



**SPECIFICATIONS**

**AND**

**FORMS OF CONTRACT AND BONDS**

**FOR**

**TRAFFIC SIGNAL CONSTRUCTION**  
**PROJECT: – JOE WILSON ROAD and WEAVER**  
**STREET**

**PROJECT NO.: 2020\_PW\_19\_0009**

**PREPARED BY: Nathan New, P.E.**

**TBPE REG NO.: 101204**

**DATE: July 30, 2020**

**CITY OF CEDAR HILL, TEXAS**  
**285 UPTOWN BLVD.**  
**CEDAR HILL, TEXAS 75104**

**CITY OFFICIALS**

**MAYOR**

**Stephen Mason**

**COUNCIL MEMBERS**

**Clifford R. Shaw, Mayor Pro Tem**

**Shirley Daniels**

**Daniel C. Haydin, Jr.**

**Alan E. Sims**

**Chad A. McCurdy**

**Gregory Glover**

**CITY MANAGER**

**Greg Porter**

**ASSISTANT CITY MANAGER**

**Melissa Valadez Cummings**

**DIRECTOR OF PUBLIC WORKS**

**Tom Johnson, P.E.**

**KIMLEY-HORN**

**13455 NOEL ROAD, TWO GALLERIA OFFIC TOWER, SUITE 700**

**DALLAS, TX 75240**

**FIRM REGISTRATION NO.: F-928**

## TABLE OF CONTENTS

### ADDENDA

Section 1 – Bidding Documents .....	3
<i>Notice to Contractors</i> .....	4
<i>Instructions to Bidders</i> .....	5
<i>Bid Form</i> .....	14
<i>Non-Collusion Statement</i> .....	17
<i>Business Diversity Form</i> .....	18
<i>Financial Statement Form</i> .....	20
<i>Insurance Agent Affrmation Form</i> .....	21
<i>References form</i> .....	22
<i>Conflict of Interest Questionnaire</i> .....	23
Section 2 – Contract Documents.....	26
<i>Standard Form of Agreement</i> .....	27
<i>Certificate of Insurance</i> .....	28
<i>General Instructions for Bonds</i> .....	29
<i>Performance Bond</i> .....	30
<i>Payment Bond</i> .....	31
<i>Maintenance Bond</i> .....	32
Section 3 – General Provisions.....	34
Section 4 – Special Conditions .....	36
Section 5 – Technical Specifications.....	72
Appendix A – Project Details.....	74

**SECTION 1 – BIDDING DOCUMENTS**

**NOTICE TO CONTRACTORS**

**TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET  
PW19-0009**

**CITY OF CEDAR HILL**

Sealed bids for furnishing all necessary materials, machinery, equipment, project supervision, and performing all work required for **TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET, PW19-0009**, will be received by the City of Cedar Hill **until 10:00 a.m. on Thursday August 20, 2020 (the ‘DEADLINE’)**. All bids must be addressed and delivered to Greg Pervis, Purchasing Agent, Cedar Hill Government Center, 285 Uptown Blvd., Cedar Hill, Texas 75104, on or before the **DEADLINE**. The sealed bids will be publicly opened and read at the front door of Cedar Hill Government Center immediately after **DEADLINE**. **SOCIAL DISTANCING COMPLIANCE WILL BE REQUIRED AT TIME OF BID OPENING AND READING.**

**All questions regarding the construction plans and BIDDING DOCUMENTS shall be submitted in writing and addressed to Robert Woodbury, P.E., CFM, City of Cedar Hill, 285 Uptown Blvd., Cedar Hill, Texas 75104, [robert.woodbury@cedarhilltx.com](mailto:robert.woodbury@cedarhilltx.com) and copied to [purchasing@cedarhilltx.com](mailto:purchasing@cedarhilltx.com).**

Approximate quantities for major items for this project include: **TRAFFIC SIGNAL POLES, PEDESTRIAN POLES, TRAFFIC SIGNAL CONTROLLER CABINET, GROUND BOXES, PEDESTRIAN RAMPS, VIVID DETECTORS; and all other items.**

All BIDDERS are encouraged to participate in the pre-bid teleconference meeting that will be held at **2:00 p.m. on Thursday Aug 13, 2020, Zoom video Communications:**

<https://us02web.zoom.us/j/81416528953?pwd=anp5cEZHSU9Gc3FWN2NqaTdiTmNvZz09>

Meeting ID: 814 1652 8953, Password: 781070. (OR by phone only Dial by your location +1 346 248 7799 using the same meeting ID and password)

Proposals shall be accompanied by a cashier's or certified check upon a national or state bank, or savings and loan in an amount not less than five percent (5%) of the total maximum bid price, payable without recourse to the City of Cedar Hill (herein the "OWNER"), or a bid bond in the same amount from a reliable surety company, as a guarantee that the BIDDER will enter into a contract and execute performance bond and payment bond within ten (10) business days after notice of award of contract to the Contractor. The notice of award of contract will be given by the OWNER within ninety (90) calendar days following the opening of bids.

The successful BIDDER must furnish a performance bond upon the form provided in the amount of 100 percent of the contract price and a material and labor payment bond upon the form provided in the amount of 100 percent of the contract price 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. Reference the Project Specifications and Forms of Contract and Bonds for Additional requirements.

The right is reserved, as the interest of the OWNER may require, to reject any and all bids, and to waive any informality in bids received.

Plans, specifications and BIDDING DOCUMENTS may be obtained electronically from the following online bid rooms: CivCast, DemandStar or Public Purchase.

**CITY OF CEDAR HILL, TEXAS**

By s/ Stephen Mason  
**Stephen Mason, Mayor**

## **INSTRUCTIONS TO BIDDERS**

### **1. Defined Terms.**

Terms used in these Instructions to Bidders which are defined in the Standard Specifications for Public Works Construction - North Central Texas, Latest Edition, as prepared by the NCTCOG and the Supplementary Conditions of Agreement have the meanings assigned to them in these General Conditions. The term "BIDDER" means one who submits a Bid directly to OWNER, as distinct from a sub-bidder, who submits a bid to a BIDDER. The term "SUCCESSFUL BIDDER" means the lowest, qualified, responsible BIDDER to whom the OWNER (on the basis of the OWNER's evaluation as hereinafter provided) makes an award. The term "BIDDING DOCUMENTS" includes the Notice to Contractors, Instructions to Bidders, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to receipt of bids). Specific defined terms are:

**OWNER:** Wherever the word "OWNER" is used in the specifications and Contract Documents, it shall be understood as referring to the City of Cedar Hill, Texas.

**ENGINEER:** Wherever the word "ENGINEER" is used in the specifications and Contract Documents, it shall be understood as referring to Robert Woodbury, P.E., Cedar Hill City ENGINEER.

**INSPECTOR:** The authorized representative of the City of Cedar Hill assigned to observe and inspect any or all parts of the work and the materials to be used therein.

### **2. Scope of Work.**

The work under this contract includes furnishing all labor, tools, material, and equipment, and for performing all work necessary for construction of: *Traffic Signal at Joe Wilson Road and Weaver Street*. Work also includes the installation of *VIVD detectors, ILSN signs*, and any other work deemed necessary by the City of Cedar Hill. All of the above shall be done in accordance with NCTCOG specifications, with the City of Cedar Hill's Addenda and as per instructions of the OWNER. All construction sequencing and barricading will be done according to the City of Cedar Hill Standards and Details and TxDOT's Manual for Uniform Traffic Control Devices (MUTCD), unless work occurs within TxDOT ROW, in which case TxDOT standards will apply.

### **3. Copies of BIDDING DOCUMENTS.**

3.1 Complete sets of the BIDDING DOCUMENTS may be obtained from the offices of the Public Works Department, for a non refundable fee of **\$50** per set. The following general requirements pertain to the BIDDING DOCUMENTS:

- A. No BIDDING DOCUMENTS will be issued later than two (2) days prior to the bid opening date.
- B. After award of the Contract, the successful BIDDER will be furnished five (5) sets of Contract Documents at no charge.
- C. BIDDING DOCUMENTS may be examined free of charge at the offices of the Public Works Department, City of Cedar Hill, 285 Uptown Blvd., Cedar Hill, Texas, 75104 and at the Plan Review Rooms.

3.2 Complete sets of BIDDING DOCUMENTS must be used in preparing Bids; the City of Cedar Hill assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of BIDDING DOCUMENTS. No partial sets of plans, specifications or proposal forms will be issued.

3.3 The OWNER, in making copies of BIDDING DOCUMENTS available on the above terms, does so only for the purpose of obtaining Bids on the Work and does not confer a license or grant for any other use.

**4. Qualifications of Bidders.**

The BIDDER shall submit within five (5) business days of the OWNER's request such evidence as the OWNER may require to establish his financial responsibility, experience and possession of such equipment as may be needed to prosecute the work in an expeditious, safe and satisfactory manner. The required information to be submitted shall consist of, but shall not necessarily be limited to, the following:

A. Current Project Experience.

A list of all projects presently under construction by the BIDDER including approximate cost and completion date shall be submitted upon request.

B. Past Project Experience.

The BIDDER shall submit a list of comparable projects completed within the previous five years including approximate cost(s), quantities, and completion date(s). Provide a list of at least five (5) recent project references. Include contact name, address, and phone number.

C. Equipment.

The BIDDER shall provide a list of equipment which will be used on this project.

The BIDDER shall demonstrate that he has adequate equipment to complete this project, properly and expeditiously and shall state what additional equipment, if any, that he must rent/lease as may be required to complete this project.

D. Financial.

Each BIDDER shall be prepared to submit upon request of the OWNER a balanced financial statement with no evidence of threatening losses as evidenced by an audited certified financial statement (current within the last six (6) months of bid date). This information will be used to confirm that the BIDDER has suitable financial status to meet obligations incidental to performing the work.

E. Technical Experience.

The BIDDER shall demonstrate to the satisfaction of the OWNER that he has the technical experience to properly complete this project.

F. Proof that the BIDDER maintains a permanent place of business.

**5. Utility Disclaimer.**

The City of Cedar Hill cannot and does not represent, warrant or guarantee the existence and/or location of any utilities (water, sanitary sewer, storm pipes, culverts, electrical lines, cables, etc.) shown on plans. Do not rely on the plans to determine the existence or location of utilities. The existence and location of utilities must be verified in the field and the City of Cedar Hill assumes no liability for the existence or location of any utility line or structure.

**6. Conflict of Interest.**

No member of the City Council or any officer or employee of the OWNER shall have a financial interest, direct or indirect, in any contract with the OWNER, nor shall be financially interested, directly or indirectly, in the sale to the OWNER of any land, or rights or interest in any land, materials, supplies or services. The CONTRACTOR represents that no member of the City Council, employee or officer of the OWNER has an interest in the CONTRACTOR.

The CONTRACTOR represents that no employee or officer of the City has an interest in the CONTRACTOR.

## **7. Examination of Contract Documents and Sites.**

- 7.1 Access to the sites shall be from the street and right-of-way at the respective intersections. The CONTRACTOR shall be fully and solely responsible for providing necessary and adequate barricades in accordance with City of Cedar Hill requirements. Prospective BIDDERS shall respect all public facilities and private property. It is the responsibility of each BIDDER before submitting a Bid, to: (a) examine the Contract Documents thoroughly, (b) visit the sites to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work, (c) consider federal, state and local laws and regulations that may affect cost, progress, performance or furnishing of the Work, (d) study and carefully correlate BIDDER's observations with the Contract Documents, and (e) notify ENGINEER of all conflicts, errors or discrepancies in the Contract Documents. Failure to make these examinations shall in no way relieve any BIDDER from the responsibility of fulfilling all of the terms of the contract, without additional cost to the OWNER.
- 7.2 The location and depth of existing utilities shown on the plans are approximate and may not include all utilities within the site. All existing structures, improvements, and utilities shall be located and adequately protected, at the sole cost and expense of the CONTRACTOR, from damage that might otherwise occur due to construction operations. Where construction comes in close proximity to existing structures or utilities, or if it becomes necessary to move services, poles, guy wires, pipelines, or other obstructions, it shall be the CONTRACTOR's responsibility to notify and cooperate with the utility or structure OWNER. The CONTRACTOR shall be fully and solely responsible for verifying locations and depths sufficiently in advance of construction such that necessary adjustments may be made to allow for the proper installation. The CONTRACTOR shall be liable for damage to any utilities resulting from the construction of this project.
- 7.3 The core soil borings furnished in the project specifications are for the convenience of the CONTRACTOR. The CONTRACTOR shall be responsible for any additional soil or geotechnical information required for the construction of the project.
- 7.4 Before submitting a Bid, each BIDDER shall, at BIDDER's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which BIDDER deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 7.5 On request in advance, OWNER will provide each BIDDER access to the sites to conduct explorations and tests as each BIDDER deems necessary for submission of a Bid. BIDDER shall fill all holes, clean up and restore the sites to its former conditions upon completion of such explorations.
- 7.6 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract documents.



7.7 The submission of a Bid will constitute an incontrovertible representation by BIDDER that BIDDER has complied with every requirement of this Section 7, that without exception the Bid is premised upon performing and furnishing the work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **8. Interpretations and addenda.**

8.1 Any questions regarding interpretations or clarifications or any other aspect of the bid shall be submitted in writing to the OWNER. Only questions addressed by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Questions received less than two days prior to the date for opening of Bids may not be answered. Each BIDDER shall acknowledge on the bid proposal that all Addenda issued have been received.

8.2 Addenda may also be issued to modify the BIDDING DOCUMENTS as deemed advisable by the OWNER.

8.3 Should a BIDDER find discrepancies in, or omissions from, the plans, specifications, or contract documents, or should he be in doubt as to their meaning, he shall at once notify the ENGINEER in order that a written addendum may be sent to all BIDDERS.

## **9. Contract Time.**

9.1 The time for completion in working days should be included on the Bid Summary in the space provided. All work shall be complete within the working days count required by the Bid Summary. The working day count shall commence ten (10) calendar days after the date of the Notice to Proceed.

9.2 Prior to the issuance of the Notice to Proceed by the OWNER, the CONTRACTOR shall submit a detailed Progress and Schedule bar chart to the OWNER for approval.

9.3 Extension of the contract time shall be based on a Change Order or written amendment as specified in Item 108.8 of the General Provisions.

9.4 BIDDER agrees that all work awarded will be completed within **145** working days. Should an inclement weather day occur, the CONTRACTOR by the end of the next work day will submit written documentation to the CONSTRUCTION INSPECTOR assigned by the City for review.

## **10. Substitute or "Or-Equal" Items.**

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER and OWNER, application for such acceptance will not be considered until after the Effective Date of the Agreement. No substitutions should be considered during the bidding process.

## **11 Subcontractors, Suppliers, and Others.**

11.1 If the OWNER requests the identity of any Subcontractors, Suppliers, or other persons or organizations to be submitted to the OWNER in advance of the specified date prior to the Effective Date of the Agreement, the apparent Successful BIDDER, and any other BIDDER so requested, shall within seven (7) business days after the request submit to the OWNER a list of all such Subcontractors, Suppliers and other persons



*The Company further acknowledges and agrees the Total Bid Amount shown will be read as its Total Bid and further agrees that the official Total Bid Amount will be determined by multiplying the Unit Prices shown in the electronic bid form by the respective estimated quantities shown in the Bid Form and then totaling all of the extended amounts.*

Electronic bids will not be accepted unless accompanied by a hard copy with required signatures and as long as all legal and bid requirements are met.

The OWNER reserves the right to reject any or all bids and to waive any irregularities or formalities. The CONTRACTOR accepts all risks associated with bidding in this manner. It is understood and agreed that the bid may not be withdrawn once the bid-opening process has begun.

**14. Provision Concerning Escalator Clauses.**

Bids containing any condition which provides for changes in the stated bid prices due to increase or decrease in the costs of materials, labor, or other items required for this project, may be rejected and returned to the BIDDER without being considered.

**15. Estimates of Quantities.**

The quantities listed in the Bid Form will be considered as approximate and will be used for the comparison of bids. Payments will be made 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 the materials may be increased or decreased as provided for in the Contract Documents.

**16. Submission of Bids.**

Bids will be received by the Greg Pervis, Cedar Hill Purchasing Agent and may be submitted to the receptionist in the foyer of City Hall located at 285 Uptown Blvd., Cedar Hill, Texas 75104 until **10:00 a.m.**, local time on **Thursday, August 20th, 2020**, and then publicly opened and read aloud. Two identical copies of the bid enclosed in an opaque sealed envelope and marked with the project title: **TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET** and the name and address of the BIDDER shall be submitted. 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: TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET**, City of Cedar Hill, on the face of it and addressed to the Purchasing Agent, City of Cedar Hill, 285 Uptown Blvd., Cedar Hill, Texas 75104.

**16.1 BIDDER will submit with their Bid:**

1. Bid bond or check in the amount of 5 percent of Bid
2. Completed Conflict of Interest Questionnaire
3. Completed Business Diversity Form
4. Completed Financial Statement Form
5. Completed Insurance Agent Affirmation Form
6. Completed Reference Form

**17. Modification and Withdrawal of Bids.**

17.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

17.2 If, within twenty-four hours after the Bids are opened, any BIDDER files a duly signed written notice with the OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of the Bid, that BIDDER may withdraw his bid. Thereafter, that BIDDER will be disqualified from further bidding on the work.

**18. Rejection of Bids.**

Bids may be rejected if they show alterations of form, additions not called for, conditional bids, incomplete bids, erasures or irregularities of any kind. The OWNER reserves the right to waive any irregularities in the bids as received and to reject any and all bids without qualification(s). More than one bid from an individual, firm or partnership, corporation or association, under the same or different names, will not be considered. Reasonable grounds for believing that a BIDDER is interested in more than one such bid may cause the rejection of all bids in which said BIDDER is interested. Bids in which prices are obviously unbalanced may be rejected.

**19. Bids to Remain Subject to Acceptance.**

All Bids will remain subject to acceptance for ninety (90) calendar days after the day of the Bid opening, but the OWNER may, in its sole discretion, release any Bid prior to that date.

**20. Award of Contract.**

20.1 The OWNER reserves the right to reject any and all bids, to waive any and all informalities except for the time of submission of the Bid and to negotiate contract terms with the Successful BIDDER. The OWNER also reserves the right to reject or accept all nonconforming, non responsive, unbalanced or conditional Bids. Also, the OWNER reserves the right to reject the Bid of any BIDDER if the OWNER believes that it would not be in the best interest of the OWNER to make an award to that BIDDER, whether because the Bid is not responsive or the BIDDER is unqualified, has doubtful financial ability, fails to meet any standard or criteria established by the OWNER, or if in the OWNERs sole opinion the services of the BIDDER would not be the best value to the OWNER regardless of the bid amount. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

20.2 In evaluating Bids, the OWNER will consider the qualifications of the BIDDERS, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, completion time, and other data, as may be requested in the Bid form or prior to the Notice of Award.

20.3 The OWNER may consider the qualifications and experience of any Subcontractors, Suppliers, or other persons or organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as requested by the OWNER. The OWNER also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

20.4 The OWNER may consider its past experience with the BIDDER and any Subcontractors, Suppliers or other persons or organizations proposed to perform any portions of the Work, and the OWNER reserves the right to reject any and all bids from persons or organizations with whom the OWNER has previously

experienced problems including but not limited to issues relating to performance, workmanship, and disputes or litigation.

