of water, gas, telephone or other utility appurtenances and property will not be charged against the contract time unless such delays be due to the negligence of the Contractor.

1.15 MANUFACTURER'S DIRECTIONS

All manufactured articles, materials and equipment shall be applied, installed, connected, erected and used as directed by the manufacturers, unless herein specified to the contrary. Contractor shall furnish copies of all printed directions with the material.

1.16 SANITARY FACILITIES

The Contractor shall provide at his own expense field toilets for the use of the employees and contractor forces. The facilities shall conform to the requirements of the Texas State Health Department and those of any other agencies having jurisdiction herewith. The field toilets shall be cleaned and scrubbed with a disinfectant at least once per day.

1.17 GUARANTEE OF WORK

All work shall be guaranteed against defects resulting from the use of inferior materials, equipment or workmanship for one year from date of final completion and acceptance of the project.

1.18 FINAL INSPECTION

When the work is completed, the Contractor shall notify the Owner in writing on which date he will be ready for final test and inspection. Notice shall be given seven (7) days in advance and verified by telephone twenty-four (24) hours prior to the time set for inspection. After the Owner and Engineer are completely satisfied with the work, the Engineer shall make final measurements of all items and approve final estimate and advise the Owner to make final payment to the Contractor.

1.19 PERMITS AND LICENSES

All permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor.

1.20 NOTICE-OF-REQUIREMENT FOR CERTIFICATION OF NON-SEGREGATED FACILITIES

Bidders are cautioned as follows: By signing the Contract for which these bids are solicited, the bidder will be deemed to have signed and agreed to the provisions of the "Certificate of Non-segregated Facilities" as contained in the Specifications for this project.

1.21 TESTING

All required testing will be paid for by the Town of Addison. Any retesting required will be at the expense of the Contractor. Testing requested by the Contractor for his own use to ascertain whether or not complying with the Specifications will be paid for by the Contractor.

1.22 COORDINATION WITH THE RAILROAD

The Contractor shall be responsible for all construction coordination with the railroad, if involved, including securing permits, right-of-way entry form and notification to the railroad as work begins.

1.23 SUGGESTED SEQUENCE OF CONSTRUCTION

Phase I - Stage I Construction:

- A. Commence to lower all utilities for all the storm sewers where needed.
- B. Lay 10" sanitary sewer along south side of Arapaho between Quorum and Spectrum.
- C. Lay 24" water main along east side of Quorum Drive from Belt Line to Arapaho.

Phase I - Stage II

Traffic:

The section of Arapaho from Spectrum to Quorum shall be closed to traffic. Quorum shall be made one-way Northbound from Belt Line to Arapaho and Arapaho made one-way Westbound from Quorum to Addison Road. The Contractor shall provide all necessary barricades and signs, including DO NOT ENTER and ONE WAY signs to control this operation. The DO NOT ENTER signs shall be mounted on barricades at Addison Road and Spectrum. The ONE WAY signs shall be located at each driveway.

Construction:

- A. The utility connection in the intersection of Arapaho and Quorum shall be completed.
- B. All of the storm sewer systems shall be installed including the drainage channel from Arapaho north to the railroad.

- C. Excavation and lime stabilization shall begin at Belt Line on the two Northbound lanes (23 ft.) on Quorum and proceed North.
- D. Excavation and lime stabilization shall continue on the two Westbound lanes (22.5 ft.) of Arapaho to Addison Road.
- E. The paving of the two Northbound lanes of Quorum and the two Westbound lanes of Arapaho shall proceed behind the lime stabilization.

Phase II

Traffic:

The new paved section of Quorum and Arapaho shall be opened to two-way traffic and the closed section of Arapaho from Quorum to Spectrum shall be opened back to traffic.

Construction:

The Contractor shall proceed with excavation, lime stabilization and paving of the two Southbound lanes (23 ft.) of Quorum and two Eastbound lanes of Arapaho (22.5 ft.).

Phase III

Traffic:

After proper curing time is obtained on Quorum Southbound lanes, the traffic shall be split on Quorum.

Construction:

- A. The 16-foot median with left-turn lanes and openings shall be constructed.
- B. The median shall be backfilled with fourteen inches (14") of sandy loam dirt and the PVC conduit and pull boxes placed as shown.
- C. The Contractor shall clean up the project for final inspection.

The preceding sequence of construction has been offered only as a suggestion. The Contractor will be required to submit for approval his own sequence with a timetable prior to beginning of construction.

1.24 TEXAS STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION SPECIFICATIONS

This project is to be constructed in accordance with the contract documents, these specifications, construction plans and the Texas State Department of Highways and Public Transportation Standard Specifications for Construction of Highways, Streets and Bridges, September 1, 1982 edition, Part II, Construction Details, and as amended herein. Said Standard Specifications (as amended) are a part of the Contract Documents.

Parts I and III of the above Standard Specifications are hereby deleted and replaced with Division 0 - Bidding and Contract Requirements of these documents.

1.25 GENERAL NOTES

1. The Contractor shall plan his work sequence in a manner that will cause the minimum interference with traffic during construction operation. Access to facilities must be maintained at all times throughout the duration of the construction. Before beginning work on the project, the Contractor shall submit for approval by the Engineer a Plan of Construction Operations, which may vary in detail but shall meet specific requirements set forth in Construction Sequence, Special Condition 1.23 of these contract documents.

2. If, at any time during construction, the Contractor's proposed plan of operation for handling traffic does not provide for safe and comfortable movement, the Contractor shall change his operation to the extent necessary to correct unsatisfactory conditions. Any major correction must be approved by the Engineer.

3. Part VI, "Traffic Controls for Street and Highway Construction and Maintenance Operations" of the "Manual on Uniform Traffic Control Devices" shall be adhered to throughout the duration of this project. "Construction Ahead" and "End Construction" signs, with the barricades, shall be installed at the beginning and end of the project. These signs shall be considered incidental work and will not be paid for as a separate pay item.

4. Prior to the start of construction, it is the responsibility of the Contractor to determine the location of all utilities, whether or not shown on the plans. The Contractor shall also become familiar with any proposed adjustments to be made by the utility owners and extend full cooperation. Under no circumstances will a claim for extras, due to delay caused by various utility companies be allowed.

5. Any costs resulting from Contractor damages to utilities shall be the responsibility of the Contractor.

6. All water and sanitary sewer facilities that may interfere with construction shall be relocated and adjusted by the Contractor with the Engineer's approval.

7. The Contractor shall notify the Engineer prior to any construction of drainage facilities and paving.

8. In the adoption of the Texas State Department of Highways and Public Transportation Standard Specifications, it is understood that any reference made to the Texas State Department of Highways and Public Transportation shall be taken to include the Town of Addison, as applicable.

9. The items under which payment is to be made are as listed in the Summary of Quantities. Any reference to other items in the standard specifications as pay items is hereby deleted. Only the provisions for construction requirements of such items are to be complied with.

10. All elevations are based on U.S.C. and G. Datum; USC and G. Bench Mark #E-921 is a bronze disc in the vertical wall of the Old Addison School Building (Magic Time Machine Restaurant), elevation 650.61 feet. New bench marks have been established along the project (shown on plan/profile sheet). The Contractor shall establish new bench marks as needed or before removal of the existing markers.

11. Premixing of lime offsite and hauling to location for small leaveouts will be permissible. However, proper compaction must be obtained.

12. All conduit installed must be left with pull string between pull boxes with end plugged.

13. The Contractor will be held responsible for placing and maintaining all necessary barricades, vertical panels with flashers and signs to provide maximum safety to the motorist. All barricades and signs shall be kept clean and broken ones will be replaced. The Contractor should use good judgment when considering the safety for motorists. Barricades and signs will not be a direct pay item on this project.

14. All storm sewers shall be excavated and backfilled in accordance with Special Specification 401 and 464. On street crossings, the top six inches shall be filled with Type D Asphalt and be considered as part of laying of the pipe (Not separate pay item, unless specifically noted on plans as PAY item).

15. Precast inlets will be permitted on this project. Shop drawings shall be submitted to the Engineer for approval.

16. Prior to start of any excavation, Contractor shall have laid out (horizontally and vertically) all components of the project, and have received approval from the Engineer before proceeding. The Contractor shall be responsible for all alignment and elevation control. The Contractor shall provide the Engineer a "cut sheet" prior to beginning any excavation or embankment, indicating all "cuts and fills" as required on the project.

SECTION 07000 - STANDARD SPECIFICATIONS

PART 1: GENERAL

1.1 GENERAL:

A. All specifications and special provisions applicable to this project are identified as follow:

STANDARD SPECIFICATIONS: The 1982 Edition of the Texas State Department of Highways and Public Transportation Standard Specifications for Construction of Highways, Streets and Bridges as adopted by the State Department of Highways and Public Transportation, September 1, 1982, Part II, Construction Details.

B. The following items are specifically hereby included:

<u>ITEM NO.</u>	<u>DESCRIPTION</u>
100	Preparing Right-of-Way
102	Clearing and Grubbing
104	Removing Old Concrete
110	Roadway Excavation
120	Channel Excavation
130	Borrow
131	Borrow (delivered)
132	Embankment
160	Furnishing and Placing Topsoil
248	Flexible Base
260	Lime Treatment for Materials in Place
264	Hydrated Lime & Lime Slurry
300	Asphalt, Oils, Emulsions
340	Hot Mix Asphaltic Concrete Pavement (Cl.A)
360	Concrete Pavement (Water Cement Ratio)
364	Concrete Pavement (Class A Concrete)
400	Structural Excavation
401	Excavation and Backfill for Sewers
420	Concrete Structures
421	Concrete for Structures
427	Surface Finish for Concrete
432	Riprap
464	Reinforced Concrete Pipe Culverts
465	Pipe Sewers
470	Manholes & Inlets
471	Frames, Grates, Rings & Covers
472	Relaying Culvert Pipe
473	Laying Culvert Pipe
475	Headwalls, Wingwalls, Inlets & Manholes
479	Adjusting Manholes & Inlets
481	PVC Pipe

504	Field Office
522	Ready-Mix Plants
530	Concrete Curb, Gutter, Curb & Gutter, Sidewalks & Driveways
582	Water Mains & Drains
618	Conduit & Pull Boxes
674-676	Pavement Markings/Traffic Buttons

SECTION 07500 - SPECIAL PROVISIONS

PART 1: GENERAL

1.1 GENERAL:

- A. The following Special Provisions shall govern and take precedence over the aforementioned Standard Specifications enumerated herein whenever they are in conflict.
- B. Mention herein or indication on the drawings of items, materials, operations or methods, requires that the Contractor provide and/or install each item mentioned or indicated of quality or subject to qualification noted; perform according to conditions stated each operation prescribed; and provide all necessary labor, equipment, supplies and incidentals.
- C. Requirements of the General Conditions, Special Conditions and Addenda, if issued, shall apply as if herein written.
- D. Separation of these specifications into items and sections is for convenience only and is not intended to establish limits of work.