- 20.5 The OWNER may conduct such investigations as the OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial stability of BIDDERS, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to the OWNER's satisfaction within the prescribed time.
- 20.6 If contract is to be awarded, it will be awarded to the lowest and best qualified BIDDER whose evaluation by the OWNER indicates that the award will be in the best interests of the OWNER, be the best value to the OWNER, and subject to the provisions of Section 20.1 above.
- 20.7 If the contract is to be awarded, the OWNER will give the Successful BIDDER a Notice of Award within ninety (90) calendar days after the date of the Bid opening.

**21. Execution of Agreement.**

Within ten (10) business days after written Notification of Award of the contract, the Successful BIDDER shall execute and furnish to the OWNER four (4) original signed Standard Form of Agreement and contract documents including Addenda, completed Certificate of Insurance, Payment, Performance, and Maintenance Bonds. A conformed contract document and authorized set of construction plans will be issued to the CONTRACTOR from the OWNER for use at the Construction site. Only a complete set of authorized plans and contract documents are to be on site and considered valid.

**22. Affidavit of Bills Paid.**

Prior to, and as a condition for, final acceptance of this project by the OWNER, the CONTRACTOR shall execute an affidavit that all bills for labor, materials, and incidentals incurred in the project construction have been paid in full, and that there are no claims pending.

**23. Bid Compliance.**

Bid must comply with all Federal, State, County and local laws.

**24. s to Proceed.**

Upon execution of the Contract, the OWNER will issue a written Notice to Proceed to the CONTRACTOR requesting that he proceed with the construction. The CONTRACTOR shall commence work within ten (10) calendar days after the date of Notice to Proceed.

**25. Sales Tax.**

The OWNER qualifies as an exempt agency as defined by the Statutes of the State of Texas. The CONTRACTOR shall comply with all Statutes and Rulings of The State Comptroller.

The CONTRACTOR shall pay all sales, consumer, use, and similar taxes required to be paid by the CONTRACTOR in accordance with the laws and regulations of the State.

**26. Silence of Specification.**

The apparent silence of these specifications as to any detail or to the apparent omission from it of a detailed description concerning any point shall be regarded as meaning that only the best commercial practices are

to prevail. All interpretations of these specifications shall be made on the basis of this statement by OWNER or their authorized representative.

**27. Change Orders.**

No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing by the OWNER.

**28. Assignment.**

The Successful BIDDER shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of OWNER.

**30. Maintenance Bond.**

Upon City Final Acceptance, any CONTRACTOR doing work in Cedar Hill is required to provide the city with a minimum **Two (2) year Maintenance Bond. The maintenance bond shall be in the amount of Fifty (50%) percent of the amount of the contract amount.**

**END OF INSTRUCTIONS TO BIDDERS**

**BID FORM**

**PROJECT IDENTIFICATION: TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD  
and WEAVER STREET**

**BID OF:**

\_\_\_\_\_ (NAME OF CONTRACTOR)

**THIS BID IS SUBMITTED TO: CITY OF CEDAR HILL, TEXAS (OWNER)  
C/O PURCHASING AGENT  
285 UPTOWN BLVD, CEDAR HILL, TX**

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 Forms of Contract, Invitation for Bids, specifications and the plans therein referred to, and has carefully examined the location, conditions, and classes of materials of the proposed work, and agrees that he will provide all the necessary labor, machinery, tools, apparatus, and other items incidental to construction, and will do all the work and furnish all the materials called for in the contract and specifications in the manner prescribed therein.

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.

It is further agreed that the quantities of work to be done at unit prices and materials to be furnished may be increased or diminished as may be 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 not shown on the plans or required by the specifications, in accordance with the provisions of the General Conditions. Similarly, the price may be decreased to cover deletions of work so ordered.

It is understood and agreed that the work is to be completed in full within the time designated in the Special Conditions of these specifications.

Accompanying this proposal is a (Certified or Cashier's Check payable to the OWNER) (Bid Bond) in the amount of

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_ ).

The bid security accompanying this proposal shall be returned to the BIDDER, unless in case of the acceptance of the proposal the BIDDER shall fail to execute a contract and file a performance bond and a payment bond within ten (10) days after its acceptance, in which case the bid security shall become the property of the OWNER and shall be considered as payment for damages due to delay and other inconveniences suffered by the OWNER on account of such failure of the BIDDER. It is understood that the OWNER reserves the right to reject any and all bids.

**CITY OF CEDAR HILL BID SCHEDULE SUMMARY  
FOR  
TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD AND WEAVER STREET,  
PROJECT NO. 2020\_PW\_19\_0009**

<b>TOTAL FOR BASE BID – TRAFFIC SIGNAL</b>	\$ _____
<b>TOTAL BID AMOUNT</b>	\$ _____

**The City of Cedar Hill reserves the right to delete any portion of this project as it may deem necessary to stay within the City’s available funds. Should the City elect to delete any portion, the contract quantities will be adjusted accordingly.**

**SUBMITTED ON (DATE):** \_\_\_\_\_



The work proposed to be done shall be accepted when fully completed and finished in accordance with the plans and specifications and to the satisfaction of the OWNER and ENGINEER.

The CONTRACTOR shall begin the work as specified in the work order and agrees to complete the work within **145 WORKING DAYS** from the date specified in the work order.

In the event of the award of a contract to the undersigned, the undersigned will furnish a Performance Bond and Payment Bond for the full amount of the contract.

The undersigned certifies that the bid prices contained in this proposal have been carefully checked and are submitted as correct and final.

NOTE: Unit and lump sum prices must be shown in words and figures for each item listed in the proposal and in the event of discrepancy the words shall control.

Receipt is hereby acknowledged for the following addenda to the contract documents:

Addendum No. 1 dated	_____	Received	_____
Addendum No. 2 dated	_____	Received	_____
Addendum No. 3 dated	_____	Received	_____
Addendum No. 4 dated	_____	Received	_____
Addendum No. 5 dated	_____	Received	_____

\_\_\_\_\_  
CONTRACTOR

By: \_\_\_\_\_  
(please print name)

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Seal and Authorization  
(If a Corporation)

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, County, State and Zip

\_\_\_\_\_  
Telephone Fax No.

E-Mail Address: \_\_\_\_\_

**NON-COLLUSION STATEMENT**

The undersigned affirms that they are duly authorized to execute this contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other BIDDER, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other person engaged in this type of business prior to the official opening of this bid.

Vendor: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip Code: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Authorized Rep. (Name): \_\_\_\_\_

Signature of Authorized Rep.: \_\_\_\_\_

Position with Company: \_\_\_\_\_

E-Mail (if available) \_\_\_\_\_

**EXCEPTIONS (IF ANY) FROM BID SPECIFICATIONS:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## BUSINESS DIVERSITY

The City of Cedar Hill is committed to increasing participation by minority/woman-owned business enterprises (“M/WBE’s”) in all phases of its procurement processes and to support, to the greatest extent feasible, their efforts to compete for purchases of equipment, supplies, services, and construction-related services on a fair and equitable basis as either prime contractors or sub-contractors.

Contractors/s are to provide the opportunity for competent M/WBE subcontractors and/or suppliers to work under a prime contract. This form is to be completed by all respondents.

Bid/RFP/RFQ Number \_\_\_\_\_ Bid/RFP/RFQ Title \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

Complete the following questions:

Yes  No 51% or more of the company is owned, controlled and operated by a U.S. citizen(s) who is a non-minority woman  
If yes, WO – Women Owned (excludes women who identify as AA, AI, AP, BL, or HI women)

Yes  No 51% or more of the company is owned, controlled and operated by a U.S. citizen(s) whose ethnic origin is:

<input type="checkbox"/> AA – Native American <input type="checkbox"/> AI – Asian Indian <input type="checkbox"/> AP – Asian Pacific American	<input type="checkbox"/> BL – Black American <input type="checkbox"/> HI – Hispanic American
---	---

Gender  M - Male  F - Female

<input type="checkbox"/> Yes <input type="checkbox"/> No The company has been certified as minority/woman-owned?  If yes, attach a copy of <u>current</u> certification document.  Expiration Date: _____	If yes, list all Certifying Agencies <input type="checkbox"/> NCTRCA <input type="checkbox"/> State of Texas HUB <input type="checkbox"/> DFWMBC (Dallas Fort Worth Minority Business Council) <input type="checkbox"/> Women’s Business Council <input type="checkbox"/> Other: _____
---	---

Does your firm have an internal supplier diversity program?  <input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, please provide the program contact information:  Name <input style="width: 100%;" type="text"/>  Phone Number <input style="width: 100%;" type="text"/>  Title <input style="width: 100%;" type="text"/>  Email Address <input style="width: 100%;" type="text"/>
---	---

If your firm is not a certified M/WBE, describe your approach for accomplishing diversity (specify partnerships/ subcontracting opportunities, the labor, trade, suppliers and/or professional services, etc.):

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To the best of my knowledge, I certify that the information on this form is true and correct.

\_\_\_\_\_  
Signature                      Printed Name                      Officer Title                      Date

FINANCIAL STATEMENT

To Whom It May Concern:

Re: \_\_\_\_\_ / \_\_\_\_\_  
(Company Name) (Owner's Name)

We confirm the following details regarding \_\_\_\_\_ and \_\_\_\_\_:  
(Company Name) (Owner's Name)

Initial the following statements:

(\_\_\_\_\_) I confirm that \_\_\_\_\_ is in Good Standing\* (Federal, State,  
and Local taxes). (Company Name)

(\_\_\_\_\_) I confirm that \_\_\_\_\_ is permitted to do business in the State  
of Texas. (Company Name)

(\_\_\_\_\_) I confirm to the best of our knowledge that \_\_\_\_\_ can  
pay all liabilities and is financially stable. (Company Name)

This information is true to the best of my knowledge and our business records  
can confirm if an independent inquiry is requested.

Should you require any additional information, please contact:

\_\_\_\_\_  
(Name) (Business Phone Number) (Cell Phone Number)

To the best of my knowledge, I certify that the information on this form is true and correct.

\_\_\_\_\_  
Signature Printed Name Officer Title Date

\*The definition of Good Standing is no delinquent taxes and not debarred in the State of Texas or excluded from doing business with the federal government.

INSURANCE AGENT AFFIRMATION

TO BE COMPLETED BY THE RESPONDING COMPANY AND SUBMITTED WITH THE NOTED RFQ/RFP. THIS DOCUMENT APPLIES ONLY TO THIS SOLICIATION AND IS NOT TO BE DUPLICATED OR RE-SUBMITTED FOR ANY OTHER RFQ.

\_\_\_\_\_ Name of Company Submitting the RFQ

I, \_\_\_\_\_, affirm that the company listed above CURRENTLY HAS, by submission of the attached insurance certificate, the types of insurance in the respective amounts of coverage as specified in this Request for Submittals.

I, \_\_\_\_\_, affirm that the company listed above HAS MADE ARRANGEMENTS TO OBTAIN the types of insurance in the respective amounts of coverage as specified in this Request for Submittals through the insurance agency named below.

Name of Insurance Agency: \_\_\_\_\_

Address of Agency \_\_\_\_\_ City/State/Zip: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ Facsimile Number: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Email: \_\_\_\_\_

NOTE: Once the contract is awarded, the City of Cedar Hill must be named as an additionally insured and you must provide a certificate in effect. The insurance must be obtained from a company or companies acceptable to the owner, licensed to transact business in the State of Texas, and have a minimum financial security rating by A.M. Best of "A- (A minus)" or better, or the equivalent from any other rating system. In some cases, the solicitation may not call for insurance such as (professional services, equipment or other services). In the event the solicitation does not require a specified insurance, please mark N/A on each line and submit with the RFP/RFQ.

## References



Company must provide three (3) client references for which projects of a comparable nature, value, scope, and complexity have been performed by the Company.

- a. References must be for contracts done in the name of the Company submitting a proposal.
- b. References must be for contracts in progress or completed by Company; pending contracts are not acceptable.
- c. References for contracts performed by Company as a subcontractor are not acceptable.
- d. References for contracts performed by Company's staff while in the employment of another company are not acceptable.
- e. The City of Cedar Hill is under no obligation to provide Companies a second opportunity to provide references.

The City of Cedar Hill seeks competent, qualified and experienced contractors and the reference information shown below is a critical factor in determining to whom a contract will be awarded to. FAILURE TO PROVIDE ALL OF THE REQUESTED REFERENCE INFORMATION WITH YOUR PROPOSAL RESPONSE MAY RESULT IN THE DISQUALIFICATION OF YOUR PROPOSAL.

Client Information
Organization Name (Client):
Contact Name:
Contact Title:
Phone Number:
Email address:
Date work was Completed _____ or mark as in Progress <input type="checkbox"/>
Client Information
Organization Name (Client):
Contact Name:
Contact Title:
Phone Number:
Email address:
Date work was Completed _____ or mark as in Progress <input type="checkbox"/>
Client Information
Organization Name (Client):
Contact Name:
Contact Title:
Phone Number:
Email address:
Date work was Completed _____ or mark as in Progress <input type="checkbox"/>

# CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire is being filed in accordance with chapter 176 of the Local Government Code by a person doing business with the governmental entity.

By law this questionnaire must be filed with the records administrator of the local government not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code.

A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

## OFFICE USE ONLY

Date Received

**1** Name of person doing business with local governmental entity.

**2**

Check this box if you are filing an update to a previously filed questionnaire.

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than September 1 of the year for which an activity described in Section 176.006(a), Local Government Code, is pending and not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

**3**

Describe each affiliation or business relationship with an employee or contractor of the local governmental entity who makes recommendations to a local government officer of the local governmental entity with respect to expenditure of money.

**4**

Describe each affiliation or business relationship with a person who is a local government officer and who appoints or employs a local government officer of the local governmental entity that is the subject of this questionnaire.



# CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor or other person doing business with local governmental entity

Page 2

**5** Name of local government officer with whom filer has affiliation or business relationship. (Complete this section only if the answer to A, B, or C is YES.)

This section, item 5 including subparts A, B, C & D, must be completed for each officer with whom the filer has affiliation or business relationship. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income from the filer of the questionnaire?

Yes       No

B. Is the filer of the questionnaire receiving or likely to receive taxable income from or at the direction of the local government officer named in this section AND the taxable income is not from the local governmental entity?

Yes       No

C. Is the filer of this questionnaire affiliated with a corporation or other business entity that the local government officer serves as an officer or director, or holds an ownership of 10 percent or more?

Yes       No

D. Describe each affiliation or business relationship.

**6** Describe any other affiliation or business relationship that might cause a conflict of interest.

**7**

\_\_\_\_\_  
Signature of person doing business with the governmental entity

\_\_\_\_\_  
Date

**BIDDER TO INSERT BID BOND HERE**

## SECTION 2 – CONTRACT DOCUMENTS

**STANDARD FORM OF AGREEMENT**

STATE OF TEXAS }

COUNTY OF DALLAS }

**THIS AGREEMENT**, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, A.D. 2020, by and between \_\_\_\_\_ The City of Cedar Hill

of the County of \_\_\_\_\_ Dallas \_\_\_\_\_ and State of Texas, acting through \_\_\_\_\_ Its Mayor

\_\_\_\_\_ 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 hereinafter 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:

**TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET**

and all extra work in connection therewith, under the terms as stated in the General Provisions 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 Provisions and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore, as prepared by **KIMLEY-HORN, 13455 NOEL ROAD, TWO GALLERIA OFFICE TOWER, SUITE 700, DALLAS, TX 75240** 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 Provisions 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 complete the same within **145 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 compliance with Chapter 2270 of the Texas Local Government Code, by executing this Agreement Contractor hereby certifies that: (1) Contractor does not boycott Israel currently; and (2) will not boycott Israel during the term of this Agreement.

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

\_\_\_\_\_  
**City of Cedar Hill, Texas**  
Party of the First Part (OWNER)

\_\_\_\_\_  
Party of the Second Part (CONTRACTOR)

**By:** \_\_\_\_\_  
Stephen Mason, Mayor

**By:** \_\_\_\_\_

**Attest:** \_\_\_\_\_

**Attest:** \_\_\_\_\_

## **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

## **GENERAL INSTRUCTIONS FOR BONDS**

- 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, 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.

**PERFORMANCE BOND**

STATE OF TEXAS        }  
COUNTY OF DALLAS    }

**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 \_\_\_\_\_, 2020, to

**TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET**

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, specifications, or drawings accompanying the same, shall in  
anyway 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 \_\_\_\_\_, 2020.

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Surety

**By:** \_\_\_\_\_

**By:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Address:** \_\_\_\_\_

The name and address of the Resident Agent of Surety is \_\_\_\_\_

\* Not applicable for federal work. See "The Miller Act," 40 U.S.C. §270.

**PAYMENT BOND**

STATE OF TEXAS        }  
COUNTY OF DALLAS    }

**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 \_\_\_\_\_ , 2020, to

**TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET**

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 \_\_\_\_\_ , 2020.

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Surety

**By:** \_\_\_\_\_

**By:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Address:** \_\_\_\_\_

The name and address of the Resident Agent of Surety is \_\_\_\_\_

\_\_\_\_\_



**MAINTENANCE BOND**

**THE STATE OF TEXAS }  
  }   **KNOW ALL MEN BY THESE PRESENTS:**  
**COUNTY OF DALLAS     }****

**THAT** \_\_\_\_\_, as Principal, and \_\_\_\_\_, a Corporation organized under the laws of \_\_\_\_\_, as sureties, do hereby expressly acknowledge themselves to be held and bound to pay unto the \_\_\_\_\_, a Municipal Corporation, Texas, the sum of \_\_\_\_\_ Dollars and \_\_\_\_\_ Cents (\$ \_\_\_\_\_), which this amount is **50** % of the total contract amount of (\$ \_\_\_\_\_), for the payment of which sum will and truly be made unto said \_\_\_\_\_, and its successors, said principal and sureties do hereby bind themselves, their assigns and successors jointly and severally.

**THIS** obligation is conditioned; however, that whereas, the said \_\_\_\_\_ has this day entered into a written contract with the said City of Cedar Hill, Texas to build and construct **TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET** which contract and the plans and specifications therein mentioned, adopted by the The City of Cedar Hill are hereby expressly made a part thereof as through the same were written and embodied herein.

**WHEREAS**, under the plans, specifications, and contract, it is provided that the CONTRACTOR will maintain and keep in good repair, the work herein contracted to be done and performed, for a period of two (2) years from the date of the acceptance of said work, and to do all necessary repairs and/or reconstructing in whole or in part of said improvements that should be occasioned by settlement of foundation, defective workmanship or materials furnished in the construction or any part thereof or any of the accessories thereto constructed by the CONTRACTOR. It being understood that the purpose of this section is to cover all defective conditions arising by reason of defective material and charge the same against the said CONTRACTOR, and sureties on this obligation, and the said CONTRACTOR and sureties hereon shall be subject to the liquidation damages mentioned in said contract for each day's failure on its' part to comply with the terms of said provisions of said contract. Now, therefore, if the said CONTRACTOR shall keep and perform its' said agreement to maintain said work and keep the same in repair for the said maintenance period of two (2) years, as provided, then these presents shall be null and void, and have not further effect, but if default shall be made by the said CONTRACTOR in the performance of its' contract to so maintain and repair said work, then these presents shall have full force and effect, and said **City of Cedar Hill, Texas** shall have and receive from the said CONTRACTOR and its' principal and sureties damages in the premises, as provided; and it is further agreed that this obligation shall be a continuing one against the principal and sureties, hereon, and that successive recoveries may be and had hereon for successive branches until the full amount shall have been exhausted; and it is further understood that the obligation herein to maintain said work shall continue throughout said maintenance period, and the same shall not be changed, diminished or in any manner affected from any cause during said time.