<u>ITEM NO.</u>	<u>DESCRIPTION</u>
100	Preparing Right-of-Way
102	Clearing and Grubbing
104	Removing Old Concrete
110	Roadway Excavation
120	Channel Excavation
130	Borrow
131	Borrow (delivered)
132	Embankment
160	Furnishing and Placing Topsoil
248	Flexible Base
260	Lime Treatment for Materials in Place
264	Hydrated Lime & Lime Slurry
300	Asphalt, Oils, Emulsions
340	Hot Mix Asphaltic Concrete Pavement (C1:A)
360	Concrete Pavement (Water Cement Ratio)
364	Concrete Pavement (Class A Concrete)
400	Structural Excavation
401	Excavation and Backfill for Sewers
420	Concrete Structures
421	Concrete for Structures
427	Surface Finish for Concrete
432	Riprap
464	Reinforced Concrete Pipe Culverts
465	Pipe Sewers

470	Manholes & Inlets
471	Frames, Grates, Rings & Covers
472	Relaying Culvert Pipe
473	Laying Culvert Pipe
475	Headwalls, Wingwalls, Inlets & Manholes
479	Adjusting Manholes & Inlets
481	PVC Pipe
504	Field Office
522	Ready-Mix Plants
530	Concrete Curb, Gutter, Curb & Gutter, Sidewalks & Driveways
582	Water Mains & Drains
618	Conduit & Pull Boxes
674-676	Pavement Markings/Traffic Buttons

SPECIAL PROVISION TO ITEM 100 - PREPARING RIGHT-OF-WAY

Article 100.3 MEASUREMENT. Delete the second paragraph and replace with the following:

Measurement for payment will be made between the limits of construction. Measurement will be parallel and adjacent to the centerline of the right-of-way along the centerline of the improvement. No separate measurements will be made parallel and adjacent to the centerlines of intersecting streets.

The limits of construction will be the width of the established right-of-way throughout the entire project, along with any additional areas required for driveway or parking lot extensions or as indicated on drawings.

Article 100.4 PAYMENT. Delete the third paragraph and replace with the following:

The total payment for this item will not exceed 50 percent of the original contract amount prior to the final estimate. The portion of the contract amount for this item in excess of 50 percent of the total contract amount will be paid on the final estimate.

SPECIAL PROVISION TO ITEM 102 - CLEARING AND GRUBBING

Article 102.4 PAYMENT. Delete the third paragraph and replace with the following:

The total payment for this item will not exceed 50 percent of the original contract amount prior to the final estimate. The portion of the contract amount for this item in excess of 50 percent of the total contract amount will be paid on the final estimate.

SPECIAL PROVISION TO ITEM 104 - REMOVING OLD CONCRETE

Article 104.1 DESCRIPTION. Delete in its entirety and replace with the following:

Removing old concrete shall consist of all sawed break-out grooves for full depth of existing concrete, breaking up, removing and satisfactorily storing or disposing of old concrete street or driveway pavements, curb and gutter and parking lots only where shown on plans as Pay Items 104.1, 104.2 or 104.3. All other old concrete such as sidewalks, driveways, foundations, reinforced concrete pipe, curbs, curb and gutter or parking lots, not specifically provided for here or elsewhere by the plans and/or specifications shall be paid for under Pay Item 100 - Preparing Right-of-Way.

Article 104.2 CONSTRUCTION METHODS. Add the following to the second paragraph of this article:

The existing concrete shall be cut to the full depth encountered for the entire length as required.

Article 104.3 MEASUREMENT. Delete and replace with the following:

All sawed break-out groove required on this project will be measured by the linear foot, where shown on the plans. Whenever a straight, clean sawed line is required on concrete or asphalt it shall be paid for under Pay Item 104.1, Sawed Break-Out Groove.

All existing concrete pavement, median strips, slabs 6" or thicker, or 8" non-reinforced concrete pavement removed as prescribed above; and specifically indicated on plans as Pay Item 104.2 shall be measured by the square yard in its original position, regardless of its thickness or the depth of covering. It shall be paid for under Pay Item 104.2, Remove Concrete Paving. The removal of asphaltic surfaces, cement treated bases or other objectionable materials shall be paid for under Item 100, Preparing Right-of-Way, unless specifically stated otherwise.

All existing combined concrete curb and gutter or concrete curb specifically indicated on plans as Pay Item 104.3, removed as prescribed above, shall be measured by the linear foot in its original position, regardless of the dimensions of same.

SPECIAL PROVISION TO ITEM 110 - ROADWAY EXCAVATION

Article 110.2 CONSTRUCTION METHODS. Delete the third and fourth paragraphs.

Article 110.4 MEASUREMENT. Add the following paragraph:

Contractor may provide "before and after" cross sections with all calculations for volume computed in cubic yards by the method of average end areas, or payment will be based upon plan quantities, as shown.

Article 110.5 PAYMENT. Delete the last paragraph and replace with the following:

The hauling of materials, including waste, will not be measured for separate payment, but will be considered subsidiary to the item to which the work applies.

SPECIAL PROVISION TO ITEM 120 - CHANNEL EXCAVATION

Article 120.4 MEASUREMENT. Add the following paragraph:

Contractor may provide "before and after" cross sections with all calculations for volume computed in cubic yards by the method of average end areas, or payment will be based upon plan quantities, as shown.

Article 120.5 PAYMENT. Delete the last paragraph and replace with the following:

The hauling of materials, including waste will not be measured for separate payment, but will be considered subsidiary to the item to which the work applies.

SPECIAL PROVISION TO ITEM 130 - BORROW

Article 130.4 MEASUREMENT and 130.5 PAYMENT. Delete both articles in their entirety and replace with the following:

There will be no separate payment for borrow obtained from within the limit of the project. Material from excavation may be used as embankment material, if approved by the Engineer. Material required for embankment above what is available on site will be paid for under Pay Item 131, Borrow (Delivered).

SPECIAL PROVISION TO ITEM 131 - BORROW (Delivered)

Article 131.3 CONSTRUCTION METHODS. Delete the second and third paragraphs, and add the following:

The Contractor shall provide the material as specified from a borrow source to be approved by the Engineer. Testing of the material to conform to the specs will be performed by the Engineer, if required, and paid for by the Owner.

SPECIAL PROVISION TO ITEM 132 - EMBANKMENT

Article 132.4 PAYMENT. Delete the first sentence in the second paragraph. Delete the third paragraph in its entirety.

SPECIAL PROVISION TO ITEM 160 - SALVAGING AND PLACING TOPSOIL

Article 160.4 CONSTRUCTION METHODS. Add the following paragraph:

The selected black soil shall be free of trash, wood and other objectionable materials prior to the placing within the median or areas designated on plans. Areas to be filled shall also be cleared of all material such as concrete and forms. The topsoil shall be spread as directed by the Engineer, so as to form a cover of uniform thickness as shown on the plans or as directed by the Engineer. At the direction of the Engineer, the top surface may be sprinkled and/or rolled to provide uniformity, if necessary.

Article 160.5 MEASUREMENT. Delete and replace with the following:

Furnishing and replacing topsoil on the project shall be considered as subsidiary work pertaining to cleaning up. The placing of select black soil within the designated areas will be measured by the square yard, complete in place. Measurement for payment will be made only on areas indicated on plans or as may be directed by the Engineer.

Placement of topsoil salvaged within the right-of-way of project will be considered subsidiary to the item to which the work applies.

Article 160.6 PAYMENT. Delete and replace with the following:

All work performed and measured as provided under "Measurement" will be paid for at the unit price bid for "Furnishing and Placing Topsoil" which price shall be full compensation for excavation, loading, hauling, placing, sprinkling, rolling and furnishing all labor, equipment, tools, supplies, and incidentals necessary to complete the work.

SPECIAL PROVISION TO ITEM 260 - LIME TREATMENT FOR
MATERIALS IN PLACE

Article 260.2 MATERIALS. Type A hydrated lime shall be used at a maximum rate of 27#/square yard.

Article 260.4(4) COMPACTION shall be 95% AASHTO T99 for the top six inches.

Article 260.6 MEASUREMENT. Type A hydrated lime will be measured by the ton of 2,000 pounds dry weight. Subbase preparation (Density Controlled) will be measured by the square yard. (The subbase is six inches thick).

SPECIAL PROVISION TO ITEM 264 - HYDRATED LIME AND LIME SLURRY

Article 264.2 TYPE. Type A, hydrated lime shall be used.

SPECIAL PROVISION TO ITEM 300 - ASPHALTS, OILS & EMULSIONS

Article 300.2 MATERIALS. Type and grade shall be determined by testing laboratory; 300.2 (1) asphalt cement.

SPECIAL PROVISION TO ITEM 340 - HOT MIX ASPHALTIC CONCRETE PAVEMENT (Class A)

Article 340.2 MATERIALS.

- (1) Mineral aggregate - pea gravel will not be allowed. All aggregate shall be crushed stone.
- (2) Asphaltic material: Tack coat shall be RC-250.

Article 340.3 PAVING MIXTURE. Add the following paragraph:

Type D (fine graded surface course) shall be used on this project where indicated on the plans. A maximum of three inch lifts will be permitted to obtain the total thickness indicated.

Type B (fine graded base or leveling-up course) shall be used as level-up for patching roadway during construction or as directed by the Engineer.

Article 340.7 MEASUREMENT. Delete and replace with the following:

Type D asphaltic concrete will be measured by the Ton of 2,000 pounds, calculated in place. The weight will be figured based upon the calculated volume called for on plans and using unit weight of (110#/square yard per inch of depth).

Type B asphaltic concrete used will be paid for per ton as delivered on the project and approved by the Engineer.

Tack coat will not be a separate pay item, but shall be considered subsidiary to the item to which the work applies.

SPECIAL PROVISION TO ITEM 360 - CONCRETE PAVEMENT
(Water Cement Ratio)

Article 360.2 MATERIALS, Subarticle (1) Cement, is supplemented by the following:

When the cement is to be used in concrete with aggregates that may be deleteriously reactive, the alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of the cement shall not exceed 0.60%.

Article 360.2 MATERIALS, Subarticle (2) Admixtures, is supplemented by the following:

Mix designs with fly ash admixtures may be submitted at the option of the Contractor for approval by the Engineer. Mixes containing fly ash admixtures shall be submitted through an independent commercial laboratory to ensure the proper water/cement plus fly ash ratio. The maximum cement reduction shall not exceed 20% by weight per cubic yard and the fly ash replacement shall be 1.25 lbs. per each 1 lb. of cement reduction. Fly ash admixtures shall conform to ASTM C 618-77 and shall contain no more than 5.0 percent sulfur trioxide and loss of ignition shall not exceed 5.0 percent.

Article 360.4 PROPORTIONING CONCRETE, Subarticle (1) Proportions is supplemented by the following:

Where curbs are to be placed separately they shall conform to the applicable requirements of the Items for "Concrete Curb" or "Machine Laid Curb" and in addition 1/2" diameter by 8" dowels on 12" centers and a 1/2" diameter horizontal bar tied to the dowels shall be provided. An approved epoxy resin shall be applied to the pavement to receive curb after the pavement surface has been thoroughly cleaned with high-pressure water or other approved method. Curbs shall be grooved at transverse joints by use of hand tools. Methods for placing of curb, concrete mix design and equipment to be used shall be approved by the Engineer prior to commencing curb work.

Article 360.4 PROPORTIONING CONCRETE, Subarticle (2) Concrete is hereby deleted in its entirety and replaced by the following:

CONCRETE STRENGTH. The concrete mix will be designed with the intention of producing a concrete having a specified minimum average compressive strength in pounds per square inch at the age of 28 days and having the corresponding minimum average flexural strength (modulus of rupture) in pounds per square inch at 7 days indicated below.

The flexural test beams will be tested with a standard testing machine in which the load is applied at the center of the beam span in accordance with ASTM Designated C 293. For the specified strength the concrete mix shall comply with the following maximum allowable water content and minimum cement content requirements.

Compressive Strength (psi)	Flexural Strength (psi)	Water-Cement Ratio (max.gal./sack)	Sacks of Cement (min./c.y.)
3000	500	6.5	5.0

The coarse aggregate factor (dry, loose volume of coarse aggregate per unit volume of concrete) shall not exceed 0.85.

PENALTY FOR DEFICIENT CONCRETE STRENGTH. It is the intent of this specification that all concrete construction covered by this specification be constructed in strict conformity with the plans and these specification. Where any work is found to be constructed of concrete with strength values of less than the specified minimum strength, the following rules relative to adjustment of payment for acceptable work and to replacement of faulty work shall govern.

- (a) If the results of the compressive cylinder tests indicate a deficient strength and the Contractor does not elect to drill cores for a final compressive strength test, adjustments will be made on the basis of the compressive strength value for the particular area concerned as determined from the cylinders cast for compressive tests as hereinafter specified.
- (b) If the Contractor elects to take cores for a final compressive strength test, the compressive strength value as determined by the core tests shall be conclusive. If the results of the core tests indicate a deficient strength, adjustment will be made on the basis of the compressive strength value as determined by the core tests.
- (c) If the concrete compressive strength is less than the minimum required strength, the amount of penalty per square yard of concrete having a deficient strength shall be in accordance with the following table:

PERCENT DEFICIENT	AMOUNT OF PENALTY
0% TO 5%	\$2.00/S.Y.
Greater than 5--not more than 10%	\$5.00/S.Y.
Greater than 10--not more than 15%	NO Payment*

The amount of Penalty shall be deducted from payment due or to become due to the Contractor; such penalty deducted is to defray the cost of extra maintenance. *If, in the judgment of the Engineer, the area of deficiency should not be removed and replaced, there will be no payment for the area retained.

(d) All concrete having a strength more than 15 percent deficient shall be removed and replaced with concrete meeting the requirements of these specifications at the entire cost and expense of the Contractor.

(e) The area of concrete concerned in the adjustment or removal shall be the designated area represented by the compressive strength values determined as hereinabove specified.

Measurement for adjustment or removal shall be made to points equidistant between acceptable and unacceptable test points (points at which a compressive strength value was determined).

Article 360.4 PROPORTIONING CONCRETE, Subarticle (5) Mix Design, is hereby deleted in its entirety and replaced by the following:

MIX DESIGN. It is the intent of this specification to develop and use the most economical mix design possible which will fulfill all requirements of this specification when using acceptable materials as furnished by the Contractor.

Prior to the beginning of concrete placements, and thereafter before any change in source or characteristics of any of the ingredients except mineral filler, mix design tests shall be performed using the cement and aggregates proposed for use.

The Contractor will be required to furnish the Engineer with all concrete batch designs necessary to produce the required strength as specified in the contract and specifications. All designs must be submitted by the Contractor and approved by the Engineer before the placing of concrete will be permitted. At any time when any change in source or characteristics of any of the ingredients, except mineral filler is expected, results of the mix design tests required above shall be submitted to the Engineer in order that he may determine whether a change in the approved mix design is required.

Concrete mixes will be designed and made in sufficient number to represent a wide range of water-cement ratios; these mixes shall comply with the requirements therein prescribed for workability. The water-cement ratio is defined as the total U.S. gallons of water (weight 8.33 pounds) including the moisture content of all aggregates per sack of cement (weight 94 pounds net). From the concrete of each mix design test beams will be made, cured and tested to determine the flexural strength of the concrete at 7 days. From these preliminary tests, the water-cement ratio required to produce concrete of the specified strength will be selected.

Prior to placing of any concrete, the Contractor, will be required to furnish and operate the specified mixer approved for use on the project and shall produce batches of the size to be used in the concreting operations. From these batches, pilot beams will be made and tested in order to determine if the designs submitted comply with the strength requirements. No additional compensation will be paid for equipment, materials, and labor for making these preliminary test specimens. Such tests may be waived upon submission of approved independent laboratory design or previous satisfactory tests obtained from materials of the same sources.

After the mix proportions and water-cement ratio required to produce concrete of the specified strength have been determined and after the Engineer has approved the mix design, placing of concrete may be started.

Concurrence on the part of the Engineer in any proposed mixing or placing methods or approval of any proposed mix design shall not relieve the Contractor of the responsibility of furnishing concrete in place conforming to the requirements of these specifications.

Changes in the water-cement ratio and the mix design shall be made when the strength of the concrete departs from the specified minimum strength as indicated by the strength values obtained from tests of specimens made from concrete being placed.

CONCRETE DESIGN FOR INTERSECTIONS. When the paving and finishing of street intersections and left-turn lanes are accomplished by hand methods, the concrete used shall conform to the following special requirements:

LOCATION	MINIMUM CEMENT CONTENT	MAX. SLUMP
Major Thoroughfares	6 sacks per cubic yard	4 inches
Secondary Thoroughfares	5.75 sacks per cubic yard	4 inches
Residential Streets	5 sacks per cubic yard	4 inches

These special conditions will not be required when the intersection or left-turn lane will be placed and finished by mechanical methods. If the plans or special provisions indicate that traffic will be routed over the new concrete surface prior to the normal 7-day waiting period, the use of high-early strength portland cement will be required. When high-early strength portland cement is used, traffic will not be allowed on the surface for a minimum period of 72 hours after placing of the concrete.

Article 360.4 PROPORTIONING CONCRETE, Subarticle (6) Test Specimens, is hereby deleted in its entirety and replaced by the following:

TEST SPECIMENS AND QUALITY CONTROL. During the progress of the work the Engineer will cast test cylinders and beams for testing to maintain a check on the compressive and flexural strengths of the concrete actually being placed. Concrete failing to meet the specifications for materials, proportions, construction methods, strength or dimensions may be required to be removed and replaced with concrete meeting the specified requirements.

Not less than 3 test cylinders for a compressive strength value and 2 test beams for a flexural strength value will be taken from the concrete for each 450 square yards or less of concrete pavement placed each day. A compressive or flexural strength value shall be the average of the strengths of the three cylinders or two beams as the case may be.

Additional cylinders or beams may be made by the Engineer as required by concrete placing conditions, or for adequately determining the strength of the concrete where the early use of the base or pavement is dependent upon the concrete strength tests. No extra compensation will be paid the Contractor for materials and labor involved in fulfilling these requirements.

Beam boxes shall be furnished by the Contractor. Beam boxes shall be as specified or as directed by the Engineer. Furnishing of beam boxes will not be paid for as a separate contract pay item, and the costs thereof shall be included in such pay items as are provided in the proposal and contract. Beam boxes shall be maintained by the Contractor without cost to the Owner.

The test beams shall be tested at the age of 7 days in order to determine the flexural strength. Should the average 7 day flexural strength, as determined by the average of the last 10 flexural strength values obtained from test of beams made from concrete of the same water-cement ratio, fail to meet the strength requirement, the Contractor shall modify the mix design to obtain additional strength in order to fulfill the requirements for compressive strength at 28 days. The test cylinders from those specific areas where individual test beams were below required strength shall be tested at the age of 28 days in order to determine the compressive strength of these areas. Should any set of test cylinders representing a given area where an individual test beam has failed to meet strength requirements, that area shall be considered to be composed of concrete having deficient strength.

The Engineer, at his option, may reject as non-representative any individual flexural strength value in each group of ten where strengths more than 10 percent above or below the average for the group are indicated, and compute the average flexural strength on the basis of the remaining values.

Article 360.5 SUBGRADE AND FORMS, Subarticle (2) Placing and Removing Forms. Delete the third paragraph in its entirety and replace with the following:

Forms shall be leveled using material approved by the Engineer.

Article 360.6 CONCRETE MIXING AND PLACING, Subarticle (1) Mixing Methods is voided and replaced by the following:

The concrete shall be mixed in a mixer conforming to the requirements of Subarticle 360.3 (4) of this item. Ready-mix concrete, conforming to the requirements of the Item, "Ready Mix Plants", may be used for mixing concrete for pavement only when specifically permitted by a note on the plans, except that ready-mix concrete may be used for curbs, irregular sections and/or small placements such as turnouts and leaveouts. (A six (6) sack mix will be required at these locations.)

SPECIAL PROVISION TO ITEM 400 - STRUCTURAL EXCAVATION

Article 400.2 CONSTRUCTION METHODS. Delete the second paragraph in its entirety.

Article 400.6 MEASUREMENT. Delete the entire article.

Article 400.7 PAYMENT. Delete the entire article and replace with the following:

Work prescribed under this item will not be paid for separately, but will be considered a subsidiary obligation of the item to which the work applies.

SPECIAL PROVISION TO ITEM 401 - EXCAVATION AND BACKFILL
FOR SEWERS

Article 401.2 CONSTRUCTION, Subarticle (B) Backfill. At the end of the second paragraph, add the following:

Materials selected from excavation of the trench or from the roadway excavation shall have a liquid limit not to exceed 35 and a plasticity index not to exceed 10 when tested in accordance with standard Texas State Department of Highways and Public Transportation methods. Material placed above pipe shall be placed in 8" lifts and compacted to a minimum 92% standard proctor density, at optimum moisture.

Article 401.4 PAYMENT. Delete the entire article and replace with the following:

Payment for sewer excavation and backfill will not be paid for directly, but will be considered a subsidiary obligation of the item to which the work applies. Such payment will include full compensation for excavation, backfilling, furnishing selected backfill, and all incidentals necessary to complete the work.

Article 401.3 MEASUREMENT. Delete the entire article.

SPECIAL PROVISION TO ITEM 421 - CONCRETE FOR STRUCTURES

Article 421.2 MATERIALS, (1) Cement. The first paragraph of this Subarticle is hereby supplemented by the following:

When the cement is to be used in concrete with aggregates that may be deleteriously reactive, the alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of the cement shall not exceed 0.60 percent.