**IN WITNESS THEREOF**, the said \_\_\_\_\_ has caused these presents to be executed by \_\_\_\_\_ and the said \_\_\_\_\_ has caused these presents to be executed by its' Attorney in fact and the said Attorney in fact \_\_\_\_\_, has hereunto set his hand, the \_\_\_\_\_ day of \_\_\_\_\_, 2020.

**SURETY:**  
\_\_\_\_\_

**PRINCIPAL:**  
\_\_\_\_\_

**By:** \_\_\_\_\_

**By:** \_\_\_\_\_

**WITNESS:**  
\_\_\_\_\_

**ATTEST:**  
\_\_\_\_\_  
Secretary

**NOTE:** Date of Maintenance Bond must not be prior to date of Contract.

## SECTION 3 – GENERAL PROVISIONS

## **GENERAL PROVISIONS**

The City of Cedar Hill, Texas has adopted the North Central Texas Council of Governments (NCTCOG) Public Works Construction Standards-North Central Texas, latest edition. The NCTCOG DIVISION 100 General Provisions apply to this project, except as noted herein. In the case of a contradiction between the NCTCOG Specifications and this document, the information in this document shall control.

BIDDERS are specifically directed to become thoroughly familiar with the NCTCOG Specifications prior to submitting a bid. The Specifications may be purchased from:

North Central Texas Council of Governments  
616 Six Flags Drive  
P.O. Drawer COG  
Arlington, Texas 76005-5888  
817-461-3300 (Metro)

Unless otherwise specifically noted on the City Standard details and general notes, or in these specifications, all applicable sections of the NCTCOG Standard Specifications are in effect. In this case of a contradiction between the NCTCOG Standard Specifications and this document, the information in this contract document shall control.

## SECTION 4 – SPECIAL CONDITIONS

## SPECIAL CONDITIONS

SC.01	GENERAL.....	39
SC.02	DEFINITION OF TERMS.....	39
SC.03	LOCATION OF PROJECT AND SCOPE OF WORK.....	39
SC.04	MEASUREMENT AND PAYMENT.....	40
SC.05	INCIDENTAL WORK.....	40
SC.06	FORMS, PLANS AND SPECIFICATIONS.....	40
SC.07	CONTRACT DOCUMENTS (Match NCTCOG Division 105.1).....	40
SC.08	AWARD OF CONTRACT AND COMMENCEMENT OF WORK.....	40
SC.09	PERFORMANCE OF THE WORK.....	41
SC.10	EQUAL EMPLOYMENT OPPORTUNITY.....	41
SC.11	INDEMNIFICATION.....	41
SC.12	CONSTRUCTION SCHEDULE.....	41
SC.13	LIQUIDATED DAMAGES FOR DELAY BY CONTRACTOR.....	41
SC.14	DELAYS: EXTENSION OF TIME: LIQUIDATED DAMAGES.....	41
SC.15	COPIES OF PLANS AND SPECIFICATIONS.....	42
SC.16	REFERENCE SPECIFICATIONS.....	42
SC.17	TRADE NAMES AND MATERIALS.....	42
SC.18	PERMITS AND RIGHTS-OF-WAY.....	43
SC.19	GUARANTY AGAINST DEFECTIVE WORK.....	43
SC.20	CITY OF CEDAR HILL MONUMENTS.....	43
SC.21	PROJECT MAINTENANCE.....	43
SC.22	CONSTRUCTION STAKES.....	43
SC.23	CONCRETE MIX DESIGN.....	44
SC.24	TESTING AND QUALITY CONTROL.....	44
SC.25	PROTECTION OF TREES.....	46
SC.26	STABILIZED CONSTRUCTION ENTRANCE.....	46
SC.27	MATERIAL STORAGE.....	46
SC.28	SITE.....	46
SC.29	FENCES AND DRAINAGE CHANNELS.....	47
SC.30	MOWING & DEBRIS MAINTENANCE.....	47
SC.31	DUST CONTROL.....	47
SC.32	SITE DRAINAGE.....	47
SC.33	RECORD DRAWINGS.....	47
SC.34	EXCAVATION.....	48
SC.35	DISPOSAL OF WASTE AND SURPLUS EXCAVATION AND CONCRETE.....	48
SC.36	INSPECTION.....	48
SC.37	LIGHTS AND POWER.....	49
SC.38	WAGE RATES.....	49
SC.39	PROTECTION OF PERSONS AND PROPERTY.....	51
SC.40	COORDINATION WITH OTHERS.....	51
SC.41	BARRICADES, WARNING SIGNS, DETOURS AND SEQUENCE OF WORK.....	51
SC.42	CLAIMS FOR DAMAGES OR INJURY.....	52
SC.43	OWNER'S PROTECTIVE LIABILITY INSURANCE.....	53
SC.44	POLICY ENDORSEMENTS AND SPECIAL CONDITIONS.....	53
SC.45	SPECIAL WARRANTY.....	53
SC.46	PAYMENT WITHHELD.....	53
SC.47	SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.....	54
SC.48	SUPERVISION BY CONTRACTOR.....	55
SC.49	DISTINGUISHING EXTRA WORK.....	55
SC.50	ANTITRUST.....	55
SC.51	OWNER-ENGINEER RELATIONSHIP.....	55

SC.52	PROFESSIONAL INSPECTION BY ENGINEER.....	55
SC.53	EROSION CONTROL.....	56
SC.54	CONSTRUCTION COORDINATION.....	57
SC.55	FINAL INSPECTION AND ACCEPTANCE.....	57
SC.56	FINAL ACCEPTANCE.....	57
SC.57	PARTIAL PAYMENTS.....	57
SC.58	GRASS REPAIR.....	58
SC.59	TRENCH SAFETY.....	58
SC.60	DAMAGES TO CITY PROPERTY.....	59
SC.61	EXISTING UTILITIES, STRUCTURES AND OTHER PROPERTY.....	59
SC.62	HAZARDOUS MATERIAL(S) INCIDENT.....	60
SC.63	EXISTING FACILITIES.....	60
SC.64	PROJECT VIDEO.....	60
SC.65	STREET CLEANUP.....	60
SC.66	WATER FOR CONSTRUCTION.....	60
SC.67	SEWER PIPE AND WATER MAIN SEPARATION.....	61
SC.68	UTILITY SUPPORT.....	61
SC.69	EMBEDMENT AND BACKFILL.....	61
SC.70	REMOVAL AND REPLACEMENT OF EXISTING FENCES.....	62
SC.71	RESTORATION.....	62
SC.72	SPRINKLER REPAIR.....	63
SC.73	RESTORATION OF PAVEMENT SURFACES.....	63
SC.74	CLEANUP.....	64
SC.75	CONSTRUCTION IN PUBLIC ROADS AND PRIVATE DRIVES.....	65
SC.76	REMOVAL AND REPLACEMENT OF STREET AND DRIVEWAY PAVING.....	65
SC.77	JACKING, BORING OR TUNNELING.....	67
SC.78	PVC SEWER PIPE.....	67
SC.79	SERVICE LATERALS.....	67
SC.80	PIPE PLUGGING AND SANITARY SEWERS TO BE ABANDONED.....	68
SC.81	SANITARY SEWER LINE CONNECTION.....	68
SC.82	STEEL ENCASEMENT PIPE.....	68
SC.83	SANITARY SEWER LINE AND MANHOLE TESTING.....	69
SC.84	WATER PIPE.....	70
SC.85	FIRE HYDRANTS.....	70
SC.86	WATER VALVES.....	70
SC.87	WATER SERVICE CONNECTIONS.....	71
SC.88	FURTHER BID ITEM DESCRIPTIONS.....	71

## **SPECIAL CONDITIONS**

### **SC.01 GENERAL**

The work shall be performed in accordance with the current latest General Provisions of NCTCOG and shall be maintained unless there exists a conflict with the provisions of this section, in which case these Special Conditions shall govern. Construction shall be in accordance with and as indicated on the plans, City of Cedar Hill Standard Construction Details, or in these Special Conditions.

### **SC.02 DEFINITION OF TERMS**

**ENGINEER:** The word “ENGINEER” in these specifications shall be understood as referring to City ENGINEER, City of Cedar Hill, 285 Uptown Blvd., Cedar Hill, Texas 75104, ENGINEER of the OWNER, or such other representatives as may be authorized by said OWNER to act in any particular position.

**Working Time:** Working time is defined as the time during the day, except holidays, in which the CONTRACTOR shall be permitted to work. Normal work hours will be 7:00 a.m. to 7:00 p.m. Monday through Saturday. Permitted work that needs to be performed after 7:00 p.m. Monday through Saturday must be approved 24 hours in advance. The CONTRACTOR will not be allowed to work City of Cedar Hill holidays unless an exception is given by the City and it is the CONTRACTOR’s responsibility to verify the City’s holiday schedule.

**Substantial Completion:** The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed, in accordance with the contract documents, as modified by any change order agreed to by the parties, so that the OWNER can occupy or utilize the project or specified area of the project for the use for which it was intended.

**Final Completion:** For the purpose of tracking time, issuing payment of retainage or bonuses and assessing liquidated damages, Final Completion shall be defined as the date upon which all items identified during the walk through (the punch list) have been completed and the OWNER has issued the Final Acceptance Letter.

### **SC.03 LOCATION OF PROJECT AND SCOPE OF WORK**

The work awarded under this contract shall include one or more of the following locations:

**TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET** within the City of Cedar Hill, Texas.

The work under this contract includes furnishing all labor, tools, material, and equipment, and for performing all work necessary for reconstruction of: **TRAFFIC SIGNAL CONSTRUCTION – JOE WILSON ROAD and WEAVER STREET**. Work includes the installation of a new traffic signal at the intersection of Joe Wilson Road and Weaver Street and any other work deemed necessary by the City of Cedar Hill. Construction plans were prepared and provided by **KIMLEY-HORN**.



**SC.04 MEASUREMENT AND PAYMENT**

The quantities for construction are estimated, based on calculated quantities. Monthly pay estimates will be based on the completion of each unit, as determined by the CONTRACTOR and approved by the OWNER's representative.

**SC.05 INCIDENTAL WORK**

All details of work which are not shown on the plans, as well as such items which are not specifically mentioned in the specifications, but are obviously necessary for the proper completion of the work, shall be considered as incidental, and as being a part of and included with the work for which prices are given in the proposal, and no extra compensation shall be allowed the CONTRACTOR for the performance thereof.

**SC.06 FORMS, PLANS AND SPECIFICATIONS.**

Plans, specifications and BIDDING DOCUMENTS may be obtained from the City of Cedar Hill Public Works Department, Engineering Division at 285 Uptown Blvd #100 second floor Cedar Hill, Texas 75104. Hard copy sets may be obtained for Fifty Dollars (\$50) per set or Electronically (PDF Format) for Ten Dollars (\$10), **non-refundable. Payment accepted by credit card, exact change cash, or check made payable to the City of Cedar Hill.** Office phone hours 8:30 am – 4:30 pm Monday – Friday. Contact Robert Woodbury, P.E.,CFM at (972) 291-5126 ext. 2812 or email: robert.woodbury@cedarhilltx.com

**SC.07 CONTRACT DOCUMENTS (Match NCTCOG Division 105.1)**

**Priority of Contract Documents.** In case of conflict between Contract documents, priority of interpretation shall be in the following order:

- (1) Signed agreement (or Contract);
- (2) Performance and payment bonds;
- (3) Proposal;
- (4) Special provisions (or conditions);
- (5) Advertisement for bids (or invitation to BIDDERS, or request for proposals);
- (6) Project (or Contract) drawings;
- (7) Standard Specifications from Public Works Construction Standards – North Central Texas, and any addendum;
- (8) Standard Drawings from Public Works Construction Standards – North Central Texas, and any addendum;
- (9) Referenced specifications.

The Contract documents are complementary and what is called for by any one shall be as binding as if called for by all.

**SC.08 AWARD OF CONTRACT AND COMMENCEMENT OF WORK**

The CONTRACTOR shall complete the execution of the required performance and payment bonds, and contract, within ten (10) calendar days of such notice, or the OWNER shall be entitled to the proceeds of the proposal guaranty in accordance with NCTCOG Item 102.5 of the General Provisions.

**SC.09 PERFORMANCE OF THE WORK**

At such time as actual construction has been started, the work will not be stopped or delayed without written permission of the OWNER, excluding delays caused by adverse weather conditions. The CONTRACTOR shall maintain at all times sufficient equipment and personnel on the project to produce satisfactory progress during the construction period.

**SC.10 EQUAL EMPLOYMENT OPPORTUNITY**

Delete the last paragraph of Section 107.14 in its entirety.

**SC.11 INDEMNIFICATION**

Delete NCTCOG Standard Specifications Section 107.3 in its entirety and substitute therefore the following:

The CONTRACTOR and his sureties shall indemnify, save and hold harmless the OWNER and all of its officers, agents and employees, ENGINEER and all of its officers and employees from all suits, claims and causes of action brought for or on account of any injuries, including death or damages received or sustained by any person, persons or property on account of the operations of the CONTRACTOR, his agents, employees or subcontractors; or on account of any negligent or grossly negligent act, error, omission or other fault of the CONTRACTOR, his agents, employees or subcontractors arising from or related to CONTRACTOR's agreement with OWNER.

**SC.12 CONSTRUCTION SCHEDULE**

Prior to starting work and on a monthly basis with each pay application till final completion, the CONTRACTOR shall submit a proposed schedule for the work included herein and shall submit any major revisions to this schedule as the project progresses. This schedule shall provide for completion of the project within the time provided in the specifications.

**SC.13 LIQUIDATED DAMAGES FOR DELAY BY CONTRACTOR**

The CONTRACTOR understands and agrees that time is of the essence. The City and CONTRACTOR acknowledge that the actual damages that the City may sustain if the CONTRACTOR fails to complete the work on time are uncertain and will be difficult to ascertain. Consequently, the CONTRACTOR agrees to pay to the City the sum of \$500 for each calendar day that completion of any work required under the Contract Documents is overdue. This amount is payable as reasonable and just compensation for failure to complete the work on time. This amount is payable as liquidated damages and not as a penalty.

**SC.14 DELAYS: EXTENSION OF TIME: LIQUIDATED DAMAGES**

In addition to the requirements of NCTCOG Item 108.8 Delays; Extension of Time; Liquidated Damages, the following conditions shall apply:

The term "unforeseeable cause" shall mean:

An act of God in the form of unusually severe weather conditions, including storms, flood, fire or similar event, that could not have been anticipated or guarded against and which materially affects the work site, including access or egress thereto;

A riot or war situation actually involving the site or actually preventing the CONTRACTOR from working on the site, but not including any situation involving suppliers off-site other than those essential suppliers as supplied to City; or

An unanticipated strike involving the forces actually working on the project or involving the employees of those essential suppliers, but no other labor stoppage.

\*CONTRACTOR must set forth essential suppliers in writing within five (5) days of the Notice to Proceed.

No event shall be deemed an Unforeseeable Cause for the purposes of this Agreement unless it actually and directly necessitates a delay in the work which could not be otherwise remedied by taking reasonably prudent steps, and the CONTRACTOR could not reasonably adjust the schedule of the remaining work to deal with, make up for, or otherwise work around the delays resulting from the Unforeseeable Cause(s).

The notice shall, in writing, specify the Unforeseeable Cause(s) and the anticipated effect it will have on that CONTRACTOR'S abilities to perform its obligations along with a plan to deal with the effects of such Unforeseeable Causes and proposed amendments to all affected schedules necessarily resulting therefrom.

No adjustment shall be made to the Contract price, and the CONTRACTOR shall not be entitled to claim or receive any additional compensation as a result of or arising out of any delay resulting in the adjustment of the working time, due to any of the factors outlined within this Special Condition and/or NCTCOG Item 108.8.

#### **SC.15 COPIES OF PLANS AND SPECIFICATIONS**

Five (5) sets of plans and specifications shall be furnished to the CONTRACTOR, at no charge, for construction purposes. Additional copies may be obtained at the cost of reproduction upon request.

#### **SC.16 REFERENCE SPECIFICATIONS**

Where reference is made in these specifications, to specifications compiled by others, such reference is made for expediency and standardization from the material supplier's point of view, and such specifications referred to are hereby made a part of these specifications.

#### **SC.17 TRADE NAMES AND MATERIALS**

No material which has been used by the CONTRACTOR for any temporary purposes whatsoever is to be incorporated in the permanent structure without written consent of the ENGINEER.

Where materials or equipment are specified by a trade or brand name, it is not the intention of the OWNER to discriminate against an equal product of another manufacturer, but rather to set a definite standard of quality or performance, and to establish an equal basis for the evaluation of bids. Where the words "equivalent", "proper", or "equal to" are used, they shall be understood to mean that the thing referred to shall be proper, the equivalent of, or equal to some other thing, in the opinion or judgment of the ENGINEER. Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to approved samples. Notwithstanding that the words "or equal to" or other such expressions may be used in the specifications in connection with material, manufactured article, or process, the material, article or process specifically designated shall be used, unless a substitute shall be approved in writing by the ENGINEER and the OWNER, and the OWNER shall have the right to require the use of such specifically designated material, article or process.

**SC.18 PERMITS AND RIGHTS-OF-WAY**

The OWNER will provide rights-of-way for the purpose of construction without cost to the CONTRACTOR, by securing permits in areas of public dedication or by obtaining easements across privately owned property as shown on the right-of-way map included in the project drawings. It shall be the responsibility of the CONTRACTOR, prior to the initiation of construction on easements through private property, to inform the property OWNER of this intent to begin construction. Before beginning construction in areas of public dedication, the CONTRACTOR shall inform the agency having jurisdiction in the area forty-eight (48) hours prior to initiation of the work.

**SC.19 GUARANTY AGAINST DEFECTIVE WORK**

The CONTRACTOR shall indemnify the OWNER against any repairs which may become necessary to any part of the work performed under the contract, arising from defective workmanship or materials used therein, for a period of two (2) year from the date of final acceptance of the work.

**SC.20 CITY OF CEDAR HILL MONUMENTS**

The CONTRACTOR shall protect all OWNER monuments, and when any such monuments are in danger of being disturbed, they shall be properly referenced, and if disturbed, shall be reset at the expense of the CONTRACTOR, unless otherwise noted on the plans.

**SC.21 PROJECT MAINTENANCE**

The CONTRACTOR shall maintain, and keep in good repair, the improvements covered by these plans and specifications until Final Acceptance of the project by the OWNER.

**SC.22 CONSTRUCTION STAKES**

Delete the first sentence of the first paragraph of NCTCOG Section 105.4 and replace with the following:

The CONTRACTOR will furnish the construction stakes necessary for the construction of the improvements.

The CONTRACTOR shall verify and maintain existing controls as described on the construction drawings. Additional construction stakes will be provided by the CONTRACTOR per Item 105.4 of the NCTCOG General Provisions, with the following additional requirements:

The CONTRACTOR will match existing grades and cross slopes on road paving, and match storm sewer soffit/flow lines as appropriate when connecting to existing. The CONTRACTOR will provide surveying control as required for proper grade control.

The CONTRACTOR will be held responsible for the preservation of all control points established by the ENGINEER and, if any points have been carelessly or willfully destroyed or disturbed by the CONTRACTOR, they shall be replaced by the CONTRACTOR or the cost of replacing them will be charged against the CONTRACTOR and deducted from the payment of the work.