SPECIAL PROVISION TO ITEM 427 - SURFACE FINISHES FOR CONCRETE

Article 427.5 APPROVAL OF SURFACE FINISHING MATERIALS. Delete the article in its entirety and replace with the following:

The material to be furnished shall meet the requirements of the Texas State Department of Highways and Public Transportation Specification D-9-8110, Structural Coatings, latest revision.

SPECIAL PROVISION TO ITEM 432 - CONCRETE RIPRAP (Class A)

Article 432.12 MEASUREMENT. Delete and replace with the following:

Measurement of acceptable riprap complete in place will be made on the basis of the area actually covered and will be computed on the basis of the measured area.

Concrete in toe walls and footings shall be measured as Class A Concrete.

Article 432.13 PAYMENT. Delete and replace with the following:

The riprap quantities, measured as provided above, will be paid for at the unit prices bid per square yard for riprap of the various classifications shown, which price will be full compensation for furnishing, hauling, and placing all materials including reinforcement and premolded expansion joint material, and for all labor, tools, equipment, and incidentals necessary to complete the work.

Payment for excavation of toe wall trenches and for all necessary excavation below natural ground or bottom of excavated channel will be included in the unit price bid per square yard of riprap.

Payment for excavation required for shaping of slopes for riprap shall be included in the unit price bid per square yard for riprap.

SPECIAL PROVISION TO ITEM 440 - REINFORCING STEEL

Article 440.8 MEASUREMENT and 440.9 PAYMENT. Delete and replace with the following:

Reinforcing steel shall not be paid for separately, but shall be considered subsidiary to the work for which it applies.

SPECIAL PROVISION TO ITEM 502 - BARRICADES, SIGNS AND TRAFFIC HANDLING

Article 502.3 MEASUREMENT and 502.4 PAYMENT. Delete both articles and replace with the following:

The work and materials as prescribed by this item will not be paid for as a separate item, but will be considered incidental to the project.

SPECIAL PROVISION TO ITEM 504 - STRUCTURE FOR FIELD OFFICE AND LABORATORY

Article 504.2 GENERAL REQUIREMENTS. Delete the first paragraph and replace with the following:

One (1) structure will be required and located in an area acceptable to the Engineer.

Delete the fifth paragraph in its entirety.

Article 504.3 TYPE OF STRUCTURE. This article is voided in its entirety and replaced by the following:

The structure shall have or be built to at least the following minimum standards or as approved by the Engineer.

The field office shall not be less than 10'x16'x8' high with four completely weather stripped glass windows (one in each wall) and one completely weather stripped exterior door. The walls shall be insulated.

The field office shall be furnished with a heat pump for heating and cooling of sufficient capacity for maintaining suitable office temperatures. It shall have sufficient fluorescent ceiling lights, suitable number of 120 vac duplex wall receptacles, and a telephone jack.

The office shall be provided with a desk, two chairs, one trash container, and one chilled water drinking container. It shall also have a 72"x32" plan table.

The building shall be serviced with sewer or septic tank with connections and shall contain a restroom properly partitioned and furnished with, as a minimum, a flush toilet and a lavatory.

The building shall be installed level and stable, located at and facing the direction agreed upon by the Engineer. All utilities, including a telephone, shall be connected and paid for by the Contractor until final acceptance of the contract work on the project.

The area outside the building will be kept clean and maintained by the Contractor as required by the Engineer. Suitable outside steps, shoe sole cleaning scraper, concrete or gravel walk (depending upon the site conditions), an accurate outside hi-low thermometer, adequate outside garbage containers with covers shall be provided. An outside light shall be provided to light the field office area at night. Should vandalism become a problem, the Contractor shall provide suitable security surveillance and area fencing or both to insure the safety of the field office and its contents.

Article 504.4 MEASUREMENT AND PAYMENT. This article is voided and replaced by the following:

Work performed and materials furnished as prescribed by this item will be measured and paid for at the lump sum unit price bid for "Field Office", complete in place, which price shall be full compensation for all labor, tools, materials, furnishing equipment, electricity, water and fuel, and incidentals necessary to complete the work.

SPECIAL PROVISION TO ITEM 582 - WATER MAINS AND DRAINS

DELETE THE ENTIRE ARTICLE AND REPLACE WITH THE FOLLOWING:

Article 582.1 DESCRIPTION. This item shall govern for all materials and work necessary for furnishing and installing all water mains of the type specified, all sanitary sewer mains, and any and all distribution lines as shown on the plans, including all clearing, grubbing, excavation, sheeting, shoring, dewatering, pipe laying, jointing, testing, backfilling, and any other work that is required or necessary to complete the installation as shown on the plans and as specified herein.

The contractor shall be responsible for all materials furnished to him by his material suppliers and shall replace at his expense all such materials that are found to be defective in manufacture or that are damaged in handling.

The contractor shall install piping to meet all applicable standards. The contractor shall provide manufacturer's certificate that materials meet or exceed minimum requirements as hereinafter specified.

Article 582.2 MATERIALS. Each water main or distribution line shall be installed using the materials designated on the plans and as specified herein. All materials shall be new and meet the following minimum specifications:

582.2 A. PIPE.

1. POLYVINYL CHLORIDE WATER PIPE AND FITTINGS (PVC).

a. Unless otherwise specified on the plans, 1/2 inch PVC pipe shall be Class 315, 3/4 inch or larger PVC shall be Class 200. All thermoplastic PVC pipe shall fulfill the requirements of ASTM D2241, Class 200, SDR 14.

b. Where specified on the plans, Schedule 40 PVC pipe shall be PVC 1120 and shall meet requirements of ASTM D 1785.

c. PVC, SDR 14, shall meet or exceed requirements of AWWA C-900, latest revision, with cast iron outside dimensions and with rubber ring bell joint which shall be an integral and homogeneous part of the pipe barrel conforming to ASTM D 3139, latest revision. Rubber gaskets shall conform to ASTM D 1869.

d. PVC water pipe shall be listed by Underwriter Laboratories and approved for use in cities and towns of Texas by the State Board of Insurance.

e. The rigid PVC pipe shall bear the seal of approval (or "NSF" mark) of the National Sanitation Foundation Testing Laboratory for potable water pipe.

f. Pipe shall be made from NSF approved Class 12454-A or B PVC compound conforming to ASTM D 1784 resin specification.

2. CAST IRON PIPE AND DUCTILE IRON PIPE WATER MAIN AND FITTINGS (C.I.P.)(D.I.P.)

a. Unless otherwise specifically shown on the plans, or approved in writing, shall conform to ANSI A 21.6 (AWWA C106, latest revision), 200 psi working pressure, and shall be centrifugal cast pipe of rubber gasket type joint, furnished in 16' or 18' nominal laying lengths. All such pipe shall bear a mark denoting approval by the Underwriters Laboratories.

b. Cast iron pipe under these specifications shall have a tensile strength of 21,000 lbs. per square inch and 45,000 lbs. per square inch modulus of rupture. All such pipe shall be manufactured in accordance with ANSI "Manual for Thickness Design of Cast Iron Pipe", and shall be designed for 200 lbs. water working pressure, 8 feet of cover, and field condition B.

c. Ductile iron pipe shall be manufactured from metal having a minimum tensile strength of 60,000 lbs. per square inch, a minimum yield strength of 42,000 lbs. per square inch and a minimum elongation of 10 percent (60-42-10), and shall meet all requirements of AWWA Specification C150 and C151, latest revision, Class 50.

d. Joints for cast iron or ductile iron pipe shall be:

(1) Push-on joint with rubber gasket conforming to ANSI A21.11 (AWWA C111) of latest revision, or

(2) Mechanical joint conforming to ANSI A21.11 (AWWA C111) of latest revision, or

(3) Bell and spigot joints conforming to ANSI A21.6 (AWWA C106), of latest revision, or

(4) Flanged joint conforming to ANSI B16.1, Class 125, 250 psi working pressure.

e. Fittings for cast iron or ductile iron pipe shall be:

(1) Mechanical joint fittings conforming to ANSI A21.11 (AWWA C111), of latest revision, or

(2) Bell and spigot fittings, conforming to ANSI A21.10 (AWWA C110), of latest revision.

(3) Flanged fittings, 250 psi working pressure, conforming to ANSI B16.1, Class 125 flange with rubber gaskets.

(4) Screwed fittings, 125 lb. NPT thread conforming to ANSI B2.1.

f. All cast iron pipe shall have a half thickness of cement mortar lining as specified in ANSI A21.4, latest revision (AWWA C104), except for flanged and screwed pipe, which will receive an inside tar coating in place of the cement mortar lining.

g. All cast iron pipe and fittings shall be coated on the outside with hot dipped coal tar varnish conforming to Federal Specification WW-P-421.

3. REINFORCED CONCRETE CYLINDER PIPE WATER MAIN (RCCP)

a. The reinforced concrete cylinder pipe to be furnished and installed this section shall be composed of a steel cylinder with wire reinforcement and a concrete core or lining inside and a concrete coating outside.

b. The pipe shall conform to AWWA C301--Reinforced Concrete Water Pipe--Steel Cylinder Type, Prestressed; C303--Reinforced Concrete Water Pipe--Steel Cylinder, Pretensioned, latest revisions. The pipe shall be designed and manufactured to withstand 200 psi working pressure and be approved by the Underwriters Laboratories and the Texas Fire Insurance Commission.

c. Special pipe sections, short length, outlets and special fittings such as reducers, wyes, tees and bends shall be furnished and installed where required to complete the pipeline as shown on the plans. Fittings shall be constructed of steel cylinders, shall be concrete lined and coated, and shall be designed to withstand a working pressure equal to that of abutting pipe sections.

d. All outlets or other exposed metal shall be coated with mortar in such a manner that all exposed portions of metal are completely covered.

e. The contractor shall furnish layout drawings which show each run of pipe and indicate the location of all bends, outlets, special fittings and connections which are to be included as a part of the pipe to be installed on this project.

4. ASBESTOS CEMENT PIPE WATER MAIN (ACP)

a. Asbestos cement pipe and fittings shall conform to AWWA C400, Federal Specification SS-P-351c, ASTM C296, latest revision, Class 150. In no case shall the inside diameter of the pipe furnished be less than the nominal diameter specified.

b. Joints shall conform to ASTM D1869, latest revision, for rubber gaskets for asbestos cement pipe, similar to "Ring-tite" by Johns-Manville, Certain-Teed, "Fluid-tite CG Coupling" or approved equal.