### **SC.23 CONCRETE MIX DESIGN**

The CONTRACTOR shall submit proposed concrete mix design for each class of concrete to the OWNER for review and acceptance by the ENGINEER. The mix designs shall be proportioned in accordance with the requirements of A.C.I. 318-83, and include data from field experience and/or trial mixtures with the results of confirmation cylinders. The mix designs and supporting data shall be submitted and accepted at least ten (10) calendar days prior to placing concrete.

### **SC.24 TESTING AND QUALITY CONTROL**

#### **1. Testing of Materials**

Observation of the CONTRACTOR'S work to determine compliance with the plans and specifications will include testing of material installed on the project. Testing of work performed and materials furnished shall be done by an engineering testing laboratory employed by the OWNER. The CONTRACTOR shall use only materials in the work which meet the requirements of the specifications. The City will employ the services of an engineering testing laboratory to make certain inspections and to sample and test the materials to be used in the work. The CONTRACTOR shall furnish, at his own expense, all necessary specimens for testing of the materials and when requested, shall furnish a complete written statement of the origin, composition, and/or manufacturer of any or all materials that are to be used in the work. All materials not conforming to the requirements of the specifications will be rejected.

#### **2. Quality Control**

During the construction, the OWNER will retain the engineering testing laboratory to perform services related to checking the quality of the work being performed by the CONTRACTOR to determine if the improvements are being constructed in accordance with the plans and specifications. **THIS QUALITY CONTROL SERVICE DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY WITH REGARD TO CONSTRUCTING THE WORK IN ACCORDANCE WITH THE CONTRACT.** If the CONTRACTOR fails to meet

specified conditions by the first test, further tests to demonstrate compliance with the contract shall be at the expense of the CONTRACTOR, and payment for the test can be withheld permanently from the CONTRACTOR'S total compensation.

THE CONTRACTOR SHALL GIVE THE ON-SITE REPRESENTATIVE OF THE OWNER SUFFICIENT NOTICE OF HIS INTENTION TO CONSTRUCT PORTLAND CEMENT CONCRETE PAVEMENT, STRUCTURAL CONCRETE, OR HOT MIX ASPHALTIC CONCRETE TO ASSURE THE ADEQUATE QUALITY CONTROL OF CONSTRUCTION MATERIALS AND WORKMANSHIP.

### 3. Testing and Quality Control Services

Testing and Quality Control Services shall include but are not limited to the following:

#### A. Reinforced Concrete Pavement

- (1) Analysis of Aggregates
- (2) Decapitation Tests
- (3) Inspect Aggregate Stockpiles
- (4) Prepare or Check Concrete Batch Design
- (5) Slump and Air Content Tests
- (6) Flexural or Compressive Strength Tests

#### B. Lime Treated Base or Flexible Base

- (1) Lime requirements as indicated by test method ASTM C977-83a, Appendix X1
- (2) Field Compaction Tests - ASTM D698-90 Method A (Perform one (1) Density Test on compacted subgrade) performed by City

#### C. Embankment or Pavement Subgrade performed by the City

- (1) Moisture - Density Curves
- (2) Field Compaction Tests-Test Method ASTM D698-90 Method A

#### D. Hot Mix Asphaltic Concrete

- (1) Prepare or Check Mix Design
- (2) Provide Full Quality Control at Hot Mix Plant
  - (a) Hot Bin Gradation Tests
  - (b) Air Void
  - (c) Stability and Density Tests
  - (d) Percent Asphalt Content
- (3) Make Tests from Samples of Mix
  - (a) Extraction
  - (b) Gradation
  - (c) Percent Asphalt
  - (d) Stability and Density Tests
  - (e) Make Hot Bin Analysis Every 250 Tons

#### E. Structural Concrete, City may preform additional test.

- (1) Mix Design
- (2) Batch Plant Weight and Moisture Checks

- (3) Slump and Air Tests
- (4) Compressive Strength Tests

**SC.25 PROTECTION OF TREES**

The CONTRACTOR shall make every reasonable effort to protect all trees along the project right-of-way and right-of-entry. No tree shall be removed without the approval of the OWNER. Minor adjustments in alignment to protect trees are subject to approval of ENGINEER. CONTRACTOR shall be restricted from any construction operations under the canopy of tree not specifically authorized to be removed.

Any tree authorized to be removed shall be removed from the project the same day as removal.

**SC.26 STABILIZED CONSTRUCTION ENTRANCE**

Delete the first sentence of the first paragraph of Section 201.11 and replace with the following:

The work shall consist of constructing a temporary stabilized construction entrance as shown in the SWPPP, prepared by the CONTRACTOR and approved by the OWNER, and remaining in place for the duration of the construction period to facilitate the removal of sediment and other debris from construction equipment prior to exiting the construction site.

**SC.27 MATERIAL STORAGE**

The City of Cedar Hill property {SW corner of Joe Wilson & Weaver} may be used as the field office and storage site.

Materials may be stockpiled at locations approved by the OWNER. All stockpiling methods must be approved by the City of Cedar Hill.

The storage site shall be determined at the pre-construction meeting after the award of contract. CONTRACTOR shall be fully responsible for the storage site.

If necessitated, CONTRACTOR shall erect a temporary fence and store materials inside of the fenced area.

The CONTRACTOR shall maintain the storage area in a neat and orderly manner. If, in the opinion of the ENGINEER or OWNER, the storage site becomes unsightly, the CONTRACTOR shall clean up the storage site within two (2) days of notification to do so.

At the completion of the contract, the CONTRACTOR shall remove the temporary storage fence and all debris in the area. The CONTRACTOR shall restore the storage site to the original condition, including, if necessary, grading and turf re-establishment.

**SC.28 SITE**

The CONTRACTOR shall limit his work to the rights-of-way, easements, or construction limits shown on the Drawings.

### **SC.29 FENCES AND DRAINAGE CHANNELS**

Boundary fences, gates or other improvements removed to permit this construction shall be replaced in the same location and left in a condition as good as or better than that in which they were found.

Where surface drainage channels are disturbed during construction, they shall be restored to their original condition of grade and cross section after the work of construction is completed.

### **SC.30 MOWING & DEBRIS MAINTENANCE**

During construction and through to final acceptance, the CONTRACTOR, at his expense, shall be responsible for maintaining the existing turf areas within the work area. The CONTRACTOR shall mow this area as often as necessary to maintain the turf areas, at a 2" to 2½" maximum height. Minimum cutting height for the turf shall be 1½". At no time shall weeds within the maintenance limits reach a height greater than 4 inches. Prior to each CONTRACTOR mowing operation, CONTRACTOR shall pick up and remove from the project all trash, garbage, etc.

If, in the opinion of the ENGINEER, the site becomes unsightly, the CONTRACTOR shall mow the site within two (2) days after notification from OWNER to do so.

The CONTRACTOR at all times shall keep the construction site free from accumulation of waste materials, rubbish, debris, etc. caused by his operations. Waste materials, rubbish, debris, etc. shall be cleaned up daily and removed from the project site at least once a week.

No payment will be made for this work, its cost being subsidiary to the entire project.

### **SC.31 DUST CONTROL**

Sprinkling as ordered by the OWNER to mitigate dust on this project will not be paid for directly but shall be considered subsidiary to the various bid items.

### **SC.32 SITE DRAINAGE**

The CONTRACTOR shall maintain adequate site drainage at all times. Drainage runoff will be confined to the limits of the construction project and shall not be diverted over private property. Any runoff presently traversing private property shall not be increased by cause of construction. The CONTRACTOR shall provide, maintain and remove all necessary and required erosion control devices in accordance with the applicable North Central Texas Council of Governments Standard Specifications for Public Works Construction.

### **SC.33 RECORD DRAWINGS**

The CONTRACTOR shall maintain and update regularly. CONTRACTOR will be furnished one (1) set of plans on which all changes made during construction shall be indicated. All notes and comments



necessary to give or clear conception of exactly how all items were constructed, including location, shall be shown. This set of plans shall be reviewed with the OWNERs representative at the completion of the project and prior to the Final Acceptance.

Record drawings shall be available at request of the City at any given time during the length of the project.

#### **SC.34 EXCAVATION**

No classification will be made for any materials to be excavated under this contract, regardless of the type of material encountered or the methods and equipment required to complete the excavation. No extra compensation will be allowed for encountering different types of material on this project.

The estimated quantities of excavation and fill are shown on the drawing and/or the proposal. Payment for excavation, loading, hauling, sprinkling, manipulation and compacting this material will be bid in accordance with the proposal.

All fill embankment shall be compacted to not less than 98% of test method Tex 113E at optimum moisture content (plus four points).

Any trench under existing or proposed roadways and/or alley sections will be select fill backfilled up to within two (2) feet of the top of the subgrade and the remaining two (2) feet will be compacted to 98% of test method Tex 113E in one (1) foot lifts at optimum moisture content (plus four points) using the native material, if suitable, or the entire trench will be compacted to 98% of test method Tex 113E in one (1) foot lifts at optimum moisture content (plus two points) using the native material.

The excess excavation material resulting in this project shall be disposed of by the CONTRACTOR (at his expense) at sites approved by the City

#### **SC.35 DISPOSAL OF WASTE AND SURPLUS EXCAVATION AND CONCRETE**

All excavated earth in excess of that required for backfilling, and all pavement material removed, shall be disposed of in a satisfactory manner. The CONTRACTOR shall provide in writing the final destination of this material. This documentation shall be submitted at the time of the SWP3 submittal outlined in **SC.53- EROSION CONTROL**.

The documentation shall include permission from the property OWNER and verification from the floodplain manager in the jurisdiction that the disposal area is outside the FEMA 100-year flood zone.

The disposal site shall be included in the acreage of disturbance for the Construction Site Notice/Notice of Intent and the erosion control/stabilization of the disposal site shall be included in the SWP3 as outlined in **SC.53- EROSION CONTROL**.

#### **SC.36 INSPECTION**

Construction inspection will be performed by representatives of the OWNER, ENGINEER, city, geotechnical ENGINEER and reviewing authorities and agencies. Unrestricted access shall be provided

to them at all times. CONTRACTOR is responsible for understanding and scheduling required inspections. Testing samples shall be collected and processed by certified technicians. The designated representatives will observe and check the construction in sufficient detail to satisfy himself that the work is proceeding in general accordance with the Contract Documents, but he will not be a guarantor of the CONTRACTOR'S performance.

**SC.37 LIGHTS AND POWER**

The CONTRACTOR shall provide, at his own expense, temporary lighting and power facilities required for the proper prosecution of the work.

**SC.38 WAGE RATES**

All employees of the CONTRACTOR for the work to be performed under this contract shall be paid the prevailing wage scale in this locality for work of a similar character, and in no event, less than the minimums prescribed in the following schedule:

	<u>Rates</u> .....	<u>Fringes</u>
CONCRETE FINISHER (Paving and Structures).....	\$ 14.12.....	\$0.00
ELECTRICIAN.....	\$ 19.80.....	\$0.00
FORM BUILDER/FORM SETTER		
Paving & Curb.....	\$ 13.16.....	\$0.00
Structures.....	\$ 13.84.....	\$0.00
LABORER		
Asphalt Raker.....	\$ 12.69.....	\$0.00
Flagger.....	\$ 10.06.....	\$0.00
Laborer, Common.....	\$ 10.72.....	\$0.00
Laborer, Utility.....	\$ 12.32.....	\$0.00
Pipelayer.....	\$ 13.24.....	\$0.00
Work Zone Barricade Servicer.....	\$ 11.68.....	\$0.00
POWER EQUIPMENT OPERATOR:		
Asphalt Distributor.....	\$ 15.32.....	\$0.00
Asphalt Paving Machine.....	\$ 13.99.....	\$0.00
Broom or Sweeper.....	\$ 11.74.....	\$0.00
Concrete Pavement Finishing Machine.....	\$ 16.05.....	\$0.00
Concrete Saw.....	\$ 14.48.....	\$0.00
Crane Operator, Lattice Boom 80 Tons or Less.....	\$ 17.27.....	\$0.00
Crane Operator, Lattice Boom over 80 Tons.....	\$ 20.52.....	\$0.00
Crane, Hydraulic 80 Tons or Less.....	\$ 18.12.....	\$0.00
Crawler Tractor.....	\$ 14.07.....	\$0.00
Excavator, 50,000 pounds or less.....	\$ 17.19.....	\$0.00
Excavator, over 50,000 pounds.....	\$ 16.99.....	\$0.00
Foundation Drill, Truck Mounted.....	\$ 21.07.....	\$0.00
Foundation Drill, Crawler Mounted.....	\$ 17.99.....	\$0.00
Front End Loader, 3 CY or Less.....	\$ 13.69.....	\$0.00
Front End Loader, over 3 CY.....	\$ 14.72.....	\$0.00
Loader/Backhoe.....	\$ 15.18.....	\$0.00
Mechanic.....	\$ 17.68.....	\$0.00
Milling Machine.....	\$ 14.32.....	\$0.00
Motor Grader, Fine Grade.....	\$ 17.19.....	\$0.00
Motor Grader, Rough.....	\$ 16.02.....	\$0.00
Pavement Marking Machine.....	\$ 13.63.....	\$0.00
Reclaimer/Pulverizer.....	\$ 11.01.....	\$0.00
Roller, Asphalt.....	\$ 13.08.....	\$0.00

Roller, Other.....	\$ 11.51.....	\$0.00
Scraper.....	\$ 12.96.....	\$0.00
Small Slipform Machine.....	\$ 15.96.....	\$0.00
Spreader Box.....	\$ 14.73.....	\$0.00
Servicer.....	\$ 14.58.....	\$0.00
Steel Worker (Reinforcing).....	\$ 16.18.....	\$0.00
TRUCK DRIVER		
Lowboy-Float.....	\$ 16.24.....	\$0.00
Off Road Hauler.....	\$ 12.25.....	\$0.00
Single Axle.....	\$ 12.31.....	\$0.00
Single or Tandem Axle Dump Truck.....	\$ 12.62.....	\$0.00
Tandem Axle Tractor with Semi Trailer.....	\$ 12.86.....	\$0.00
Transit-Mix.....	\$ 14.14.....	\$0.00
WELDER.....	\$ 14.84.....	\$0.00

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

WATER AND SEWER LINES/UTILITIES

Plumbers and Pipefitters.....	\$ 30.84.....	\$11.51
Laborers:		
Common .....	\$ 7.25.....	\$0.00
Utility .....	\$ 7.467.....	\$0.00
Pipelayer.....	\$ 7.828.....	\$0.00
Power equipment operators:		
Backhoe .....	\$ 10.804.....	\$0.00
Crane .....	\$ 10.942.....	\$0.00
Front End Loader .....	\$ 9.163.....	\$0.00
Tunneling Machine (48" or less) .....	\$ 9.163.....	\$0.00
Truck Driver.....	\$ 8.528.....	\$0.00

The "prevailing rates" shown will be the minimum wages acceptable on this project.

If the construction project involves the expenditure of federal funds in excess of \$2,000.00, the minimum wages to be paid various classes of laborers and mechanics will be based upon the wages that will be determined by the Secretary of Labor to be prevailing for the corresponding classes of laborers and mechanics employed on a project of a character similar to the contract work in the City of Cedar Hill or the rate given above, whichever is higher.

Except for work on legal holidays, the "general prevailing rate of per diem wage" for the various crafts or type of workers or mechanics is the product of (a) the number of hours worked per day, except for overtime hours, times (b) the above respective Rate Per Hour.

For legal holidays, the "general prevailing rate of per diem wage" for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective Rate Per Hour, times (b) the number of hours worked on the legal holiday.

The "general prevailing rate for overtime work" for the crafts or type of workers or mechanics is one and one-half times the above respective Rate Per Hour.

The provisions of Article 5159a, Vernon's Annotated Texas Statutes, shall govern penalties incurred by the CONTRACTOR for violations of these conditions.

### **SC.39 PROTECTION OF PERSONS AND PROPERTY**

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, and 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.

### **SC.40 COORDINATION WITH OTHERS**

In the event other contractors are doing work in the same area simultaneously with this project, the CONTRACTOR shall coordinate his proposed construction with other contractors. The City anticipates Franchise Utility companies will have contractors performing relocations. CONTRACTOR will be responsible for coordinating during construction.

### **SC.41 BARRICADES, WARNING SIGNS, DETOURS AND SEQUENCE OF WORK**

Throughout the construction operations, streets and intersections will remain open to traffic by constructing the work in stages. All streets, driveways, adjacent business and alleys shall remain open to traffic as far as is practicable.

General Construction - The CONTRACTOR shall plan his work sequence in a manner that will cause minimum interference with traffic during construction operations. Before beginning work on this project, the CONTRACTOR shall submit, for approval by the ENGINEER, a plan of construction operations outlining in detail a sequence of work to be followed; setting out the method of handling traffic on streets, roads and driveways along, across and adjacent to the work. If at any time during the construction, the CONTRACTOR'S proposed plan of operation for handling traffic does not provide for safe comfortable movement, the CONTRACTOR shall immediately change his operations to correct the unsatisfactory conditions.

One (1) lane in each direction shall be kept open at all times, except in areas of actual construction. The one (1) lane must be kept open and a flagman provided by the CONTRACTOR to safely direct traffic through the construction area. Portable Vertical Panels meeting the requirements of TxDOT Standards shall be spaced at 50' centers to separate traffic lanes from the work.

Ditches across the traffic lanes will be kept covered with a portable traffic-bearing surface at all times unless work in the ditch is in progress. Only one lane of traffic may be closed at a time when work is in progress in a ditch.

Safety - The CONTRACTOR shall provide, construct and maintain barricades and signs at locations set out in the plans and in the special conditions. In addition, he shall provide and maintain such other barricades and signs as deemed necessary by the ENGINEER, and provide and maintain, between sunset and sunrise, sufficient barricades for the protection of vehicular and pedestrian traffic.

All traffic control devices shall have ASTM Type III High Intensity Reflective Sheeting. Signs CW20-1D and G20-2 shall be provided where traffic is entering the work limits at either end of the project. Signs G20-2 and CW20-1D shall be erected at all other intersecting highways and streets where traffic is entering the project limits. Signs G20-2 shall be provided where traffic is leaving the project limits at both beginning and ending of the project and at points of intersection with all highways and streets within the project limits. The CW20-1D signs will be supplemented by Type II Barricades. After hour lane closure if approved by the City, shall require a flashing arrow board. Throughout the construction sequence, adequate traffic control measures shall be provided to safely guide traffic through the project.

Barricades shall be placed in such a manner as not to interfere with the sight distance of drivers entering the street from highways or side streets.

During construction, the CONTRACTOR will be required to furnish, place, and maintain in accordance with the Texas Manual on "Uniform Traffic Control Devices for Streets and Highways", including vertical panels along edge of pavements and fills that are hazardous.

The CONTRACTOR shall keep traveled surfaces used in his hauling operation clear and free of dirt or other material.

The CONTRACTOR shall provide and maintain qualified flagmen at such points and for such periods of time as may be required to provide for the safety and convenience of public travel and CONTRACTOR'S personnel.

The CONTRACTOR shall arrange his work so that stored machinery or equipment shall not be closer than 5 feet to the traveled roadway after sunset except as authorized by the ENGINEER.