5. CONCRETE SEWER PIPE AND FITTINGS (CSP) OR (RCSP)

a. Reinforced concrete sewer pipe (RCSP), 15" nominal diameter and larger, shall be of tongue and groove type, and shall conform to ASTM C76, latest revision, Class I through V, depending on trench loads. See plans for designation of class of pipe to be used. If no designation is indicated, use Class III pipe.

b. Nonreinforced concrete sewer pipe (CSP), 12" nominal diameter and smaller shall be bell and spigot type, and shall conform to ASTM C14, latest revision. For trench depths up to and including ten feet (10'), standard strength pipe shall be used, and for trench depth in excess of ten feet (10'), extra strength pipe shall be used.

c. Joints for concrete tongue and groove pipe 15" and larger and concrete bell and spigot pipe, 12" and smaller, shall have rubber gaskets conforming to ASTM C443, latest revision. Gaskets shall be similar to Tylox Type "CR" rubber gasket, as manufactured by the Hamilton-Kent Manufacturing Co., Kent, Ohio, or approved equal.

6. CLAY SEWER PIPE AND FITTINGS (VCP)

a. Vitrified clay pipe, extra strength (ESCP), and standard strength (SSCP) shall conform to ASTM C700, latest revision. Unless otherwise noted on plans, clay pipe shall be standard strength.

b. Joints for clay pipe shall conform to ASTM C425, latest revision, for compression joints for vitrified clay pipe and fittings.

7. POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS

a. All pipe and fittings shall be suitable for use as a gravity sewer conduit and shall conform to ASTM D3034 (SDR 35), latest revision, minimum pipe stiffness, 46 psi. Pipe shall be similar to Certain-Teed Fluid-Tite PVC pipe, Johns-Manville Ring-Tite PVC Gravity Sewer Pipe, or approved equal.

b. Joints for PVC sewer pipe shall be integral bell gasketed joint designed so that when assembled, the elastomeric gasket inside the bell is compressed radially on the pipe spigot to form a positive seal. The joint shall be so designed to avoid displacement of the gasket when installed in accordance with the manufacturer's recommendation. Joints shall conform to ASTM D3212, latest revision. Gaskets shall conform to ASTM F477, latest revision.

8. DUCTILE IRON SEWER PIPE AND FITTINGS

a. Ductile iron gravity sewer pipe shall conform to ASTM A746, latest revision. ANSI A21.51 or AWWA C151, latest revisions, Class 52.

b. Joints for ductile iron pipe shall be:

(1) Mechanical joint, conforming to ANSI A21.11 (AWWA C111) of latest revision, or

(2) Push-on joint, with rubber gasket as described in ANSI A21.11 (AWWA C111) latest revision.

c. Cement-mortar lining shall conform to ANSI A21.4.

9. CAST IRON SOIL PIPE AND FITTINGS

a. Cast iron soil pipe and fittings for hubless cast iron sanitary system shall conform to ASTM A74, latest revision, CISPI designation 301-78 or latest revision.

b. Rubber gaskets for joints shall conform to ASTM C564, latest revision, CISPI designation 310-78 or latest revision.

582.2 B. VALVES

1. GENERAL: This item shall include furnishing of all labor, materials and equipment for distribution systems in accordance with contract drawings and these specifications.

2. SUBMITTALS

- a. Catalog Data: Submit manufacturer's literature and illustrations.
- b. Weights: Statement of net assembled weight of each size of valve furnished.
- c. Shop Drawings of Valve and Operators.
 - (1) Dimensions
 - (2) Construction details
 - (3) Materials
- d. Installation Instructions: Complete manufacturer's installation instructions.
- e. Maintenance Data:
 - (1) Maintenance instructions
 - (2) Parts lists
- f. Certificates: Submit manufacturer's certification that valves and accessories meet or exceed specification requirements.

3. PRODUCT DELIVERY, STORAGE, AND HANDLING

- a. Prepare valves and accessories for shipment according to AWWA C500 and:
 - (1) Seal valve ends to prevent entry of foreign matter into valve body.
 - (2) Box, crate, completely enclose, and protect valves and accessories from accumulations of foreign matter.
- b. Store valves and accessories in area protected from weather, moisture, or possible damage.
- c. Do not store materials directly on ground.
- d. Handle items to prevent damage to interior or exterior surfaces.

4. GATE VALVES

- a. Gate valves shall be iron body, bronze or brass mounted, non-rising stem, parallel seat type, AWWA C500, latest revision. Valves shall be of equal, or greater, pressure class than the piping in which they are to be installed. Equipped with "O" ring seals at top of stem, and 2" square operating nut.

b. Valve boxes shall be cast iron and shall be of sufficient length and diameter to operate all valves buried in the ground. Covers shall be marked "Water". The boxes shall rest on the valve and be adjusted so that the cover may be set flush with finished grade.

5. BUTTERFLY VALVES

a. Shall meet or exceed the design strength, testing and performance requirements of AWWA Standard C504, latest revision. The manufacturer shall provide certification and test reports upon engineer's requires.

b. Bodies - Shall be suitable for installation between ANSI B16/1 Class 125 cast iron flanges or ANSI B16.5 Class steel flanges. End preparation shall be flanged, or full lug body wafer. Lug wafer bodies shall have the lugs drilled and tapped. Wafer bodied valves are not acceptable.

c. Discs - Shall be one-piece cast design with no external ribs transverse to the flow. Disc hub and edge shall be ground and polished to a rounded contour to give full concentric seating with the lowest practical seating torque and maximum seat life.

d. Valve Seats - Shall meet or exceed the thickness requirements of AWWA C504 and be of a design that totally encapsulates the inside ferrous surfaces of the valve body for maximum valve body protection against corrosion and tuberculation. Valve seats shall be designed with integral seals at the disc and shaft hub areas to completely isolate the stem, stem bearings, and body areas from the corrosive effects of the flowing media. Valve seats shall be completely field replaceable at the job site without the use of special tools.

e. Shafts - Shall be one piece extending completely through the disc. Stub shaft design may be used if in total accordance with AWWA C504-70, Section 7. Valve shafts shall be securely fastened to the valve disc by corrosion resistant shakeproof cap screws or taper pins. Valve shafts shall be of materials and diameters as required by AWWA C504 or of corrosion resistant materials and diameters which give equivalent strength. Disc to stem connections, or turned down portions of shafts shall be designed to transmit shaft torques equivalent to 75% of the required shaft diameter.

f. Shaft Bearing Surfaces - Shall be adequately designed to absorb the loads imposed by the service conditions and any side thrusts developed by the operator. Inboard

bushings shall be nylon reinforced teflon in sizes 2" to 20" and luberized bronze in sizes 24" to 48".

g. Shaft Seals - Shall be of the double-Chevron bi-directional type suitable for both pressure and vacuum. The packing gland, studs and a nut shall be corrosion resistant materials.

h. Manual Operators - Shall be the worm gear type having permanently grease lubricated totally enclosed gearing with operating nut and gear ratio design to require not more than 40 lbs. pull. Operator shall be provided with adjustable limit stops on the input shaft to the operator. Limit stops on output shaft of operator will not be permitted. Operator shall be designed for direct burial service and valve box shall be provided over operating nut.

1. Materials of Construction:

Valve Bodies shall be cast iron, ASTM A126, Class B, or ductile iron ASTM A536, Grade 65-45-15.

Valve Discs, 2" through 20", shall be aluminum-bronze ASTM B148, Class 9A (CA-952).

Valve Shafts shall be 17-4 PH stainless steel, 18-8 type 304 or 316 stainless steel, or monel.

Valve Seats shall be EPDM (ethylene propylene diene monomer). Where trace of hydrocarbon are present, valve seats shall be Buna N. Valve shaft bearings shall be nylon reinforced teflon or luberized bronze.

Butterfly Valves shall be Keystone or approved equal.

6. VALVE BOXES

a. Valve boxes shall be two piece, screw type, 5-1/4" shaft. Contractor shall supply boxes with the correct base for all valves and in correct lengths for field conditions. Special valve boxes shall be constructed as shown on the plans.

7. BLOW-OFF VALVES

Blow-off valves shall be placed on all dead end lines or as directed by the Engineer. Valves shall be 6", 350 lbs. per square inch standard AWWA C500.

8. AIR VALVES

Air valves shall be installed at the high points of the lines as directed by the Engineer and shall be one inch, Crispin Universal as manufactured by Multiplex Manufacturing Company, Berwick, Pennsylvania, or approved equal.

582.2 C. MISCELLANEOUS ITEMS

1. FIRE HYDRANTS

Fire hydrants shall be of the center stem compression type construction with break away flanges as manufactured by Mueller Co., Decatur, Illinois and have a minimum valve opening of 5-1/4". The hydrants shall meet all the requirements of AWWA Specification C502 and shall be equipped as follows: Two hose nozzles (2-1/2"); one pumper nozzle (4" steamer); packing ("O" ring); Inlet connection (6" mech. jt.); groundline to centerline hose nozzles (18"); groundline to bottom of connecting pipe (36"). The contractor shall furnish for approval of the Engineer, specifications and shop drawings of the hydrants proposed for installation in the system. Hydrants must meet the 150 lbs. psi working pressure and 300 psi hydrostatic pressure.

2. VALVE OPERATING WRENCH

Contractor shall supply two operating wrenches of sufficient length to properly operate the valves.

3. CONCRETE

Shall develop a compressive strength of 3,000 pounds per square inch at twenty-eight (28) days.

4. COPPER WIRE

Copper wire for use with plastic (PVC) pipe shall be No. 12 single strand plastic coated.

5. COPPER SERVICE PIPE

Copper service pipe shall be Type K and shall meet Government Specifications WWT 799A and ASTM Specifications B88-62.

6. POLYETHYLENE SERVICE PIPE

Polyethylene service pipe shall be Class 160 and shall conform to Commercial Standards PE3306 for Type 2 material made to SDR-9 dimensions.

7. POLY WRAPPED PIPE

Polyethylene encasement is required for all ductile iron and cast iron pipe, valves and fittings.

Polyethylene encasement shall conform to AWWA C105, latest revision.

8. CASING PIPE

Casing shall be as specified on the drawings. Steel casing or concrete pipe casing or corrugated metal casing may be used if all applicable requirements are met or exceeded.

582.3 CONSTRUCTION METHODS

- A. The work to be performed under this section shall include all labor, materials, equipment, transportation, all excavation, installation, and all backfill, testing and facilities necessary for proper installation of all water lines, sewer lines and distribution lines as shown on the plans, and/or as herein specified.
- B. The work under this section shall also consist of all necessary relocations of utilities and restoration of street surfaces, parkways, all utilities, driveways, sidewalks, etc., to conditions existing prior to the start of construction.
- C. All lines shall be constructed from the utility mains, shown on the drawings or designated by the utility company and connecting to utility service lines. The contractor shall be responsible to check all elevations of inverts of existing pipes before construction of lines or mains.
- D. Utility extension, rerouting and connection costs shall be paid and arranged for by contractor. All costs involved in extending, rerouting and connecting the utilities whether or not part of the work must necessarily be performed by the various utility company crews shall be paid by this contractor. Any charges for connections to mains, valving, extending to curb, property line or building, furnishing equipment, etc., shall be paid for as a part of the work of this section. Regardless of whether the Owner may have to sign with the utility company for any or all of these services, the contractor shall include in his bid all fees, city inspection charges, permit charges, work charges, etc., and shall be ready to deposit with the utility company said fees when required at time of Owner's signing for same.
- E. Existing Site Conditions:
 - 1. Existing Utilities: Locations and sizes of existing utilities as shown on the drawings are based on the best available information and may not be entirely correct. Exact location, depth and size must be verified by the contractor in the field. Additional compensation will not be allowed if damage to the utilities results because of minor discrepancies between locations shown on the drawings and actual field locations. Relocation of utilities in place shall be done whether or not such work is specifically shown on the drawings.

2. Any existing utilities that may be shown on the drawings or the location of which is made known to the contractor prior to excavation shall be protected from damage during the excavation and backfilling of trenches and, if damaged, shall be repaired by the contractor at his expense.
3. Any existing utility that is not shown on the drawings or the location of which are not known to the contractor in sufficient time to avoid damage, if inadvertently damaged during excavation, shall be immediately repaired by the contractor due to the existence of utilities that are not shown on the drawings or the location of which is not known to the contractor at the time of bidding.
4. Any existing utility lines and services shall be maintained at all times, except for such short periods of time as may be necessary to actually make connections to new work to the existing system. When it is necessary to temporarily interrupt service for the above purpose, such shall be done only at such date and time as may be established in advance by the Engineer. Those lines shown on the drawings to be abandoned or removed shall not be abandoned or removed until after it has been determined that they are no longer required for service and until such action has been approved by the Owner and the Engineer.

F. LINES, GRADES, STAKES AND TEMPLATES

1. The Contractor shall, at his own expense, furnish all stakes, templates, patterns, platforms and labor, including a person qualified to lay out all of the work.
2. The Engineer will furnish, upon request from the Contractor, limit marks and bench marks reasonably necessary for the execution of the work.
3. It shall be the Contractor's responsibility to protect these limit marks and bench marks set by the Engineer. Should the marks become destroyed or damaged, the cost of their replacement will be at the Contractor's expense.
4. The Engineer may furnish a representative to check alignment and grade, after it has been laid out ready for construction; however, this will in no way lessen the responsibility of the Contractor to see that grade and alignment are correct at all times.

5. The lines and grade of the sewer, as well as the location of manholes, wyes, and all other appurtenances, will be as shown on the plans or as directed by the Engineer.
6. The Engineer reserves the right to indicate which sewer lines will receive priority in construction. The work will, in general, be from the lower end of the system toward the upper end of the system.
7. The Contractor shall give the Engineer a minimum of forty-eight (48) hours notice for any engineering or inspection necessary to continue or complete the work.
8. No deviation shall be made from the required line or grade without written approval from the Engineer.

G. EXCAVATION

1. The Contractor shall perform all excavation that may be required for the installation of any and all parts of this section.
2. The excavation of the trench shall not advance more than 200 feet ahead of the completed pipe work except where, in the opinion of the Engineer, it is necessary to drain wet ground, or for other reasons as approved by the Engineer.
3. All excavations shall be made by open cut except as shown on the plans. The sides of the trench shall be kept as nearly vertical as possible, especially from the trench floor to a level one (1) foot above the top of the pipe. Trench bottoms shall not be less than 12 inches wider nor more than 16 inches wider than the outside diameter of the pipe laid therein, and shall be excavated true to line, so that clear space of not less than 6 inches nor more than 8 inches in width is provided on each side of the pipe. The bottom of trenches shall be accurately graded to provide uniform bearing and support for each section of pipe or undisturbed soil at every point along its entire length, except for positions of the pipe sections where it is necessary to excavate for bell holes. Bell holes shall be excavated only to an extent sufficient to permit accurate work in the making of the joints and to insure that the pipe, for a maximum of its length, will rest upon the prepared bottom of the trench. The bottom of all trenches shall be rounded so that at least one-fourth (1/4) of the circumference of the pipe rests firmly on undisturbed soil. If the Contractor should, by

error, excavate below the proper elevation for the bed of the pipe or should he desire to substitute an approved granular backfill, properly tamped, for supporting the pipe to the same extent as the shape trench bottom, then the Contractor must bring the trench bottom to the proper grade by refilling, at the Contractor's expense, with an approved granular backfill. This backfill material shall be sand or fine gravel that does not contain large rocks or other deleterious materials and should be placed so that it is at least 2 inches deep below the bottom and so that the lower one-third (1/3) of the pipe is uniformly supported on undisturbed soil.

4. All excavation shall be placed on one side of the trench, unless permission is given by the Engineer to place it on both sides. Excavated materials shall be placed so as not to endanger the work, and so that free access may be had at all times to all parts of the trench. All shade trees, shrubs, etc., along the line of construction shall reasonably protected, and tunneled if necessary unless specific directions are given to remove them.
5. The Contractor shall provide, without additional compensation, suitable temporary channels for the water that may flow along or across the site of the work. Any water pumped from the trenches, or other excavations, must be disposed of in a manner satisfactory to the Engineer.

H. BRACING AND SHORING

1. The Contractor shall, when necessary or when directed by the Engineer, furnish, put in place, and maintain all without additional compensation, such sheeting, bracing, etc., as may be required to support the sides of the excavation and to prevent any movement which can in any way damage adjacent pavement or other structures, damage or delay the work or construction, or endanger life and health. Care shall be taken to prevent voids outside the sheeting, but, if voids are formed, they shall be immediately filled and rammed to the satisfaction of the Engineer.
2. For the purpose of preventing injury to persons, corporations or property, whether public or private, (where the liability for damage on account of which is to be assumed entirely and solely by the Contractor under this contract) he may also leave in place, to be embedded in the backfill of the trench any and all sheeting, bracing, etc., in addition to

that ordered in writing by the Engineer to be left in place, except that no sheeting and bracing which is within 4 feet of the surface of the street may be left in place in the trench without written permission of the Engineer.

3. All sheeting and bracing which may not be left in place under the foregoing sewer or other structures, utilities or property, whether public or private. All voids left by the withdrawal of sheeting shall be immediately refilled and compacted by ramming or water, or otherwise, as may be directed.
4. The right of the Engineer to order sheeting and bracing left in place shall not be construed as creating an obligation on his part to issue such orders; and his failure to exercise his right to do so shall not relieve the Contractor from liability or damages to persons or property, occurring from or upon the work of constructing the sewer occasioned by negligence or otherwise, growing out of the failure of the Contractor to leave in place in the trench sufficient sheeting and bracing to prevent any caving or moving of the ground adjacent to the banks of the trench.

I. DEWATERING

The Contractor shall at all times during construction, provide and maintain ample means and devices with which to promptly remove and properly dispose of all water entering the sewer trenches or excavations, and keep said excavations dry until the structures are poured and the concrete has set. No pipes shall be laid, nor pipe joints made, in water; nor shall water be allowed to rise over masonry or mortar until the concrete or mortar has set at least twenty-four (24) hours.

J. BEDDING MATERIAL

Six (6) inches of sand cushion shall be used to receive the pipe barrel and each pipe section, when in place, shall have a uniform bearing on the sand cushion for the full length of the pipe barrel. Pipe shall not be laid unless the sand cushion is free of water and in a condition satisfactory to the Engineer. Adjustments of the pipe to line and grade shall be made by scraping away or filling in with gravel, or approved selected material, and not by wedging or blocking up the bell. After pipe is in place, 12" of sand shall be placed above the pipe prior to backfilling with select material.

Bedding material will not be measured or paid for as a separate item. The cost thereof will be included in the unit price bid per length of pipe.

In no case will extra compensation be allowed for furnishing any bedding material required to complete the installation of pipe.

K. PROTECTION AND INSTALLATION

1. Care and precautions shall be taken to prevent the introduction of foreign material into the existing system. Well fitted stoppers or bulkheads shall be securely placed in all openings and in the end of the line when construction is stopped temporarily and at the end of each day's work. It shall be the responsibility of the Contractor to deliver to the Owner a pipeline which is clean throughout its entire length.
2. Bell holes of ample size shall be cut under and around all joints to provide adequate room for making joints and to assure that the barrel of the pipe rests uniformly and in continuous contact with the supporting ground for its entire length.
3. Water will not be permitted in the trenches while the pipe is being laid. The Contractor shall not open up more trenches than the available pumping facilities are able to dewater to the satisfaction of the Engineer.
4. A tolerance of six (6) inches from the established grade may be permitted, if approved by the Engineer, in order to prevent excessive breaks in alignment at the joints to such an extent that the joints cannot be properly made.
5. Should conflict in grade occur with other utilities, the water line grade shall be changed to avoid the conflict.
6. The interior of the pipe shall be clean and joint surfaces shall be clean and dry when the pipe is lowered into the trench. Each pipe, fitting, and valve shall be lowered into the trench carefully and laid true to line and grade.
7. All joints shall be made in strict accordance with the manufacturer's specifications.

L. THRUST BLOCKS

1. 2500 psi concrete shall be placed for blocking at each change in direction of all pressure pipelines in such manner as will substantially brace the pipe against undisturbed trench walls. Concrete blocking, made from Type 1 cement, shall have been in place four days prior to testing the pipeline as hereinafter specified. Test may be made in two days after completion of blocking if Type III cement is used.
2. At all points where wet connections are made to existing lines, the tapping connection fittings shall be supported by blocking up to the spring line with 2500 psi concrete.
3. All valves shall be supported by a 3000 psi concrete pad, 6 inches thick and of sufficient size to rest against undisturbed earth.
4. Concrete blocking will not be measured or paid for as a separate item, but the cost thereof shall be included in the various items listed in the Proposal and Bid Schedule.
5. Trenches underneath slabs and footing of structures shall be backfilled with Class "C" concrete, unless otherwise shown on the plans.

M. CONNECTIONS AND APPURTENANCES

1. The Contractor shall make the alterations and the necessary connections to existing city water mains as shown on the plans. Such connections shall be made at such times and in a manner that will be agreeable to the city water department; in each case, when the work is started, it shall be prosecuted expeditiously and continuously until completed.
2. Where it is necessary or indicated in the plans, connections to existing mains under pressure shall be made by tapping connection fittings. Where it is possible to valve off the section of existing main where the connection is to be made, the Contractor may have the option of either connecting by means of tapping connection fittings or by cutting the main and using standard fittings.

3. Tapping sleeves, crosses and valves shall be of standard manufacture and mechanical joint type to fit AWWA pipe specifications in Classes A, B, C and D. Tapping sleeves and crosses shall be designed for minimum working pressure of 200 pounds per square inch. Connecting flanges on tapping sleeves, crosses and valves shall be ASA Class 125. Tapping valves shall be designed for minimum working pressure of 200 pounds per square inch.

N. CLEAN UP

In areas where the water mains have been backfilled, the Contractor shall clear the right-of-way and surrounding ground, and shall dispose of all waste materials and debris resulting from his operations. He shall fill and smooth over holes and ruts and shall repair all miscellaneous and unclassified ground damage done by him, and shall restore the ground to such stable and usable conditions as may reasonably be required, consistent with the condition of the ground prior to the laying of the pipeline.