#### **SC.42 CLAIMS FOR DAMAGES OR INJURY**

If any person files a claim against the OWNER, OWNER'S AGENT or CONTRACTOR for personal injury, death or property damage, including loss of use, resulting from, arising out of, or caused by, the operations of the CONTRACTOR or its agents, servants, employees or subcontractors, or any work within the limits of the project, the shall immediately report the claim to CONTRACTOR's liability insurance carrier for their action in adjusting the claim. If the CONTRACTOR fails to comply with this provision within the stipulated time limit, it will be automatically deemed that the CONTRACTOR has appointed the OWNER as its irrevocable Attorney In-Fact authorizing the OWNER to report the claim directly with the CONTRACTOR's liability insurance carrier. This provision is in and of itself a Power of Attorney from the CONTRACTOR to the OWNER which authorizes the OWNER to take said action on behalf of the CONTRACTOR without the necessity of the execution of any other document. If the CONTRACTOR fails to comply with the provisions of this item, the OWNER, at its own discretion, may terminate this contract or take any other actions it deems appropriate. Any payment or portion thereof due the CONTRACTOR, whether it is a final payment, progress payment, payment out of retainage or refund payment may be withheld by the OWNER as is authorized by NCTCOG Standard Specifications Item 109.4 as amended by CITY. Bankruptcy, insolvency or denial of liability by the insurance carrier shall not exonerate the CONTRACTOR from liability.

As a result of the additional work created to OWNER due to non-response of claims for damages by CONTRACTOR to third parties, CONTRACTOR shall incur penalties for failure to abide by this Special Condition.

The CONTRACTOR shall respond to the claimant in writing regarding the status of the claim, including whether CONTRACTOR disputes the claim, wishes to settle, or will notify its liability insurance carrier regarding the claim. CONTRACTOR will be assessed a penalty by OWNER of \$75.00 per claim, for its failure to respond to the claimant as described above within thirty (30) calendar days of its written notice of claim by the City.

To ensure CONTRACTOR compliance, the OWNER shall be notified, by copied correspondence of responses or settlement by CONTRACTOR.

**SC.43 OWNER'S PROTECTIVE LIABILITY INSURANCE**

CONTRACTOR shall procure and shall maintain at its sole cost and expense throughout the term, course and scope of the project an OWNERs and Contractors Protective Liability Insurance Policy naming the OWNER and ENGINEER as named insureds for liability arising from job-site operations. The limits of coverage shall be at least \$5 million per occurrence and \$10 million aggregate.

**SC.44 POLICY ENDORSEMENTS AND SPECIAL CONDITIONS**

"Should any person sustain bodily injury or property damage within the limits of this project, the CONTRACTOR or his insurance agent shall investigate and report immediately his findings in writing to the OWNER. The OWNER, in his sole discretion, may elect at any time to file for coverage directly under the OWNER's and Contractor's Protective Liability Policy."

**SC.45 SPECIAL WARRANTY**

Add the following:

The CONTRACTOR shall provide a Maintenance Bond in the amount of fifty percent (50%) of the total amount of the contract guaranteeing the work in accordance with the plans and specifications for a period of two (2) years after final acceptance by the City of Cedar Hill. This bond shall provide for repair and/or replacement of all defects due to faulty material and workmanship that appear within a period of two (2) years from the date of completion and acceptance of the improvements by the City of Cedar Hill.

This Special Warranty shall require the replacement of cracked concrete panels within the two years after acceptance by the City of Cedar Hill. Concrete panels observed to have cracked shall be removed and replaced at the contractor's sole expense.

**SC.46 PAYMENT WITHHELD**

Amendment to NCTCOG Specifications 109.4 - Payment Withheld:

Replace Item No. 6 with the following:

(6) Claim(s) filed against CONTRACTOR by OWNER or third parties or reasonable evidence indicating probable filing of claims. In such event, until CONTRACTOR provides the OWNER with a copy of the settlement between the CONTRACTOR and the party seeking damages or evidence the matter is otherwise adjudicated, the OWNER, in its discretion, is authorized to withhold sums owed the CONTRACTOR in the amounts for such claim(s) if the OWNER deems liability by the CONTRACTOR is probable. The OWNER may withhold the sums up to two (2) years following final acceptance of the project. This withholding shall confer no rights or benefits for third parties.

Delete the last paragraph and add the following:

“When the above grounds are removed, payment shall be made for amounts withheld because of them, and the OWNER shall not be liable to CONTRACTOR for any decisions or actions of withholding payment, interest, attorney fees, costs, expenses, consequential or incidental damages which are a result of any delay in payment.”

#### **SC.47 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

The CONTRACTOR shall submit six (6) sets of shop drawings to the OWNER for review and approval by the ENGINEER (and the OWNER). All copies shall be copies from an original, no fax copies will be permitted. Maximum paper size shall be 11” x 17”.

Submittals shall be made on all materials incorporated into the project and include the following:

- Pipe and fittings
- Butterfly valves
- Gate valves
- Concrete mix design/ steel
- Irrigation equipment & supplies
- Traffic buttons
- Erosion control materials
- Electrical conduit
- Traffic Signal Equipment and Materials
- In-Roadway Lighting System with Rectangular Rapid Flashing Beacons
- Internally Lighted Street Name Sign (ILSN)
- Retaining Walls
- Screening wall brick
- Brick pavers
- Stamped concrete
- Landscape Items
- Bollards
- Trash Receptacles
- Benches
- Bike Racks
- Precast materials
- Metal Fabrications
- Protective Coatings

Review of Shop Drawings by the ENGINEER shall be for the sole purpose of determining the sufficiency of the said drawings or schedules to result in finished improvements in conformance with the plans and specifications, and shall not relieve the CONTRACTOR of his duty as an independent contractor. It being 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 the CONTRACTOR's performance hereunder.

#### **SC.48 SUPERVISION BY CONTRACTOR**

The CONTRACTOR shall have on the project at all times, as his agent, a competent Superintendent capable of reading and thoroughly understanding the plans and specifications, and thoroughly experienced in the type of work being performed. The Superintendent shall have the ability to communicate clearly with the OWNER's representative, have full authority to execute orders or directions and to promptly supply such materials, equipment, tools, labor and incidentals as may be required. Such superintendent shall be furnished irrespective of the amount of work subcontracted.

The Superintendent and the CONTRACTOR shall be responsible for all work performed by the subcontractor at all times during construction.

#### **SC.49 DISTINGUISHING EXTRA WORK**

No work shall be undertaken which requires extra payment without having an executed change order approved by the CONTRACTOR and the OWNER, except when so ordered in writing.

#### **SC.50 ANTITRUST**

The CONTRACTOR hereby assigns to the OWNER any and all claims for overcharges associated with this contract which arise under the antitrust laws of the United States 15 U.S.C.A. Sec. 1 et seq. (1973).

#### **SC.51 OWNER-ENGINEER RELATIONSHIP**

The ENGINEER is a representative of the OWNER during construction. The duties, responsibilities and limitations of authority of the ENGINEER as the OWNER's representative during construction are set forth in the Contract Documents between the OWNER and the ENGINEER and shall not be extended or limited without written consent of the OWNER and ENGINEER.

#### **SC.52 PROFESSIONAL INSPECTION BY ENGINEER**

The ENGINEER will 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.

### **SC.53            EROSION CONTROL**

It shall be the full responsibility of the CONTRACTOR to acquire and comply with any and all permits as may be required to avoid delay of the project. No separate payment will be made for this item and it will be considered subsidiary to the other items bid.

Prior to construction, the CONTRACTOR shall comply with Federal and State storm water management regulations. The plan shall employ measures to prevent erosion and siltation from the construction disturbance from reaching streambeds, channels, storm water structures, ponds, etc. The plan shall follow the City's "Erosion and Sediment Control Ordinance and comply with the requirements of the "Storm Water Quality Best Management Practices for Construction Activities" manual published by NCTCOG. In the event of a conflict between these requirements and Federal and State pollution control laws, rules, and regulations or other Federal, State or Local agency laws, rules, and regulations, the more restrictive shall apply. The release of the plan for construction by the City in no way relinquishes the CONTRACTOR of all responsibility and liability for the pollution control.

The cost to the CONTRACTOR for the preparation of a Storm Water Pollution Prevention Plan (SWP3) plan shall be included in the unit price bid for SWPPP. Erosion control measures to be incorporated in the above-mentioned plan are detailed in the construction plans and are included in this contract as a separate pay item. The bid items for the temporary erosion control items include the installation, maintenance (throughout the project duration) and removal of these items. If the proposal does not include these pay items, then these items are incidental to the contract.

Every soil disturbing activity shall have an accompanying Erosion Control Plan (ECP) and Notice of Intent (NOI) for those activities disturbing 5 or more acres. A copy of the NOI shall be provided to the City of Cedar Hill prior to issuance of a grading permit. The ECP shall be provided to the Cedar Hill Public Works Department prior to grading.

The NOI shall be posted in a location viewable to the public until construction is complete and Notice of Termination (NOT) submitted. The Storm Water Pollution Prevention Plan (SWP3) shall be readily available for review by Federal, State, or local officials.

No soil disturbing activities will occur until the following has been implemented:

- SWP3 signed by both the CONTRACTOR and OWNER
- OWNER submits NOI to the State
- CONTRACTOR submits NOI to the State
- SWP3, ECP, and associated Best Management Practices (BMP) being fully implemented and inspected by City of Cedar Hill
- NOI (as appropriate) posted on site and viewable to the public

The CONTRACTOR shall comply with the City of Cedar Hill's Storm Water Ordinance, the current NCTCOG Best Management Practices Manual, the TPDES General Construction Permit TXR150000 and any other State and/or Local regulations.

The site shall be reviewed by the operator or his representative weekly, and within 24 hours after any major storm event. Adjustments/repairs to the erosion control measures will then be made as needed and inspected and approved by the City of Cedar Hill.

Final acceptance of a site shall be contingent upon vegetation being established per the TPDES General Construction Permit, and proper NOT submitted to the State. A copy of the NOT shall be provided to the City of Cedar Hill. Until such final acceptance of the erosion control has been determined, the City of Cedar Hill shall withhold half of the retainage as described in the Progress Payments and Retainage section of this document.

**SC.54 CONSTRUCTION COORDINATION**

The CONTRACTOR shall coordinate construction activities with the following affected agencies:

- City of Cedar Hill: Engineering Department – Public Works Department**
- Cedar Hill Independent School District**
- Atmos Energy**
- Spectrum**
- Oncor Electric Delivery**
- AT&T**

CONTRACTOR shall inform residences and businesses 48 hours prior to any interruption of sewer and water service or construction in a driveway or entrances.

CONTRACTOR shall schedule the construction activities to minimize any inconvenience to the residents and businesses. Interruptions to existing services may be required to be done during off times and shall be coordinated with the affected agencies.

**SC.55 FINAL INSPECTION AND ACCEPTANCE**

Within ten (10) days after the CONTRACTOR has given the OWNER written notice that the work has been completed, the ENGINEER shall schedule inspection of the work and within ten (10) days after inspection(S), if the work is found to be completed in accordance with the Contract Documents, the ENGINEER shall issue to the OWNER a letter of acceptance, and there upon it shall be the duty of the OWNER within ten (10) days to issue a Final Acceptance of the work to the CONTRACTOR or to advise the CONTRACTOR in writing of the reason for non-acceptance.

**SC.56 FINAL ACCEPTANCE**

Final Acceptance letter will constitute OWNER’s acceptance of project. The date of Final Acceptance will coincide with the beginning of the project’s two-year warranty period.

**SC.57 PARTIAL PAYMENTS**

Any partial payments due the CONTRACTOR, less retainage, shall be paid within thirty (30) calendar days following submittal of an approvable monthly construction estimate.

#### **SC.58 GRASS REPAIR**

Unless otherwise specified in the plans, all grass areas damaged by construction within the project limits shall be replaced with block sod. Payment shall be contract unit bid price and shall be full compensation for all labor and materials, including water necessary to establish turf. All grass area(s) damaged by the CONTRACTOR shall be restored and grass replaced with block sod of pre-existing type at the CONTRACTOR's expense.

#### **SC.59 TRENCH SAFETY**

##### General

Excavation safety systems shall be provided by the CONTRACTOR as provided in Subpart P - Excavation, Trenching and Shoring, Part 1926 of the Code of Federal Regulations which describes safety and health regulations as administered by the U.S. Department of Labor Occupational Safety and Health Administration (O.S.H.A.). The standards specified by the O.S.H.A. Regulations shall be the minimum allowed on this project. It shall be the responsibility of the CONTRACTOR to provide a design and install adequate safety systems for all applicable excavation on this project.

##### Core Borings

Any core borings and soil data furnished by the OWNER, are for the convenience of the CONTRACTOR. The CONTRACTOR shall be responsible for any additional soil or geotechnical information required. The CONTRACTOR shall be responsible for properly designed excavation safety systems to be utilized for any type of subsurface condition found on this project. The furnishing of soil information by the OWNER in no way relieves the CONTRACTOR of this obligation.

If no core borings or soil data are furnished by the OWNER, it shall be the CONTRACTOR's responsibility to obtain whatever geotechnical information required for preparation of the excavation safety systems.

##### Inspections

In addition to the inspections of the excavation and excavation safety systems required of the CONTRACTOR by the O.S.H.A. Regulations, the City may further inspect the work. The City shall have the right to reject any safety systems which it finds to be inadequate, and the CONTRACTOR shall immediately improve the system to comply with this specification.

##### Details

The standard detail plans for Sheet piling, Trench Shield, and Trench Jacks as shown in the O.S.H.A. Regulations previously referenced are included as part of this specification, as well as Table P-1, approximate angle of repose for sloping of sides of excavations, and TABLE P-2, TRENCH SHORING-MINIMUM REQUIREMENTS. The design of the members shown in Table P-2 is the minimum acceptable on this project.

##### Measurement and Payment

Measurement and Payment of Excavation Safety System installed shall be based on the unit cost per linear foot as provided in the Proposal and Bid Schedule for Furnishing and Installing Excavation Safety

Systems. The payment shall be full compensation for all planning, materials, equipment, fabrications, installation, recovery and all incidental work required. All excavation and backfill in addition to that specified elsewhere in these specifications shall be considered subsidiary to this bid item.

**SC.60            DAMAGES TO CITY PROPERTY**

If the CONTRACTOR damages any City property, i.e., water mains, he will be assessed applicable charges. All charges will be deducted from the CONTRACTOR'S monthly estimate per NCTCOG Standard Specifications Section 109.4 and SC.61 - EXISTING UTILITIES, STRUCTURES AND OTHER PROPERTY.

**SC.61            EXISTING UTILITIES, STRUCTURES AND OTHER PROPERTY**

The CONTRACTOR's attention is directed to the necessity of taking adequate measures to protect all existing structures, improvements and utilities which may be encountered. These may include, but are not limited to the following:

Utilities: Including water mains and services, water meter boxes, oil and air lines, gas mains and services, sanitary sewers and service connections, storm sewers, telephone conduits, and electric conduits.

Street and Drives: CONTRACTOR shall at all times maintain streets and drives in a condition which will provide easy ingress and egress.

It shall be the responsibility of the CONTRACTOR to cooperate with the OWNERS of all public and private utilities to locate, prior to opening trench, existing underground facilities and to notify the ENGINEER at once of any conflicts in grades and alignment. Every effort will be made by the ENGINEER to control alignment and grading to avoid conflict with existing utilities, but should change in alignment and grade be necessary, such changes will be made by the CONTRACTOR at his expense and no extra payment beyond the unit prices bid will be allowed by the OWNER.

Where excavation endangers adjacent structures and utilities, the CONTRACTOR shall at his own expense carefully support and protect all such structures and/or utilities so that there will be no failure due to settlement, where it is necessary to move services, poles, guy and he shall cooperate with the utility OWNER.

Except as indicated on the drawings that utilities are to be moved by others, any costs of temporarily or permanently relocating utilities shall be borne by the CONTRACTOR without extra compensation from the OWNER. In case damage to an existing structure or utility occurs, whether failure or settlement; the CONTRACTOR shall restore the structure or utility to its original condition and position without compensation from the OWNER.

Before beginning work on this project, the CONTRACTOR shall submit, for approval by the OWNER, a plan of construction operations outlining in detail a sequence of work to be followed.

The CONTRACTOR shall, plan his construction phasing in such a manner as to cause minimal interference with traffic during the construction operations.

The CONTRACTOR shall keep traveled surfaces clean and free of debris or other materials of construction.

To facilitate shifting, barricades and signs used in lane closure or traffic staging may be erected and mounted on portable supports, the design of these being subject to the approval of the ENGINEER.

**SC.62 HAZARDOUS MATERIAL(S) INCIDENT**

If any acts of the CONTRACTOR or its agents or employees cause City forces to respond to a hazardous materials incident, the CONTRACTOR will be assessed for the expenses incurred. All charges will be deducted from the CONTRACTOR'S monthly estimate per NCTCOG Standard Specifications Section 109.4 and **SC.61 - EXISTING UTILITIES, STRUCTURES AND OTHER PROPERTY.**

**SC.63 EXISTING FACILITIES**

The CONTRACTOR is responsible for contacting all private and public utilities for determining the location of existing facilities.

**SC.64 PROJECT VIDEO**

Prior to start of construction, CONTRACTOR shall videotape construction area and property adjacent to construction. The CONTRACTOR shall furnish the CITY a copy of the tape that has been transferred into DVD format. This shall be subsidiary to project.

**SC.65 STREET CLEANUP**

CONTRACTOR shall be responsible for keeping streets adjacent to the project free of mud and construction debris at all times or as requested by the City. The CONTRACTOR shall not use a power broom type device on streets outside the construction improvements. The CONTRACTOR shall utilize a mechanical or air generated pickup broom with water application.

**SC.66 WATER FOR CONSTRUCTION**

The CONTRACTOR shall make the necessary arrangements for securing and transporting all water required in the construction, including water required for mixing of concrete, sprinkling, testing, flushing, flooding, or jetting. The CONTRACTOR shall provide water as required at his own expense.

Any party requesting the use of a temporary meter on a fire hydrant in the City of Cedar Hill shall execute an agreement with the City of Cedar Hill and shall deposit with the City of Cedar Hill the amount required by ordinance. Such deposit shall be returned upon payment of all charges for water use, and upon return of the meter and fittings in their original condition.

It shall be unlawful for any person to open or close any fire hydrant used to obtain water for any purpose with any tool or device other than a standard accepted fire hydrant wrench, which can be supplied by the City of Cedar Hill.

All mobile fire hydrant meters are to be brought to the Public Works Department, Cedar Hill, Texas, between the 1st and 10th of each month to be read.

Temporary fire hydrant meters shall be read monthly by representatives of the City of Cedar Hill, and bills rendered at the current rates for all consumption. Customers using such meters shall comply with the written procedures implemented by the Director of Public Works with regard to making the meters available to be read by representatives of the Cedar Hill Water Department. It shall be unlawful for any person to fail to make such meter available to be read by representatives of the Cedar Hill Water Department, as required by written procedures issued by the Director of Public Works.

Upon conviction of violation of the above requirements punishment shall be by fine not to exceed Two Thousand Dollars (\$2,000.00). Each day on which a violation exists shall constitute a separate offense.

### **SC.67 SEWER PIPE AND WATER MAIN SEPARATION**

Sanitary sewers or service laterals that are laid in the vicinity of pipelines designated to carry potable water shall meet the following conditions.