582.4 TESTING

- A. After the pipe is laid and the line is flushed of dirt and foreign material, the pipe shall be filled with water, care being exercised to expel all air from the pipe. During the test period, pipe, valves, meter, fittings, and joints shall be carefully examined for defects. Any observed leaks or defective pipe shall be satisfactorily repaired or replaced at the expense of the Contractor and the test repeated until the section under test is within the limits prescribed. The entire distribution system or parts thereof shall be tested under hydrostatic pressure of 150 pounds per square inch, for a period of two hours if joints are exposed, or for a twenty-four (24) hour period if joints are covered, or as directed by the Engineer.
- B. Care shall be taken to insure that water mains existing prior to this contract are not pressure tested. Any old mains damaged by pressure testing shall be repaired at the expense of the Contractor.
- C. Leakage shall be measured by an approved calibrated meter through which all of the water required to maintain test pressure is pumped.
- D. All testing shall be performed in the presence of the Engineer.

- E. The Contractor shall furnish the pump, pipe, connections, closure fittings, gauges, meters, water and all other necessary apparatus and shall furnish all labor and do all work required to make the tests. All costs of testing shall be borne by the Contractor.
- F. Testing operations shall remain in operation until approved by the Engineer. Allowable leakage shall not exceed 23.3 gallons of water per day per mile of pipe per inch of nominal diameter, for pipe in 18 foot lengths evaluated at a pressure of 150 psi or AWWA C600, Section 13, whichever is greater. Joints for fire hydrants and valves shall be considered.
- G. All known leaks shall be stopped regardless of the test requirements.

5 82.5 DISINFECTION

- A. After completion of the distribution system installation and testing, the water lines shall be thoroughly flushed out to remove dirt and foreign matter, and then be sterilized in accordance with the requirements of the Texas Department of Health.
- B. When the piping is sterilized, at least two (2) samples of water shall be extracted from the system for examination by the Texas Department of Health to determine whether the system is free of organisms of the Coil-Aerogenes group. If the samples submitted do not show negative for such organisms, the piping shall be disinfected and re-disinfected by the Contractor in accordance with the requirements of the Texas Department of Health until the system is free of contamination. All materials and labor required for complete sterilization of the piping shall be furnished by the Contractor at no additional expense to the Owner.

582.6 MEASUREMENT

A. WATER PIPE/SEWER PIPE

The lengths of pipe of types and sizes specified, installed and accepted, will be determined by measurements along the center line of the pipe. No deductions will be made for space occupied by valves or fittings.

B. VALVES AND FIRE HYDRANT ASSEMBLIES

Gate valves, butterfly valves, air release valves, blow-off valves and fire hydrant assemblies will be measured as units per each. Valve boxes and gravel bedding for valves will not be measured for payment; the cost of these items shall be included in the Contract Unit Price for Valves. Fire Hydrant assemblies shall include fire hydrant, valve, rods, spool connections, mechanical joint anchor fittings, gravel and concrete; none of the above named items will be measured for separate payment.

C. CASING PIPE

Casing of the type and size specified will be measured by the linear foot, complete and in place.

D. CONNECTIONS

1. Connections to existing water mains will be measured as units per each under connections. Reducers, tees, valves, incidentals, and piping shall be included in the Contract Unit Price for Connections, and shall not be measured separately.
2. No separate measurement will be made of any subsidiary items, such as thrust block, copper coated wire, bedding, fittings, accessories, excavation, trenching, backfilling, or any other items required for the completed installation of the water lines.

582.7 PAYMENT

A. WATER PIPE

Payment will be made for Water Distribution System Piping at the Contract Unit Price per linear foot, which price shall constitute full compensation for furnishing all pipe, pipe joints, fittings, specials and all other materials not particularly specified for separate payment; for furnishing all labor, tools, equipment and incidentals and performing all work including excavation, installation of pipe, backfill, testing, sterilization, cleanup and any other operations essential to completing the water system as specified within and as shown on the Contract Drawings.

B. VALVES AND FIRE HYDRANTS

Payment for gate valves, butterfly valves, air release valves, blow-off valves and fire hydrants will be made at the Contract Unit Price per each, which price shall constitute full compensation for furnishing all valves, valve boxes, valve box concrete, valve wrenches, fire hydrant assemblies, gravel and miscellaneous materials; for furnishing all labor, tools, equipment, and incidentals and the performing of all operations essential to completing the installations in accordance with these Specifications and the Contract Drawings.

C. CASING PIPE

Casing will be paid for at the Contract Unit Price per linear foot, for the type and size specified on the plans.

D. CONNECTIONS

Payment for connections to existing water lines will be made at the Contract Unit Price per each, which price shall constitute full compensation for furnishing all tees, reducers, valves, piping, incidentals, service clamps, connections, gravel, concrete, and miscellaneous materials and for furnishing all labor, tools, equipment, and incidentals and performing all operations essential to completing the installations in accordance with these Specifications and the Contract Drawings.

E. NO SEPARATE PAYMENT will be made for any subsidiary items such as thrust blocks, plastic coated wire, bedding, fittings, or any accessories, extra excavation, trenching, backfill and disposal of surplus excavation and other incidentals in the related pay items or called for in the Contract.

SPECIAL PROVISION TO ITEM 618 - CONDUIT AND PULL BOXES

THIS SECTION IS HEREBY VOIDED AND REPLACED BY THE FOLLOWING:

Article 618.1 DESCRIPTION

All conduit and fittings shall be of the sizes and types shown on the plans. Each section of conduit shall bear evidence of approval by Underwriter's Laboratories. Polyvinylchloride conduit shall be Schedule 40.

618.1.2 The Contractor may, at his own expense, use conduit of larger size than specified on the plans providing that the larger size is used for the entire length of the conduit run.

618.1.3 Conduit terminating in posts or pedestal bases shall extend vertically, approximately 2 inches above the concrete foundation. Field bends in rigid metal conduit shall have a minimum radius of 12 diameters of the nominal size of the conduit.

618.1.4 Each length of galvanized rigid metal conduit, where used, shall be reamed and threaded on each end and couplings shall be made up tight. White-lead paint or equal shall be used on threads of all joints. PVC Conduit shall be joined by solvent-weld method in accordance with the conduit manufacturers' recommendation. No reducer couplings shall be used unless specifically indicated on the plans.

618.1.5 All conduit and fittings shall have the burrs and rough places smoothed and shall be clean and free of obstructions before the cable is installed. Ends of conduits shall be capped or plugged until starting of wiring. Upon request by the Engineer, the Contractor shall draw a full-size metal brush, attached by swivel joint to a pull tape through metal conduit and a spherical template having a diameter not less than 75 percent of the inside diameter through PVC conduits to insure that the conduit is clean and free from obstructions. A nylon or non-metal pull tape shall be used in pulling cables and conductors through PVC Conduit. Metal tapes will not be permitted in PVC Conduit. The conduits shall be placed as shown on the plans or as directed by the Engineer. Unless otherwise shown on the plans or as directed by the Engineer, conduit placed in an open trench shall be placed at least 18 inches deep.

618.1.6 PVC Conduit which is to be placed under existing pavement, sidewalks and driveways shall be placed by first providing a void through which the PVC Conduit shall be inserted. The void may be accomplished by either boring or jacking a mandrel. Metal conduit which is to be placed under existing pavement, sidewalks, and driveways shall be placed by jacking or boring. If it is determined by the Engineer that it is impractical to place the conduit as outlined above due to unforeseen obstructions, written permission will be granted by the Engineer for the Contractor to cut the existing pavement. Pits for jacking or boring shall not be closer than 2 feet to the back of the curb or the outside edge of the shoulder unless otherwise directed by the Engineer. The jacking and boring method used shall not interfere with the operation of street, highway, or other facility and shall not weaken or damage any embankment, structure, or pavement. Heavy jacks are to be used for jacking. Boring is to be done by mechanical means providing a maximum one-inch overcut for the conduit to be placed, and use of water or other fluids in connection with the boring operation will be permitted only to the extent to lubricate cuttings. Water jetting will not be permitted. Where conduit is to be placed under existing asphaltic pavement, the jacking method is to be used unless written approval is given by the Engineer for placement of the conduit by boring.

Article 618.2 PULL (JUNCTION) BOXES

618.2.1 GENERAL. The purpose of this specification is to describe a reinforced concrete mortar, pull (junction) box with cover and extension (if required) for use in underground traffic signal systems. The box shall be used for terminating and beginning conduit runs (junctions) of various sizes and also for accessibility when pulling signal cable.

618.2.2 DESCRIPTION.

- (a) The assembly shall consist of box, cover and extension (if required) and all components shall be of reinforced plastic mortar. The cover shall be fabricated so as to fit properly in a recessed lip for full and stable contact on the box, and be secured thereon with at least, two stainless steel bolts. The legend "Traffic Control" shall be integrally cast into the top surface of the cover, and the cover shall be provided with a sturdy, stainless steel drop handle to facilitate removal.
- (b) The box and extension (if required) shall be rectangular in shape, with inside minimum dimensions of 24-inch length, 14-inch width and 12-inch depth. The bottom portion of each will be open, with a sturdy flange around the perimeter so that the box seats firmly on the top of the extension. A minimum of two knockouts, 3"x4", one on each end, shall be provided in each box and extension section.
- (c) All components except for handle and fastening bolts shall be grey in color.

618.2.3 MATERIAL AND STRENGTH REQUIREMENTS. The pull box, cover and extension shall be of reinforced plastic mortar, and be designed and tested to temperatures of -50 degrees Fahrenheit, meeting ASTM D-635 flammability test. The box and cover shall be capable of withstanding a minimum 5,000 pound single axle load over any 10"x10" area of exposure.

618.3 MEASUREMENT AND PAYMENT. Work performed and material furnished as prescribed by this item will be measured and paid for by linear foot along the main line of the conduit and per each pull box installed. The price shall be for full compensation for material, equipment and labor.

SPECIAL PROVISION TO ITEMS 674 AND 676
RAISED PAVEMENT MARKER INSTALLATIONS

For this project, Items 674 and 676 are hereby deleted and replaced with the following:

1.0 GENERAL

1.1 The purpose of these specifications is to describe minimum requirements for the installation of raised ceramic lane markers on streets for the purpose of designating travel lanes.

1.2 The Contractor shall be responsible for layout of the markings, pavement preparation and installation of the markings to include handling of traffic, as described more fully herein. The Contractor shall furnish all labor, materials and equipment for such installation.

2.0 LAYOUT AND INSTALLATION

2.1 The Contractor shall install the required types of markers as described herein and shown on the attached typical layout sketch.

2.1.1 Skipped White Lane Line designating separation of lanes of the same direction of traffic shall be on a total cycle length of 40 feet with a 15 foot marking and 25 foot space. The 15 foot marking shall consist of 6 markers placed 3 feet apart. The lead marker of the pattern shall be a mono-reflective type as described herein with the reflective portion facing oncoming traffic. The remaining 5 markers shall be non-reflective as described herein. Interruption of the marking pattern shall occur at cross-street intersections as shown in the attached typical layout sketch.

2.1.2 White Left Turn Lane Line designating separation of left-turn lane from through lanes. The marking shall be continuous with single reflective ceramic marker on 10-ft. spacing. The continuous line shall be twenty feet shorter than the left-turn lane length.

2.1.3 Double Yellow Centerline designates the separation of lanes with traffic in opposing directions on an undivided multiple-lane street. The marking shall be continuous except for interruption at cross-streets. The marking shall consist of two continuous parallel lines with 4-inch (.33 feet) lateral separation. The bi-directional reflective yellow markers for each line shall be placed 3 feet apart.

2.1.4 Skipped Yellow Centerline designates the separation of lanes with traffic in opposing directions on a 2-lane undivided street. The marking shall be on a total cycle length of 40 feet with a 15 foot marking and 25 foot space. The 15 foot marking shall consist of 6 markers placed 3 feet apart. The marking shall be bi-directional reflective yellow markers.

3.0 PAVEMENT PREPARATION

3.1 The pavement shall be prepared in such a manner as to insure the best possible bonding of the marker to the pavement.

4.0 MATERIALS

4.1.0 Markers - All markers shall be a glazed ceramic type and must be approved by the Engineer. All markers as described herein shall be similar in design and function to Permark Brand manufactured by the American Clay Forming Plant of the Ferro Corp.

4.1.1 Non-Reflective White Marker shall be circular, approximately 4 inches in diameter by .75 inches high with a domed surface glazed white. The bottom surface shall not be glazed and may have a designed irregular finish to aid bonding to the pavement. (American Clay Designation P-7, or equal)

4.1.2 Mono-Directional Reflective White Marker shall be either circular or oval approximately 4 inches in diameter by .75 inches high with a glazed white surface finish. A single white "high intensity" reflective rod shall be permanently imbedded in the surface facing essentially horizontal. (American Clay Designation P-15 or P-15A, or equal)

4.1.3 Mono-Directional Reflective White Barrier Marker shall be circular, approximately 8 inches in diameter by 2.86 inches high with a glazed white surface finish. A single white "high intensity" reflective rod shall be permanently imbedded in the surface facing essentially horizontal. (American Clay Designation P-18-1 or equal)

4.1.4 Bi-Directional Reflective Yellow Marker shall be of circular or oval design approximately 4 inches in diameter by .75 inches high with a glazed yellow surface finish. Two yellow "high intensity" reflective rods shall be placed in opposing directions, permanently imbedded in the surface facing essentially horizontal. (American Clay designation P-117 or equal)

4.2.0 Epoxy Adhesive - Ceramic traffic markers shall be permanently affixed to the pavement surface by means of epoxy resin adhesive. The epoxy shall be a two component compound of resin and hardener to be mixed immediately prior to installation. The allowable type of epoxy adhesive shall conform to that specified by the State Department of Highways and Public Transportation for hand mix or machine mix epoxy adhesive. (Type II or III or II-M or III-M respectively)

5.0 HANDLING OF TRAFFIC

5.1 In most cases, the roadway to be marked will be open to traffic and the Contractor shall provide all necessary warning and barricading to insure safety of the workmen and traffic and proper set of the markers to the pavement.

5.2 A minimum of one lane in each direction shall remain open to through traffic.

5.3 The Contractor shall conduct the installation so as to minimize the duration of restricted traffic movements.

5.4 The Contractor should plan on working on the street only during the offpeak traffic hours of 8:30 AM to 4:00 PM.

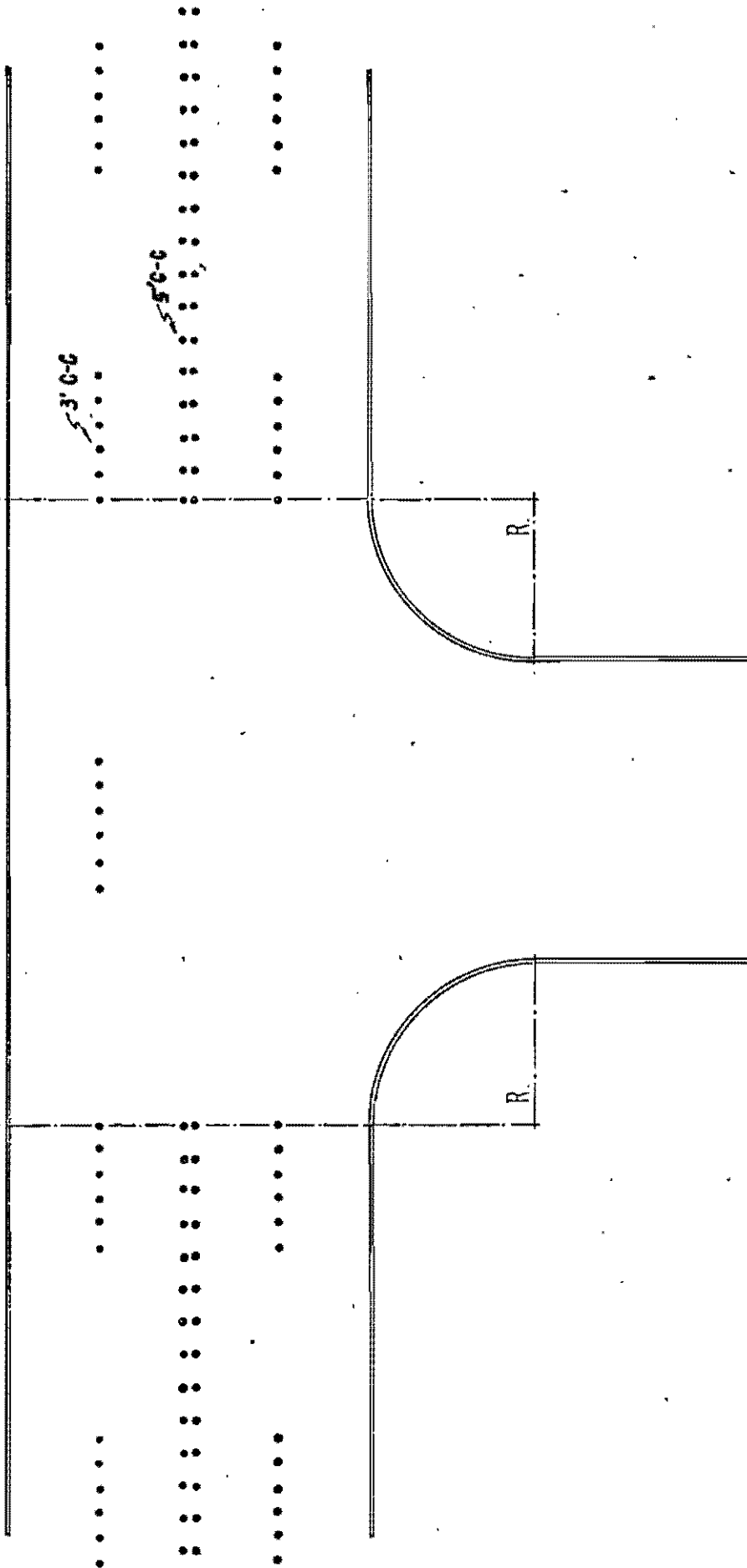
5.5 The Contractor shall insure proper maintenance of all warning and traffic channelizing devices throughout the job.

5.6 Construction signing and channelizing devices and operations shall conform to the Texas Manual on Uniform Traffic Control Devices (1973).

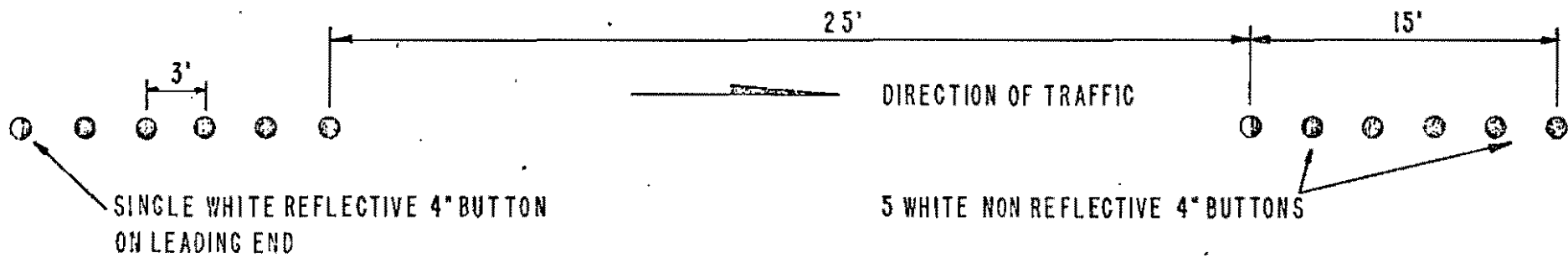
6.0 MEASUREMENT AND PAYMENT

Measurement of quantities shall be made on total number installed for each type of traffic button. The pay quantity measurement shall be made on a per unit basis; the units being "markers in place."

INTERRUPTION OF MARKING
PATTERN AT INTERSECTIONS

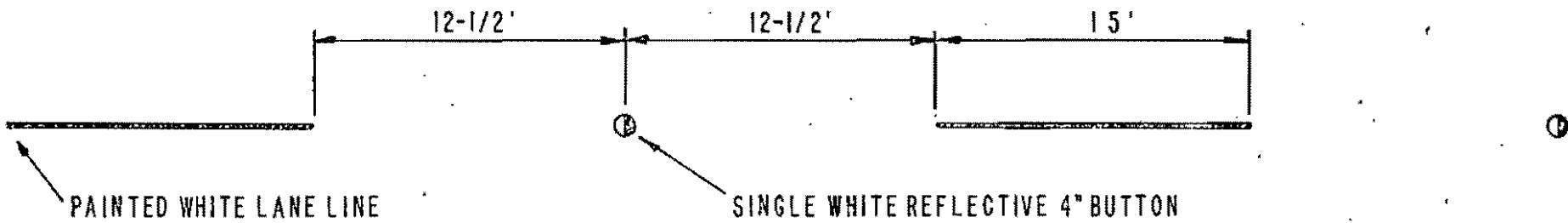


TYPICAL DETAIL



TYPE 1 - SKIPPED WHITE LANE LINE

SP-39



LEGEND

- NON-REFLECTIVE BUTTON
- Ⓢ SINGLE DIRECTIONAL REFLECTIVE BUTTON
- Ⓡ B1-DIRECTIONAL REFLECTIVE BUTTON

TYPE 2 - SINGLE WHITE REFLECTIVE BUTTON BETWEEN PAINTED LANE LINES