#### **1. Parallel Installation - Sewers and Water Mains**

Normal Conditions - Any new sanitary sewer or sewer manhole shall be located at least nine (9) feet in all directions from any existing water mains, and any new water lines shall be located at least nine (9) feet in all directions from existing sanitary sewer line or manhole, whenever possible; the distance shall be measured from the outside edge diameters of the pipes.

Unusual Conditions - New Sewer Line Installation - Where the nine (9) foot separation cannot be achieved, the new sewer shall be constructed of PVC pipe meeting ASTM specifications with a minimum pressure rating of 150 psi for both the pipe and joints. The vertical separation shall be a minimum of two (2) feet between outside pipe diameters and the horizontal separation shall be a minimum of four (4) feet. The new sewer shall be located below the existing water main, where it is practical.

#### **2. Crossings - Sewers and Water Mains. Normal Conditions - A vertical separation of at least 24 inches shall be maintained between any potable water supply and sanitary sewers. Additional requirements for utility crossing is indicated in the General Notes of the Contract Drawings.**

#### **3. If these minimum clearances cannot be maintained, CONTRACTOR shall report condition to the ENGINEER before proceeding.**

### **SC.68 UTILITY SUPPORT**

All costs associated with existing utility support shall be considered subsidiary to the other bid items.

### **SC.69 EMBEDMENT AND BACKFILL**

Backfill trenches as specified in the Standard Specification. The top 12 inches of backfill material shall be select fill, where the pavement or sidewalk is to be constructed. PVC pipe shall be Class 4

(NCTCOG Class “B-2” with granular material) and RCP shall be Class 2 (NCTCOG Class “B-2” with select material). (This replaces the City of Cedar Hill Standard Construction Details – Water and Sewer Construction General Note No. 2, which lists the use of Class B+ embedment).

**SC.70 REMOVAL AND REPLACEMENT OF EXISTING FENCES**

1. Coordinate with the private property OWNERS and the City prior to removal of existing fences.
2. Existing fences which require removal because of construction activity shall be removed, disposed of off-site and replaced to the satisfaction of the City and the private property OWNER. There shall not be a separate pay item for removal and replacement of existing fences for the proposed construction, except as noted on the plans and in the Bid Schedule.
3. As directed by the ENGINEER, any and all fence removals will require the installation and maintenance of a temporary fences to contain livestock, pets, chickens and/or humans. This temporary fencing shall be incidental to the contract if a specific pay item is not provided.

**SC.71 RESTORATION**

1. Restore the project site to conditions not less than that existing prior to starting construction unless otherwise required by these specifications, Permits and/or Licenses, or shown on the Plans.
  - a. Coordinate surface restoration work with the affected private property OWNERS and the OWNER.
  - b. Private property over which the OWNER has prior rights (i.e. utility easement, sewer easement) and/or has obtained rights-of-way, agreements, licenses and/or agreements from the property OWNER to allow construction shall be restored in conformance with the Contract Documents.
  - c. Restore Public property with strict adherence to the requirements of the public body having jurisdiction therein.
  - d. No restoration shall occur until testing is completed and accepted by the OWNER's Representative.
  - e. Complete final surface restoration within three (3) weeks of the end of construction at that location, or as directed by the OWNER's Representative.
2. Reference Standards. Surface restoration including pavement, driveways, sidewalks, curb and gutters, and sodding shall be in accordance with the Public Works Construction Standards-North Central Texas by North Central Texas Council of Governments (NCTCOG).
3. All disturbed areas except where sod is disturbed shall be seeded. Restore grassed area disturbed by construction with sod to match existing.

4. Sodding includes furnishing all labor, materials, tools, equipment and incidentals necessary to complete the work and maintain until a healthy stand of grass is established. See proposal and SC 58 if this is a pay item or incidental.

## **SC.72 SPRINKLER REPAIR**

The CONTRACTOR is responsible for the repair or replacement of any sprinkler damage caused by his construction. This repair is subsidiary to the contract unless there is a specific item for sprinkler repair.

## **SC.73 RESTORATION OF PAVEMENT SURFACES**

### **1. General**

- a. Restore (unless otherwise specified or directed by the OWNER's Representative in writing) permanent type pavements, alley pavement, sidewalks, driveways, curbs, gutters, and surface structures removed or disturbed during or as a result of construction operations to a condition which is equal in appearance and quality to the condition that existed before the work began. The surface of all improvements shall match the appearance of the existing surface. The asphalt pavement shall be replaced with concrete pavement as per the Standard Construction Details by the City of Cedar Hill.
- b. Pour concrete only after inspection by the OWNER's Representative at the pouring site to generally verify proper forms and reinforcement. Reinforcement shall be equal in quantity and type of materials to reinforcement that existed prior to the work, or as indicated on the plans or specifications.
- c. Saw-cut existing pavement, sidewalks, curbs, and gutters unless otherwise noted on the Drawings to provide a straight joint between the existing and new surface. Saw cutting shall be full depth and square or rectangular in shape.
- d. Cure and protect all exposed concrete installed under this contract in accordance with the reference standard.
- e. Remove entire sidewalk squares. Removal of partial squares will not be allowed.

### **2. Concrete Sidewalks**

- a. Concrete sidewalks shall be in accordance with the standard construction details by the City of Cedar Hill. Existing sidewalks wider than four (4) -feet shall be replaced to their original widths.
- b. Saw-cut existing sidewalks at construction joints. Existing sidewalk squares damaged during construction activities shall be replaced.

### **3. Concrete Curb and Gutter**

- a. Curb and Gutter dimensions and cross sections shall conform to American with Disability Act regulations.



- b. Place one half inch preformed bituminous expansion joint at junctions with existing work and at intervals not exceeding fifty (50) feet, or as directed by the OWNER's Representative.
  - c. When sidewalk is adjacent to street or retaining wall, sidewalk expansion joint and control joint shall match the adjacent infrastructure, , or as directed by the OWNER's Representative.
4. Concrete Pavement and Driveways. Remove and replace concrete pavement and driveways for the construction. CONTRACTOR shall coordinate removal and replacement with impacted property OWNER to minimize inconvenience of property OWNER, and as schedule is approved by the ENGINEER.

5. Measurement and Payment

a. Pavement Surfaces

Pavement, sidewalk, driveway, and curb removal and replacement shall be paid for at the Contract Unit Price for the applicable item as indicated in the Bid Schedule.

Payment will only be made for the maximum allowable surface restoration width as shown on drawings and indicated below:

Pipe diameter less than 24" - Minimum allowable surface restoration width = O.D. of pipe + 3'-4". Maximum allowable surface restoration width for deep excavations requiring Trench Safety provisions = O.D. of pipe + 4'-4".

Pipe diameter larger than 24" - Minimum allowable surface restoration width = O.D. of pipe + 4'-0". Maximum allowable surface restoration width for deep excavations requiring Trench Safety provisions = O.D. of pipe + 5'-0".

Measurement will be made along the centerline of the pipe and the appropriate allowable surface restoration width will be applied. If the width of restoration is less than the normal allowable surface restoration width, then payment will still be based on the normal allowable restoration width. If a sidewalk is parallel to a main, and a portion of it falls within the maximum allowable restoration width, then the entire width of the sidewalk will be measured for payment. Variable depth curb length shall be measured from the beginning of the curb to the full depth of the curb. There will not be a separate pay item for variable depth curb, but shall be included in the standard curb.

- b. Payment for all other surface restoration shall be considered a subsidiary obligation of the CONTRACTOR and shall be included in the bid price for the item affected thereby.
- c. Removal and replacement of sidewalk, curb and saw cutting of existing pavement, sidewalk, and curb for installation of service laterals will not be paid separately. The contract unit price for installation of service laterals shall include the above removal and replacement.

**SC.74 CLEANUP**

During Construction. The CONTRACTOR shall at all times keep the job site as free from all disposable material, debris, and rubbish as is practicable, and shall remove same from any portion of the job site when it becomes objectionable or interferes with the progress of the project, in the opinion of the ENGINEER or the OWNER. Broken pipe, including vitrified clay pipe, cast iron pipe, and concrete pipe and other debris resulting from construction shall not be left on the site after the construction work is completed. Upon completion of particular phases of the concrete pavement improvements which can be used by the traveling public during construction, the joints shall be sawed at the proper time, and within ten (10) calendar days after sawing the joints, the joints shall be sealed and the pavement shall then be swept clean with a power-driven broom and opened for traffic. Under no circumstances shall the CONTRACTOR leave the joints unsealed unless written permission is given by the ENGINEER. Whether permission is given or not for the CONTRACTOR to delay sealing the joints, the CONTRACTOR shall sweep and clean up the slab for use by the traveling public. Under no circumstances shall the CONTRACTOR use a completed pavement to stockpile backfill material. During the construction the CONTRACTOR shall not damage improvements on private property, including shrubs, grass, pavement, walks, curbs and fences.

Final. Upon completion of the work, the CONTRACTOR shall remove from the site all plants, materials, tools and equipment belonging to him and restore the site with an appearance acceptable to the ENGINEER and the OWNER. The CONTRACTOR shall thoroughly clean all equipment and materials installed by him and shall deliver over such materials and equipment in a bright, clean, polished and new-appearing condition.

#### **SC.75 CONSTRUCTION IN PUBLIC ROADS AND PRIVATE DRIVES**

It shall be the responsibility of the CONTRACTOR to properly light, barricade and mark all bypasses and detours that might be required on and across the roads involved in the work included in this contract.

The CONTRACTOR shall make every effort to complete construction and allow immediate access to adjacent property at driveway entrances located along the alleys.

The CONTRACTOR shall be responsible for all road and entrance reconstruction and repairs and maintenance of same for a period of two years from the date of project certificate of acceptance. In the event the repairs and maintenance are not made immediately to the satisfaction of the ENGINEER, and it becomes necessary for the State, County or City to make such repairs, the CONTRACTOR shall reimburse the State, County or City for the cost of such repairs.

The CONTRACTOR shall, at all times, keep the width of all adjacent cross-streets, alleys or driveways clear of dirt and other materials to allow the free flow of traffic. The CONTRACTOR shall assume any and all responsibility for damage, personal or otherwise, that may be caused by the construction along the alleys or City streets.

#### **SC.76 REMOVAL AND REPLACEMENT OF STREET AND DRIVEWAY PAVING**

1. Removal and replacement of street and driveway paving shall be in accordance with the plans, Public Works Construction Standards-North Central Texas by North Central Texas Council of Governments (NCTCOG), standard construction details by City of Cedar Hill, and Special Conditions specified herein.

2. Remove existing street and driveway pavement and curbs as shown on the drawings. Saw cut existing pavement and curb where portion of existing pavement and curb is to remain. Saw cut shall be for the full depth of pavement and curb. Dispose of the removed concrete off site.
3. Existing asphalt pavement shall be removed separately from the base material, stored and disposed of in accordance with the current federal regulations.
4. Prepare subgrade for street and driveway pavement by excavating and filling the area as required, to bring the grade to the elevations as shown on the drawings.
5. 6" thick subgrade under the pavement shall be lime stabilized with at least 32 lbs. per sq. yd. hydrated lime (or with an amount shown to be adequate by a lime-series test) compacted to at least ninety-five percent (95%) of the maximum dry density as determined by ASTM D698. Moisture content shall be within minus 2 to plus 3 percent of optimum moisture content.
6. Subgrade shall be maintained in a smooth, compacted condition in conformity with the required section and established grade, until the pavement is placed.
7. Place reinforcement as shown in the Standard Construction Details.
8. Concrete for street paving shall have a minimum thickness as indicated in the plans. . All concrete for machine finished shall have a minimum compressive strength of 4,000 psi at 28 days. All concrete for hand finished pavement shall have a minimum compressive strength of 4,500 psi at 28 days. The minimum thickness of driveway paving shall be 6" and the compressive strength of concrete shall be 4,000 psi at twenty-eight (28) days.
9. Pour concrete only after inspection by the OWNER's Representative at the pouring site to generally verify proper forms and reinforcement.
10. Cure and protect all exposed concrete installed under this contract in accordance with the reference standard.
11. Saw cut joints in accordance with the plan details.
12. Minimum six (6) inches of topsoil shall be placed in the street parkway (area between right-of-way and edge of pavement) and all the other disturbed areas. Sod the street parkways and all the disturbed areas in accordance to the contract requirements.
13. Removal of street and driveway paving will be paid for under the bid items provide in the proposal or if no bid items incidental to the contract Removal of curb, street and driveway paving includes removal and disposal of concrete off site. Saw cut of pavement and curb will be considered subsidiary to the various bid items. The lime treatment of subgrade and lime will be measured and paid separately. The construction of new concrete pavement and driveways will be measured and paid separately at the contract unit price. The contract unit price includes compensation for furnishing of all labor, materials, tools, equipment, and incidentals necessary to complete the work, preparation of right-of-way, excavation, borrow, fill, compaction, disposal of excess material, paving, joints, topsoil, and seeding complete in place.

## **SC.77 JACKING, BORING OR TUNNELING**

The following sentence is deleted from the paragraph 503.3.3.2, Page 503-2, of the Public Works Construction Standards-North Central Texas, North Central Texas Council of Governments, Item 503.3 – Methods of Jacking, Boring or Tunneling.

"Lateral or vertical variation in the final position of the pipe in the direction indicated on the plans".

Add the following sentence in place of the above deleted sentence.

503.3.3.2 - "No vertical or lateral variation of slopes and grades shown in the plans will be allowed for installation of pipe."

## **SC.78 PVC SEWER PIPE**

All PVC sewer pipe shall be manufactured in accordance with the latest versions of ASTM 3034, ASTM 794 or ASTM 2241 and be either SDR-35 or SDR-26. Resin types shall be 12454B or 12454C.

## **SC.79 SERVICE LATERALS**

CONTRACTOR shall be responsible for locating service connections prior to construction.

CONTRACTOR shall verify by testing all service connections to determine if they are active or inactive. Only active services shall be connected to the new sanitary sewer system. Inactive services shall be plugged with grout. The CONTRACTOR shall be responsible for any liability associated with the accidental plugging of active services. All active laterals shall be removed from the existing sewer line to the private property line. Replace existing laterals with new laterals of same size from the new sewer main to the private property line. In no case shall the size of service lateral be smaller than 4 inches in diameter. A cleanout shall be installed at the property line.

Install wyes at an angle of no more than forty-five degrees (45°) or less with springline.

Install service laterals with a straight alignment and at a uniform grade not less than one percent (1%) unless otherwise specified. Embedment and service lateral connection shall be as per Standard Details of City of Cedar Hill.

All service laterals crossing concrete pavement shall be installed by method other than open-cut (jacking, boring, or tunneling). The CONTRACTOR may, at his option, install the laterals by open cut. However, he must provide a two (2) year maintenance bond on the lateral and pavement.

Maintain an accurate record of location and size of all active service laterals.

Unless otherwise indicated on the drawings, service laterals installed by open-cut method shall be measured at the contract unit price per each, complete in place. The Contract unit price shall be total compensation for furnishing of all labor, materials, tools, equipment, and incidentals necessary to complete the work, including excavation, concrete encasement, disposal of excess material, backfill,

embedment, saw cut, removal and replacement of curb, sidewalks, sod, all in accordance with the plans and specifications. Furnishing and installation of Y connection shall be included in the contract unit price of service laterals. Removal and replacement of pavement will not be measured and paid separately for installation of service laterals.

#### **SC.80 PIPE PLUGGING AND SANITARY SEWERS TO BE ABANDONED**

1. Prior to plugging of a sewer segment, the CONTRACTOR shall verify that no existing services will be affected.
2. Physically remove sanitary sewer pipe outside of the manhole for a minimum distance of one (1) foot.
3. Fill pipe for a minimum length of one (1) foot with non-shrink grout.
4. Sawcut, removal and replacement of concrete paving for plugging of existing sanitary sewer line shall be considered subsidiary to other bid items.
5. If the existing sanitary sewer line is to be abandoned, and the new line conflicts with the existing line, then remove the existing line where there is less than 1-foot of clearance between the lines.
6. The pipe plugging and sanitary sewers to be abandoned shall be considered subsidiary to the other bid items.
7. Bypass Pumping
  - a. Perform bypass pumping for flow control. No bypassed wastewater shall be discharged into a natural or manmade drainage structure.
  - b. There shall not be a separate pay item for bypass pumping.

#### **SC.81 SANITARY SEWER LINE CONNECTION**

1. Make existing and/or new sewer line connections to existing and/or new manholes as indicated on the drawings.
2. Perform by-pass pumping for flow control when connecting to existing sewer line or manhole.
3. There shall not be a separate pay item for connection of new sewer line to existing or new manholes and connection to existing sewer line. New sewer line connections to existing or new manholes and to the existing sewer lines shall be considered subsidiary to other bid items.

#### **SC.82 STEEL ENCASUREMENT PIPE**

1. Steel encasement pipe shall conform to AWWA C-200. The pipe shall be fabricated in accordance with ASTM A-570 from steel plates having a minimum yield strength of 36,000 psi. Encasement pipe shall have a minimum of 1/2" wall thickness.

2. Steel encasement pipe shall be painted inside and outside with two coats of KOPPERS CO. Bitumastic Super Service black or equal coating manufactured by TNEMAC Company, Inc., prior to delivery to the job site. Minimum thickness of coating inside and outside shall be 12 mils dry film thickness per each coat.
3. Encasement pipe shall be field welded in accordance with AWWA C-206 and AWS D7.0. The welded joints shall be wire brushed and painted with KOPPER's Inertol Quick-Drying primer 626 or equal primer manufactured by TNEMAC Company, Inc.

### **SC.83            SANITARY SEWER LINE AND MANHOLE TESTING**

Each completed sanitary sewer line section shall be tested, prior to the final acceptance of completed section. The following tests shall be performed in accordance with the Texas Commission on Environmental Quality Chapter 217, and published in Texas Register (Volume 25, Number 42, November, 2003).

1. Low pressure air test for all Sanitary Sewer Line included in this Contract.
2. Deflection testing (Mandrel Test) after the final backfill has been in place at least 30 days.
  - a. The mandrel shall have an outside diameter (O.D.) equal to 95% of the inside diameter (I.D.) of the pipe. The inside diameter of the pipe, for the purpose of determining the outside diameter of the mandrel, shall be the average outside diameter minus two minimum wall thicknesses for O.D. controlled pipe and the average inside diameter for I.D. controlled pipe, all dimensions shall be per appropriate standard. Statistical or other "tolerance packages" shall not be considered in mandrel sizing.
  - b. The mandrel shall be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed. The mandrel shall have nine or more "runners" or "legs" as long as the total number of legs is an odd number. The barrel section of the mandrel shall have a length of at least 75% of the inside diameter of the pipe. A proving ring shall be provided and used for each size mandrel in use.
  - c. Adjustable or flexible mandrels are prohibited. A television inspection is not a substitute for the deflection test. A deflectometer may be approved for use on a case-by-case basis. Mandrels with removable legs or runners may be accepted on a case-by-case basis.
3. Acceptance Testing: After the completion of the manhole, the manholes shall be visually inspected by the ENGINEER and the OWNER before final acceptance. In addition, the CONTRACTOR shall perform low pressure vacuum air testing on each manhole. Each manhole shall be tested separately and independently of the sanitary sewer lines. All sanitary sewer lines coming into the manhole shall be sealed with an internal pipe plug. The method of testing shall be by means of creating an air vacuum within the manhole, whereby, a 10" Hg. (mercury) vacuum will be developed. The air vacuum shall then be monitored once it has reached 10" Hg. for a test period of two (2) minutes. The allowance drop in air vacuum shall be no greater than 1" Hg. during the two-minute test period.

The air vacuum testing procedures for the manholes shall be according to the recommendations of Cheme Industries, Inc., (Air-Loc Vacuum Manhole Tester), or such other manufacturers/suppliers that would have acceptable equipment designed specifically for air vacuum testing of manholes.

The CONTRACTOR shall provide the OWNER with certified documentation that the test procedures were conducted as recommended by the equipment manufacturers and the test results were actual numbers recorded in the field. The CONTRACTOR shall record and certify to the following information:

- a. Date and time of testing
- b. Name of CONTRACTOR's representative performing the tests
- c. Equipment used and calibration procedures
- d. Manhole location(s)
- e. Air-vacuum maximum (Hg.)
- f. Test period
- g. Drop of air vacuum within the test period
- h. Other observers at the testing site

#### **SC.84 WATER PIPE**

Unless otherwise noted in the plans, all 6-inch, 8-inch, 12-inch and 14-inch water mains to be AWWA C900 DR-18 (150 Pressure Class) PVC pipe or polywrapped ductile iron. All water line fittings to be ductile iron. All valves shall be AWWA approved resilient wedge gate valves. Minimum cover shall be a minimum of 4.0 feet.

#### **SC.85 FIRE HYDRANTS**

Fire hydrants shall be three-way breakaway type no less than 5-1/4 inches in size and must conform to AWWA specifications C-502. They shall be Mueller "Super Centurion". Two 2-1/2-inch NST hose connections are required. The 4 1/2 -inch steamer connection shall be 4.800 pitch diameter with 4 threads per inch. The operating nut shall be 1-1/2 -inch P to F pentagon nut, open left. Mechanical joint connection is required.

Bolts and nuts for mechanical joints will be of a high-strength low-alloy corrosion resistant steel conforming to A.I.S.M. A325 (type 3).

Fire hydrants will be placed 2 to 3 feet from back of curb unless otherwise indicated on the plans, or as required to clear sidewalks.

A Blue Stimsonite, Fire -Lite reflector (or approved equal) shall be placed in the center of the street opposite each fire hydrant. The fire hydrant shall be painted with two coats of Rust-oleum #1510 chrome paint or approved equal, and two coats of primer.

#### **SC.86 WATER VALVES**

Valves 2" through 14" shall be Resilient Seated Gate Valves and must conform to AWWA Standard C-509. They shall be Mueller.

Valves over 12" shall be butterfly valves and must conform to AWWA Standard C-504 and shall have mechanical seals.

Install 2' x 2' x 4" thick, concrete block around all water valves outside of concrete pavement. Valve extensions shall be provided on all valves with operating nuts greater than 4' below finished ground or paving grade and be brought to within 1 Ft. of finished grade.

**SC.87 WATER SERVICE CONNECTIONS**

All water services shall be located in the center of the lot, unless replacing an existing service then the new service shall be located in the same area as existing service.

All water services shall be 1-inch minimum or polyethylene tubing meeting AWWA C-901 and ASTM D-2737, 1-inch minimum compression fitting angle stop, and meter box. Angle stops will be located within the meter box and facing toward the lot per City of Cedar Hill Construction Details.

Each meter box will be located adjacent to the curb and installed after street pavement has been completed and curbs backfilled. Meter box shall be DFW Plastics DFW1814BTL or equal with a 2" minimum metal locator plate in the recess for ¾" to 1" meters and shall be DFW2818PLCIR or equal for 1-1/2" to 2" meters.

**SC.88 FURTHER BID ITEM DESCRIPTIONS**



## SECTION 5 – TECHNICAL SPECIFICATIONS

## TABLE OF CONTENTS

### TECHNICAL SPECIFICATIONS

TxDOT Standard Specifications: Adopted by the Texas Department of Transportation November 1, 2014. Standard specifications are incorporated into the contract by reference.

104	Removing Concrete
416	Drilled Shaft Foundations
500	Mobilization
502	Barricades, Signs, and Traffic Handling
506	Temporary Erosion, Sedimentation, and Environmental Controls
529	Concrete Curb, Gutter, and Combined Curb and Gutter
531	Sidewalks
618	Conduit
620	Electrical Conductors
624	Ground Boxes
628	Electrical Services
666	Retroreflectorized Pavement Markings
668	Prefabricated Pavement Markings
672	Raised Pavement Markers
678	Pavement Surface Preparation for Markings
680	Highway Traffic Signals
682	Vehicle and Pedestrian Signal Heads
684	Traffic Signal Cables
686	Traffic Signal Pole Assemblies (Steel)
687	Pedestal Pole Assemblies
688	Pedestrian Detectors and Vehicle Loop Detectors
752	Tree and Brush Removal

### SPECIAL SPECIFICATIONS

6001	Portable Changeable Message Sign
6027	Conduit (Prepare)
6058	BBU System (External Batt Cabinet)
6090	LED Internally Illuminated Street Name Signs
6185	TMA (Stationary)

## APPENDIX A – PROJECT DETAILS

# Special Specification 6001

## Portable Changeable Message Sign



### 1. DESCRIPTION

Furnish, operate, and maintain portable trailer mounted changeable message sign (PCMS) units.

### 2. MATERIALS

Furnish new or used material in accordance with the requirements of this Item and the details shown on the plans. Provide a self-contained PCMS unit with the following:

- Sign controller
- Changeable Message Sign
- Trailer
- Power source

Paint the exterior surfaces of the power supply housing, supports, trailer, and sign with Federal Orange No. 22246 or Federal Yellow No. 13538 of Federal Standard 595C, except paint the sign face assembly flat black.

2.1. **Sign Controller.** Provide a controller with permanent storage of a minimum of 75 pre-programmed messages. Provide an external input device for random programming and storage of a minimum of 75 additional messages. Provide a controller capable of displaying up to 3 messages sequentially. Provide a controller with adjustable display rates. Enclose sign controller equipment in a lockable enclosure.

2.2. **Changeable Message Sign.** Provide a sign capable of being elevated to at least 7 ft. above the roadway surface from the bottom of the sign. Provide a sign capable of being rotated 360° and secured against movement in any position.

Provide a sign with 3 separate lines of text and 8 characters per line minimum. Provide a minimum 18 in. character height. Provide a 5 × 7 character pixel matrix. Provide a message legibility distance of 600 ft. for nighttime conditions and 800 ft. for normal daylight conditions. Provide for manual and automatic dimming light sources.

The following are descriptions for 3 screen types of PCMS:

- **Character Modular Matrix.** This screen type comprises of character blocks.
- **Continuous Line Matrix.** This screen type uses proportionally spaced fonts for each line of text.
- **Full Matrix.** This screen type uses proportionally spaced fonts, varies the height of characters, and displays simple graphics on the entire sign.

2.3. **Trailer.** Provide a 2 wheel trailer with square top fenders, 4 leveling jacks, and trailer lights. Do not exceed an overall trailer width of 96 in. Shock mount the electronics and sign assembly.

2.4. **Power Source.** Provide a diesel generator, solar powered power source, or both. Provide a backup power source as necessary.

2.5. **Cellular Telephone.** When shown on the plans, provide a cellular telephone connection to communicate with the PCMS unit remotely.

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**3. CONSTRUCTION**

Place or relocate PCMS units as shown on the plans or as directed. The plans will show the number of PCMS units needed, for how many days, and for which construction phases.

Maintain the PCMS units in good working condition. Repair damaged or malfunctioning PCMS units as soon as possible. PCMS units will remain the property of the Contractor.

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**4. MEASUREMENT**

This Item will be measured by each PCMS or by the day used. All PCMS units must be set up on a work area and operational before a calendar day can be considered measurable. When measurement by the day is specified, a day will be measured for each PCMS set up and operational on the worksite.

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**5. PAYMENT**

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Portable Changeable Message Sign." This price is full compensation for PCMS units; set up; relocating; removing; replacement parts; batteries (when required); fuel, oil, and oil filters (when required); cellular telephone charges (when required); software; and equipment, materials, tools, labor, and incidentals.

# Special Specification 6027

## Preparation of Existing Conduits, Ground Boxes, or Manholes



### 1. DESCRIPTION

Prepare conduits, ground boxes, or manholes; replace conduits, ground boxes, or manholes, when necessary; replace conduit fittings with junction boxes; replace damaged ground box or manholes covers; adjust ground box or manholes covers; install pull lines in conduits; install cable racks in ground boxes or manholes.

### 2. MATERIALS

Provide new materials that comply with the details shown on the plans, the requirements of this Item, and to the pertinent requirements of the following Items:

- Item 624, "Ground Boxes"
- Item 465, "Manholes and Inlets"

When conduit replacement is required, provide conduit meeting the requirements of Item 618, "Conduit." Use conduit of same size and type of that being replaced or as directed.

Provide 24 in. × 24 in. × 12 in. (L × W × D) minimum size NEMA 4X junction boxes with screw covers.

Provide polyester tapes or rope pull cords with a tensile strength of at least 1200 lb.

Provide heavy duty, non-metallic, non-corrosive cable racks that can support a minimum dead load of 300 lbs. Ensure cable racks are resistant to the effects of oils, hydrocarbons, common esters, ketones, ethers, or amides. Ensure cable racks are adjustable between 8 in. and 14 in. wide. Do not provide grounding or insulators for cable racks.

### 3. CONSTRUCTION

Check existing conduit and ground boxes.

- 3.1. **Preparation of Conduit, Ground Box or Manhole.** Pull a mandrel through empty conduits. Use a mandrel with a diameter greater than 70% of the inside diameter of the conduit and 2 in. length. Repair or replace conduit runs that will not allow passage of the mandrel. Replace conduit deemed impractical to repair or remains unsuitable in accordance with Item 618, "Conduit." Clean the conduit by pulling a rubber swab slightly larger in diameter than the conduit.

Blow compressed air through conduits that contain wires. Remove debris from the conduit by pushing a fish tape through the conduit. Do not use water to clear debris. Retest the conduit by blowing compressed air.

Install 1 pull cord in each conduit for use in installing the conductors, cables, or innerduct. Leave 1 pull cord in each conduit after the conductors, cables, or innerduct have been installed.

Remove silt and debris from ground boxes or manholes prior to installing cable.

- 3.2. **Installation of Ground Box or Manhole.** Furnish new ground boxes or manholes as directed. Install ground boxes or manholes as shown the plans or as directed.

Backfill disturbed surface with material equal in composition and density to the surrounding area. Replace surfacing material with similar material to an equivalent condition.

- 3.3. **Installation or Adjustment of Ground Box or Manhole Covers.** Remove, dispose, and install ground box or manhole covers as shown on the plans or as directed. Adjust ground box or manhole covers as shown on the plans or as directed. Adjustment may include welding, raising, or lowering.

Backfill disturbed surface with material equal in composition and density to the surrounding area. Replace surfacing material with similar material to an equivalent condition.

- 3.4. **Installation of Junction Box.** Locate conduit fittings in conduits carrying fiber optic cables. Replace the conduit fitting and associated section of conduit with a junction box. Install junction boxes as shown on the plans.

- 3.5. **Installation of Cable Rack Assembly.** Install cable racks to permit coiling of conductors or cables without violating the manufacturer's minimum bending radius. Install 2 cable rack supports and 4 adjustable levels on each support, at a minimum, on each wall of the ground box or manhole as shown on plans or as directed. Anchor the cable rack support permanently to the ground box wall with mechanical or powder actuated fasteners. Use fasteners with an ultimate pull out strength of at least 2500 lb. and ultimate shear strength of at least 3000 lb. Provide sufficient cable supports for the particular number of conductors or cables coiled or passing through the ground box or manhole as shown on the plans or as directed.

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#### 4. MEASUREMENT

This Item will be measured by the foot of conduit cleared, tested, replaced and repaired, by each cable rack, junction box, ground box, or manhole installed or prepared, and by each ground box or manhole cover replaced or adjusted.

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#### 5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Conduit (Prepare)," "Junction Box (Install)," "Manhole (Install)," "Ground Box (Install)," "Manhole (Prepare)," "Ground Box (Prepare)," "Cover (Replace)" of the sizes specified, "Cover (Adjust)," and "Cable Rack Assembly (Install)." This price is full compensation for cleaning and testing conduit, ground boxes, and manholes; furnishing and installing pull cords, ground boxes, manholes, junction boxes, and cable racks; excavating and backfilling; adjusting ground boxes and manholes covers; disposal of unsalvageable material; and equipment, materials, labor, tools, and incidentals.

Repair of existing conduit will be paid for by the Department in accordance with Article 9.7., "Payment for Extra Work and Force Account Method."

# Special Specification 6058

## Battery Back-Up System for Signal Cabinets



### 1. DESCRIPTION

Install a Battery Back-Up System (BBU System) for traffic signals that will provide reliable emergency power in the event of utility power failure or interruption. The system will also function as a power conditioner and/or voltage regulation device.

A BBU System consists of inverter/charger, manual bypass switch, power transfer switch or automatic bypass switch, batteries, battery monitoring device, wiring, external cabinet or stand-alone cabinet, concrete pad, all necessary hardware and software, and all associated equipment required to operate in a field environment.

The BBU System shall be capable of operating an "LED only" signalized intersection (700W load) for 4 hours of full runtime when utility power is disabled and under ambient temperatures of 25oC. The BBU System shall switch the intersection to flash mode of operation when approximately 40% of battery charge is remaining, via relay contact connection points on the front panel of the unit. The BBU system shall operate the intersection in the flash mode of operation (300W load) for an additional 2 hours. BBU system components shall be rated for a minimum 1400W load capacity.

The BBU shall be designed for outdoor applications in accordance with NEMA TS2-2003, Section 2. All components of the BBU system shall be rated to operate under temperature extremes of -34oC to +74oC.

### 2. DEFINITIONS

- 2.1. **Automatic Bypass Switch.** A unit connected between the utility power supply and the inverter/charger which can automatically switch power to the controller cabinet service panel from inverter output power to utility line power.
- 2.2. **Battery Back-Up System (BBU System).** The battery back-up system includes, but is not limited to, a manual bypass switch, automatic bypass switch or power transfer switch, inverter/charger, batteries, battery monitoring device, wiring, external cabinet and all necessary hardware for system operation.
- 2.3. **Battery Back-Up System Software.** All software associated with operation, programming and functional requirements of the BBU system.
- 2.4. **Battery Monitoring Device.** The device which monitors battery temperatures and charge rate of the batteries used in the BBU system.
- 2.5. **Batteries.** Standard 12V batteries wired in series to create a 36VDC to 96VDC voltage storage.
- 2.6. **Boost.** When enabled, the BBU inverter/charger shall automatically switch into this mode to raise the utility line voltage when it drops below a preset limit. The limit may be user defined or use manufacturer default settings (typically 100V AC).
- 2.7. **Buck.** When enabled, the unit shall automatically switch into this mode to reduce the utility line voltage when it rises above a preset limit. The limit may be user defined or use manufacturer default settings (typically 135V AC).
- 2.8. **External or Stand-Alone Cabinet.** The structure which houses the system components and/or batteries for the BBU System.



- 2.9. **Inverter/Charger.** The unit which converts the DC voltage input into 120 VAC output for the traffic signal cabinet to operate. As a minimum the inverter/charger shall be rated for 1400 watts.
- 2.10. **Inverter Line Voltage.** The power supplied from the BBU system to the traffic signal cabinet from the BBU System inverter.
- 2.11. **Manual Bypass.** Manual switch that allows user to bypass BBU power to service system equipment. Manual bypass switch switches utility line power directly to cabinet.
- 2.12. **Power Transfer Switch.** A unit connected between the utility power supply and the inverter/charger which can automatically switch from utility line power to inverter output power. The power transfer relay may be a separate unit or combined with the manual bypass switch. In the event of battery voltage loss, the power transfer switch will automatically return to utility line power.
- 2.13. **Signal Operation Mode.** A signalized intersection generating a 700W load when running in normal operation.
- 2.14. **Signal Flash Mode.** A signalized intersection generating a 300W load when running in the flash mode of operation.
- 2.15. **Utility Line Voltage.** The 120V AC power supplied to the BBU system.

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### 3. EQUIPMENT

Ensure electrical materials and construction methods conform to the current NEC and additional local utility requirements. Furnish battery back-up systems prequalified by the Department. The Traffic Operations Division maintains a Material Producer List (MPL) of prequalified battery back-up systems. Ensure all materials and construction methods conform to the details shown on the plans, the requirements of this Item, and the pertinent requirements of the following Items:

- Item 420, "Concrete Substructures"
- Item 620, "Electrical Conductors"

Provide and install a BBU system that is able to fulfill the following requirements:

- 3.1. **Method of Operation.** The BBU system shall operate using one or more of the following methods:
- 3.1.1. **Buck and Boost Method.** When the buck and boost functions are enabled they shall set the upper and lower control limit allowable for the utility line voltage.
- If the utility line voltage fluctuates above or below the buck and boost values, the BBU system shall raise or lower the voltage by approximately 10-15% of the utility line voltage in an attempt to bring the voltage back into the upper and lower control limits. Buck and boost shall have preset manufacturer defaults.
- If the utility line voltage falls above or below the functional capabilities of buck and boost, then the BBU system will transfer power from the utility line voltage to the inverter line voltage.
- 3.1.2. **Stand-by Method.** The stand-by method shall set upper and lower control limits for the utility line power. If the utility line voltage falls above or below the upper or lower control limits, then the BBU system will transfer power from the utility line voltage to the inverter line voltage.
- 3.1.3. **Continuous Operating Mode, Double Conversion Method.** The continuous method supplies the cabinet with inverter line voltage at all times. This method requires the disabling of buck and boost functions.
- 3.2. **System Capabilities.** The BBU system shall be capable of providing 1400W peak load, with a minimum of 80% inverter efficiency, for at least 10 seconds.

The BBU system shall be capable of providing 700W signal operation load for a minimum of 4 hours, and then switching to and providing 300W signal flash load for an additional 2 hours minimum, when batteries are fully charged.

When the BBU system is running on battery power, the inverter/charger shall be capable of allowing the voltage at which the transition from normal operating load to flash mode occurs (usually 47.5V) to be selected by a user, via relay contacts and connection points on the front panel of the inverter/charger.

The transfer time allowed, from disruption of normal utility line voltage to stabilized inverter line voltage from batteries, shall be less than 65 milliseconds. The same allowable transfer time shall also apply when switching from inverter line voltage to utility line voltage.

The BBU system shall bypass utility line voltage whenever the utility line voltage is outside of the manufacturer's default, or a user-programmed voltage range,  $\pm 2\text{VAC}$ .

When the utility line power has been restored to a normal operating voltage for more than a user defined setting (default 30 seconds), the BBU system shall transfer from inverter line voltage to utility line voltage. The BBU system shall be equipped to prevent a malfunction feedback to the cabinet or from feeding back to the utility service.

The BBU system shall be compatible with TS1, TS2 and Model 170/2070 controllers and cabinet components for full run-time operation.

Unless the plans indicate otherwise, provide a BBU in an external battery cabinet. When indicated by the plans, provide a BBU system that can be shelf-mounted in NEMA TS-1 and TS-2 cabinets, or rack-mounted for Model 170/2070 332 cabinets. Provide a manual bypass that is capable of shelf mounting or that can be attached to the side of the signal cabinet. Provide interconnect cables that are no less than 10 ft. in length.

Relay contact wiring for each set of NO/NC relay contact closure terminals shall be no less than 6 feet long and #18 AWG wire. Use manufacturer recommendations for size of wire for any cables lengths greater than 10 feet.

The BBU system shall have lightning surge protection compliant with IEEE/ANSI C.62.41 latest edition and meeting all current UL1449 standards. Lightning surge protection shall be provided to the utility line voltage coming into the inverter/charger. The surge protection device shall be easily accessible and mounted externally from the inverter/charger.

The BBU system, including batteries and hardware, shall be easily replaceable and shall not require any special tools for installation.

The BBU system shall operate in automatic "fail-safe" mode. Should a breaker trip on the inverter/charger and/or the power transfer switch, the system will automatically operate from utility line power and bypass the BBU system.

As stated above, in addition to the inverter/charger, the BBU shall be provided with both an external manual bypass switch and either an external automatic transfer switch or external automatic bypass switch.

The BBU system shall be capable of logging up to 100 events. Events shall date- and time-stamp faults with utility line voltage and battery voltages. At the minimum, the BBU system shall log an event when:

- the utility line voltage falls above or below the upper or lower control limits,
- the BBU system automatically switches to battery power, and
- when self-monitoring BBU system components fail.

3.3. **Displays, Controls, Diagnostics and Maintenance.** The BBU system shall include a front panel display. All applicable programmable functions of the operational methods described in this specification shall be viewable from the front panel display.

All events described in Section 3.2, "System Capabilities" shall be viewable from the front panel display.

The BBU system software shall be programmable from the front panel of the inverter/charger by means of a keyboard or momentary buttons allowing user to step through menu driven software.

A 10/100 Ethernet port shall be provided on the front panel of the inverter/charger.

A RS232 port shall be provided on the front panel of the inverter/charger.

The BBU system software shall be provided for the operational needs of the BBU system. The user/operator shall be able to access all system software via the Ethernet and RS232 ports on the front panel of the inverter/charger. The user shall be able to read logged events and change programmable parameters from the keyboard, laptop or local area network via the Ethernet port.

System software shall be upgradeable via the RS232 port on the front panel of the inverter/charger.

- 3.4. **Inverter/Charger.** The inverter/charger is the unit that provides the voltage regulation; power conditioning of utility line power; convert the DC voltage input into 120 VAC output for the traffic signal cabinet to operate; provides emergency backup power upon loss of utility power and provides for temperature compensated battery charging. As a minimum the inverter/charger shall be rated for 1400 watts. Provide a minimum of 6 sets of normally open (NO) and normally closed (NC) single-pole double-throw dry contact relay closures on the front face of the inverter/charger and labeled so as to identify each contact. The relay closures shall consist a set of NO/NC contact closures that shall be energized whenever the unit switches to battery power (contact shall be labeled or marked as "On Battery" or equivalent) and a second set of NO/NC contact closures shall be energized whenever the battery approaches 40% remaining capacity (contact shall be labeled or marked as "Low battery" or equivalent), which will determine when the unit will switch from normal operation to flash. A third set of NO/NC contact closures shall be energized after a user settable time after the unit switches to battery power. The contact may be labeled "Timer. The remaining relays shall be user definable.

Operating temperature range for both the inverter/charger and power transfer relay shall be -34°C to +74°C. When battery power is used, the BBU system output voltage shall be between 110VAC and 125VAC, pure sine wave output,  $\leq 3\%$  THD, 60Hz  $\pm 3$ Hz.

- 3.5. **Manual Bypass Switch.** The manual bypass switch shall be provided as a separate unit external to the inverter/charger unit. The manual bypass switch shall consist of housing, two position switch, terminal blocks, internal wiring, service outlet, circuit breakers and mounting hardware. All components shall be rated at a minimum of 240VAC / 30 amp. Provide the manual bypass switch with # 8 terminal blocks. The manual bypass switch shall be 2 position and allow the user to switch utility line power directly to the cabinet service panel. The switch positions will provide the following functions. In the "Bypass" position the inverter is bypassed, utility power is removed from the BBU and passed directly to the signal power panel. In the "UPS" position the inverter / switch is powered and the signal circuits are supplied by the output of the inverter. When the manual bypass switch is in the "Bypass" position the user may replace the automatic bypass switch (or transfer switch) and the inverter/charger without interrupting power to the intersection. Provide the manual bypass switch with over current protection (20 Amp circuit breaker).
- 3.6. **Power Transfer Switch.** These requirements are for BBU systems provided with a power transfer switch. The power transfer switch will operate such that the inverter/charger input and cabinet power panel are supplied with power from the utility line, in the event that the utility line power is lost or requires conditioning (buck or boost) the power transfer switch will automatically connect the inverter/charger output to the cabinet power panel such that the inverter/charger output provides the power. In the event of inverter/charger failure, battery failure, or complete battery discharge, the power transfer shall revert to the NC (de-energized) state, where utility line power is connected to the cabinet service panel.

All wire to the power transfer switch from the manual bypass switch, to and from the inverter/ charger and from the manual bypass switch to utility power service shall be sized accordingly with system requirements.

- 3.7. **Automatic Bypass Switch.** These requirements are for BBU systems provided with an automatic bypass switch. The automatic bypass switch will operate such that the inverter/charger input is supplied with power

from the utility line and the cabinet power panel is supplied with power from the output of the inverter/charger. In the event of inverter/charger failure, battery failure, or complete battery discharge, or other loss of power from the output of the inverter/charger, the automatic bypass switch shall revert to the NC (de-energized) state, where utility line power is connected to the cabinet service panel.

3.8. **Batteries.** Provide batteries from the same manufacturer/vendor of the BBU system.

Individual batteries shall be 12V type, and shall be easily replaceable and commonly available for purchase by common off-the-shelf equivalent.

Batteries shall be sized and rated to operate a 700W load for 4 hours (normal operation) followed by a 300W load for 2 hours (flash operation) for a total of 6 hours.

Battery configuration shall consist of 12V batteries arranged for total voltages of 36V, 48V, 60V, 72V, 84V or 96V.

Batteries shall be deep-discharge, sealed prismatic lead-calcium based, valve-regulated maintenance-free batteries.

Batteries shall operate over a temperature range of -34°C to +74°C.

Batteries shall indicate maximum recharge data and recharging cycles, and manufacturer defaults on the inverter/charger shall not allow the recharging process to exceed the batteries maximum values.

Battery interconnect wiring shall connect to the inverter unit via modular harness with red and black cabling that terminates into a typical power pole style connector. Harness shall be equipped with mating power flag style connectors for batteries and a single insulated plug-in style connection to inverter/charger unit. Harness shall allow batteries to be quickly and easily connected in any order and shall be keyed to ensure proper polarity and circuit configuration. A fusible link or device sized accordingly with system requirements and to protect against currents exceeding each battery current rating shall be provided within 3 inches of the negative and positive leads of each battery. Fusible links shall be insulated stranded wire.

Insulated covers shall be provided at the connection points (post) as to prevent accidental shorting.

Battery cables provided to connect battery to battery harness main cable shall be a minimum of 18 in. or long enough to accommodate the battery covers provided with the battery ground box, whichever is longer. Battery harness shall be sized accordingly with system requirements.

3.9. **Battery Monitoring System.** The BBU system shall use a temperature-compensated battery charging system. The charging system shall compensate over a range of 2.5 – 4.0 mV/°C per cell.

The temperature sensor shall be used to monitor the temperature and regulate the charge rate of the batteries. Unless required otherwise by the plans the temperature sensor wire shall be as follows:

- 8 feet long if external side-mounted cabinet is attached to existing controller cabinet.
- 8 feet long if batteries are housed in traffic signal base used for cabinet foundation and batteries are stored on shelf within base.
- 8 feet long if stand-alone cabinet is used.

Should the temperature sensor fail, the inverter/charger shall not allow the BBU system to overcharge the batteries. The BBU system shall provide an alarm should the temperature sensor fail.

Recharge time for the batteries to obtain 80% or more of full battery charge capacity shall not exceed 20 hours at 21°C (70°F).

Batteries shall not be charged when battery temperature exceeds 50°C.

The BBU system shall monitor battery strings within a system and set a fault indicator if battery voltage falls below normal operating voltage.

- 3.10. **Battery Housing.** Unless plans require otherwise, project an external battery cabinet or stand-alone BBU/battery cabinet as specified below.

- 3.10.1. **External Battery Cabinet.** The external cabinet shall be NEMA type 3R all-aluminum with stainless-steel hardware, or approved equivalent. The external cabinet shall be designed to attach on the side of a TS2 size 6 base-mount cabinet. The batteries, inverter, transfer switches, manual bypass and all associated hardware shall be housed in the external cabinet.

The external cabinet shall be equipped with proper ventilation, electric fan, and air filter in accordance with TS2 standards.

External cabinets will be equipped with a door opening to the entire cabinet. The door shall be attached to the cabinet with a full length stainless steel piano hinge or four, two-bolts per leaf, hinges. The door shall be provided with the same latch and lock mechanism as required for standard traffic signal cabinet. In addition, a padlock clasp will be provided.

When using battery ground boxes, an external cabinet is required for the non-battery components. .

- 3.10.2. **Stand-Alone BBU/Battery Cabinet.** When required for installation by the plans a stand-alone cabinet in accordance with the following shall be provided.

The stand-alone cabinet shall conform to all the specifications of the External BBU/Battery Cabinet, except that it will not mount to the controller cabinet. The stand-alone cabinet shall be designed to attach to a concrete pad.

- 3.11. **Concrete Pad.** Provide a Class B concrete pad as a foundation for stand-alone cabinets of the size shown in the plans. For external cabinets, extend the controller foundation to provide a class B concrete pad under the external cabinet of the size shown in the plans.

- 3.12. **Documentation.** Operation and maintenance manuals shall be provided. The operation manual shall include a block diagram schematic of all system hardware components. The manual shall include instructions for programming and viewing software features. The manual shall include all uploading/downloading (communications protocol) requirements via RS232 or Ethernet port.

Board level schematics shall be provided when requested.

Battery documentation and replacement information shall be provided.

- 3.13. **Testing.** The Department reserves the right to do testing on BBU systems to ensure Quality Assurance on unit before installation and random sampling of units being provided to the State. BBU systems that fail will be taken off the Qualified Products List (QPL).

Department QPL testing procedures will check compliance with all the criteria of this specification including the following:

- Event logging for fault/alarm conditions
- Demonstrated use of one or more of the operating methods described in Section 3.1., "Method of Operation."
- Testing of ability to power a 700W load for 4 hours, transfer to flash mode and power a 300W load for 2 additional hours, at an ambient temperature of +25°C.
- Testing of all components in environmental chamber (temperature ranges from -30°C to +74°C) following NEMA TS2 2003 standards, Section 2.

- 3.14. **Warranty, Maintenance and Support.** Provide a BBU containing a warranty that requires the manufacturer to replace failed BBUs when non-operable due to defect in material or workmanship within five years of date of purchase from manufacturer. Supply a BBU with no less than 95% of the manufacturer's warranty remaining on the date that the BBU is installed and begins operating. The replacement BBU must meet requirements of this specification. The Contractor will handle all warranty issues until the date of final acceptance.

Batteries shall be warranted for full replacement for 5 years. Batteries shall be defined as bad if they are not able to deliver 80% of battery rating.

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**4. MEASUREMENT**

This Item will be measured by each BBU system installed.

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**5. PAYMENT**

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "BBU System" of the type (type of BBU cabinet) specified. This price is full compensation for furnishing, installing, and testing the completed installation, BBU system and associated equipment, mounting hardware, class B concrete pad, software, conduit, conductors; and equipment, labor, tools; and incidentals.

# Special Specification 6090

## LED Internally Illuminated Street Name Signs



### 1. DESCRIPTION

Furnish, fabricate, and install light emitting diode (LED) internally illuminated street name (IISN) signs attached to traffic signal poles as shown on the plans.

### 2. MATERIALS

Provide new materials that comply with the details shown on the plans, the requirements of this Item, and the pertinent requirements of the following Items:

- Item 445, "Galvanizing"
- Item 446, "Field Cleaning and Painting Steel"
- Item 620, "Electrical Conductors"
- Item 621, "Tray Cable"

Furnish and fabricate LED IISN sign assemblies and associated mounting hardware from new materials that comply with this specification. Provide single side message or double side message signs as shown on the plans.

Furnish 6 sets of submittals, of the LED IISN and mounting hardware, to the Engineer at the project address. Do not begin work or purchase materials before the submittals are approved by the Engineer.

- 2.1. **General Requirements.** Ensure sign assembly standard lengths are between 4 ft. and 10 ft. Ensure standard viewable heights are between 15 in. and 30 in. Use single or double faced signs as required by plans. Ensure maximum weight of the sign does not exceed maximum capacity of IISN support arms.

Construct sign fixture housing from 5000 or 6000 series aluminum. Powder-coat paint all exterior fixture housing glossy black or as shown on the plans. Ensure paint exceeds 1000-hr. salt-spray test in accordance with ASTM B117. IISN housing must be rated as NEMA type 3R. Use stainless steel screws and hardware.

Ensure sign panels, light sources, light engines, and power supplies can be replaced without sign removal. The sign shall be capable of continuous operation over a range in temperatures from -10°F to +140°F.

- 2.2. **LED Requirements.** Provide high flux LED's that are rated to maintain a minimum 70% of their initial lumens after 60,000 hr. according to IESNA LM-80-08. Ensure the LED arrays or modules will continue to operate if one LED goes out. Provide light engine and LED arrays or modules that are replaceable without removing the sign.

- 2.3. **Sign Panel Requirements.** Ensure the front panel of the sign is ultraviolet, weather, abrasion and impact resistant high impact strength polycarbonate, acrylic or a glass-fiber reinforced polyester fluoride. The front panel will be replaceable for future maintenance purposes. Provide translucent reflective type D sheeting and colored transparent acrylic film as per TxDOT DMS - 8300, "Sign Face Material."

As per Texas Manual on Uniform Traffic Control Devices Section 2D.38, street name signs will have a white legend on a green background. A border, if used, will be the same color as the legend. The lettering should be at least 8 inch capital letters, or upper/lower case letters. Supplementary lettering to indicate the type of street (such as Street, Avenue, or Road) or the section of the City (such as SE) may be in smaller lettering, at least 3 in. high. Ensure letter font type is Clearview - 2W as shown on *Standard Highway Sign Designs for Texas*, D3-1 Overhead Mount.

- 2.4. **Electrical and Illumination Requirements.** Provide IISN that will operate at 120 VAC. Ensure product meets standard for electric signs UL 48. The on-board circuitry of an IISN shall include voltage surge protection, to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.8, NEMA Standard TS 2-2003. The power supply shall be housed inside the sign enclosure. Power supply shall be UL Class 2 limited output voltage and current plus isolation for safe operation, and UL rated for outdoor damp locations. Power supply shall be IP 64 Outdoor Rated. The light source shall evenly illuminate the sign panel. The average luminance over the entire panel surface will be uniform.
- 2.5. **Support Requirements.** The sign shall be designed and constructed to withstand 110 mph wind loads in conformance with the requirements of the AASHTO publication *Standard Specifications for Structural Supports of Highway Signs, Luminaires and Traffic Signals* (5th Edition 2009).
- The sign must be supplied with mounting brackets from the manufacturer (swinging or rigid mounting) as shown on the plans.
- 2.6. **Color.** The color of the legend, symbols, and background must fall within the CIE (The International Commission on Illumination) color coordinates and reflectance values listed in Table 1.

**Table 1**  
**CIE Chromaticity Coordinates and Reflectance Values**

White			Green		
x	y	Reflectance	x	y	Reflectance
0.300	0.290	40 Min	0.255	0.330	3.5-10
280	0.310		0.255	0.520	
0.360	0.360		0.020	0.540	

- 2.7. **Workmanship.** The panels must exhibit good workmanship and must be free from objectionable marks or defects that would adversely affect appearance or serviceability.
- 2.8. **Warranty.** The manufacturer will replace failed IISNs, when non-operable due to defect in material or workmanship, within five years of installation with a new IISN that passes all testing, delivered and installed at the project location.

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### 3. CONSTRUCTION

Fabricate and install internally illuminated street name signs in accordance with the details and dimensions shown on the plans, specified, or as approved by the Engineer. Install in accordance with the latest Electrical Detail Standards. Install signs level and plumb brackets or clamps. Attach IISN to traffic signal poles as per manufacturer's instructions or as shown on the plans.

Use established industry and utility safety practices when installing IISNs located near overhead or underground utilities. Consult with the appropriate utility company before beginning work.

Prevent scarring or marring of the poles, mast arms, and IISNs. Replace damaged components. Repair damaged galvanizing in accordance with Section 445.3.5, "Repairs." Repair damaged painted areas of a roadway illumination assembly in accordance with Item 446, "Field Cleaning and Painting Steel."

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### 4. MEASUREMENT

This Item will be measured as each LED IISN sign installed.

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### 5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement," will be paid for at the unit bid price for "LED Internally Illuminated Street Name Signs" of the



sizes and types specified. This price is full compensation for furnishing, fabricating and installing the signs; support arm clamp assembly; liquidtight flexible metal conduit; and equipment, labor, tools, and incidentals.

New conduit will be paid for under Item 618, "Conduit." New conductors, except the conductors internal to the pole, will be paid for under Item 620, "Electrical Conductors." New tray cable, except the tray cable internal to the pole, will be paid for under Item 621, "Tray Cable."

# Special Specification 6185

## Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)




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### 1. DESCRIPTION

Furnish, operate, maintain and remove upon completion of work, Truck Mounted Attenuator (TMA) or Trailer Attenuator (TA).

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### 2. MATERIALS

Furnish, operate and maintain new or used TMAs or TAs. Assure used attenuators are in good working condition and are approved for use. A list of approved TMA/TA units can be found in the Department's Compliant Work Zone Traffic Control Devices List. The host vehicle for the TMA and TA must weigh a minimum of 19,000 lbs. Host vehicles may be ballasted to achieve the required weight. Any weight added to the host vehicle must be properly attached or contained within it so that it does not present a hazard and that proper energy dissipation occurs if the attenuator is impacted from behind by a large truck. The weight of a TA will not be considered in the weight of the host vehicle but the weight of a TMA may be included in the weight of the host vehicle. Upon request, provide either a manufacturer's curb weight or a certified scales weight ticket to the Engineer.

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### 3. CONSTRUCTION

Place or relocate TMA/TAs as shown on the plans or as directed. The plans will show the number of TMA/TAs needed, for how many days or hours, and for which construction phases.

Maintain the TMA/TAs in good working condition. Replace damaged TMA/TAs as soon as possible.

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### 4. MEASUREMENT

4.1. **Truck Mounted Attenuator/Trailer Attenuator (Stationary).** This Item will be measured by the each or by the day. TMA/TAs must be set up in a work area and operational before a calendar day can be considered measurable. When measurement by the day is specified, a day will be measured for each TMA/TA set up and operational on the worksite.

4.2. **Truck Mounted Attenuator/Trailer Attenuator (Mobile Operation).** This Item will be measured by the hour. The time begins once the TMA/TA is ready for operation at the predetermined site and stops when notified by the Engineer. A minimum of 4 hr. will be paid each day for each operating TMA/TA used in a mobile operation.

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### 5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Truck Mounted Attenuators/Trailer Attenuators (Stationary)," or "Truck Mounted Attenuators/Trailer Attenuators (Mobile Operation)." This price is full compensation for furnishing TMA/TA: set up; relocating; removing; operating; fuel; and equipment, materials, tools, labor, and incidentals.