

NOTICE TO BIDDERS

Sealed bids addressed to the City of Bellmead will be received at the Bellmead City Hall Council Chambers; 3015 Bellmead Drive; Bellmead, Texas 76705 until 2:00 PM on Tuesday, May 20, 2025 for the construction of the Wheeler / LaClede Intersection Improvements in the City of Bellmead, Texas. The bids shall be labeled:

Wheeler / LaClede Intersection Improvements
Bellmead, Texas

Bids must be submitted on the Bid Form provided and must be accompanied by a cashier's check, certified check or acceptable bidder's bond payable without recourse to the City of Bellmead, Texas in an amount not less than five (5) percent of the bid submitted as a guarantee that the bidder will enter into a contract and execute a Performance Bond and a Payment Bond within fifteen (15) days after the notification of the award of the contract.

The bids will be publicly opened and read aloud in the Council Chambers at Bellmead City Hall; 3015 Bellmead Drive; Bellmead, Texas; 76705 at 2:00 PM on Tuesday, May 20, 2025. The City Council will officially review the bids and award the contract as soon thereafter as practical. The City of Bellmead reserves the right to accept or reject any and all bids, as the best interest of the City may require, and to waive any informality in bids received.

Plans, specifications and bidding documents may be secured beginning Thursday April 24, 2025 at Kasberg, Patrick & Associates, LP; (254) 773-3731; 19 North Main Street; Temple, Texas 76501 for a non-refundable cost of \$100.00 per set (11"x17") printed. Checks shall be made payable to Kasberg, Patrick & Associates, LP. Bidding documents may also be secured at www.civcastusa.com at no charge.

A Non-Mandatory Pre-Bid Conference will be held in the Bellmead City Hall located at 3015 Bellmead Drive, Bellmead, Texas 76705 at 9:00 AM on Tuesday, May 6, 2025. Although this is not a mandatory Pre-Bid Conference, it is highly recommended that all bidders attend, as there will be an opportunity for site visits immediately following the Pre-Bid Conference.

Technical questions and inquiries should be directed to John A. Simcik, P.E., until 12:00 p.m. on Wednesday, May 14, 2025. The Engineer and/or Owner shall not be bound by any references obtained by the Bidders unless an addendum is produced and released.

Waco Tribune-Herald & City of Bellmead Website

CITY OF BELLMEAD, TEXAS

April 24, 2025

May 1, 2025

Karen Evans, CPA – Assistant City Manager

CITY OF BELLMEAD, TEXAS



SPECIFICATIONS AND CONTRACT DOCUMENTS
FOR THE REHABILITATION OF

Wheeler / LaClede Intersection Improvements

Prepared By



KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
TEMPLE, TEXAS

April 2025

A handwritten signature in blue ink, appearing to read "John A. Simcik".

4/17/2025

WHEELER / LACLEDE INTERSECTION IMPROVEMENTS

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Waco Tribune-Herald & City of Bellmead Website

CITY OF BELLMEAD, TEXAS

April 24, 2025

May 1, 2025

Karen Evans, CPA – Assistant City Manager

**SPECIAL PROJECT INFORMATION
TO BIDDERS/CONTRACTORS**

- A. All questions and inquiries about the project should be directed to John A. Simcik, P.E., until 12:00 p.m. on Wednesday, May 14, 2025. Questions after that time and date will not be addressed and the Engineer and/or Owner shall not be bound by any references or dates obtained by the Bidders unless an official addendum is produced and released by Kasberg, Patrick & Associates, LP.
- B. The City of Bellmead reserves the right to eliminate a portion of the work or add additional work as required to keep the total contract amount within the funds budgeted. The City also has the right to award any parts or combinations of parts of the project it deems necessary. Low bidder shall be established by the sum of the combination of parts chosen by the City.
- C. Daily, on-site construction representation and observation will be provided by the City of Bellmead.
- D. Contract Administration and Pay Estimate Audits will be provided by KPA Engineers.
- E. The Bid Item for Mobilization, Bonds and Insurance shall not exceed 5% of the total amount Bid for any particular part of the Bid Schedule.
- F. The bid schedule (Base Bid, Item A22) contains an item titled “Allowance for Utility Adjustments, As Needed, Complete For - \$30,000.00 per Lump Sum”. Work under this item is intended to cover any utility adjustments that may be necessary to complete the roadway improvements. Payment for work under this item will be actual direct cost plus 10%. The intent of this item is to allow for continuous progress on the project if issues are encountered. The authorization to perform work will be made by the City Engineer with consultation by the Design Engineer.
- G. The Contractor shall report any anticipated quantity overruns on the project to the Project Engineer and obtain City approval prior to overrunning a quantity. Failure to obtain City approval prior to overrunning a quantity may result in non-payment for the overrun.
- H. Existing utilities shown on the plans are for reference only and no warranty as to their exact location is implied by their inclusion in the plans. The Contractor is responsible for performing a one-call for utility locates prior to beginning construction.

INSTRUCTION TO BIDDERS

1. Use of Separate Bid Forms

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

2. Required Experience of Bidders

The roadway work shall only be undertaken by a company with a **minimum of five years experience** in the construction of similar infrastructure. The company shall be able to demonstrate experience through the successful completion of at least five similar projects of equal or greater capacity in the past ten years. **The Bidder shall provide a list of similar projects successfully completed including location, type of improvements, year completed and contact information for the Owner/Engineer that managed the project. The Bidder shall also provide a list of available equipment and a list of current workload.**

3. Interpretations or Addenda

Each request for an interpretation shall be made to the engineer. Each interpretation made will be in the form of an Addendum to the contract documents and will be distributed to all parties holding contract documents no less than one (1) day prior to the bid opening. It is, however, the bidder's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the contract documents and all bidders shall be bound by such addenda, whether or not received by the bidder.

4. Inspection of Site

Each bidder should visit the site of the proposed work and fully acquaint himself with the existing conditions there and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the contract. The bidder should thoroughly examine and familiarize himself with the drawings, technical specifications and all other contract documents. The contractor, by the execution of the contract, shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal document or to visit the site or acquaint himself with the conditions there existing. The City of Bellmead will be justified in rejecting any claim based on lack of inspection of the site prior to the bid.

5. Bids

- a) All bids must be submitted on the forms provided and are subject to all requirements of the Contract Documents, including the Drawings.

- b) All bids must be regular in every respect and no interlineation, excisions or special conditions may be made or included by the bidder.
- c) The City of Bellmead may consider as irregular any bid on which there is an alteration of or departure from the bid form and, at its option, may reject any irregular bid.
- d) If contract is awarded, it will be awarded to a responsible bidder on the basis of the lowest/best bid and the selected alternate bid items, if any. The contract will require the completion of the work in accordance with the contract documents.

6. Bid Bond

- a) A bid bond in the amount of 5% of the bid issued by the acceptable surety shall be submitted with each bid. A certified check or bank draft payable to the City of Bellmead may be submitted in lieu of the Bid Bond.
- b) The bid bond or its comparable, will be returned to the bidder as soon as practical after the opening of the bids.

7. Unit Price

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

8. Corrections

Erasures or other corrections in the bid must be noted over the signature of the bidder.

9. Time for Receiving Bids

Bids received prior to the advertised hour of opening will be kept securely sealed. The officer appointed to open the bids shall decide when the specified time has arrived and no bid received thereafter will be considered; except that when a bid arrives by mail after the time fixed for opening, but before the reading of all other bids is completed, and it is shown to satisfaction of the City of Bellmead that the late arrival of the bid was solely due to delay in the mail for which the bidder was not responsible, such bid will be received and considered.

10. Withdrawal of Bids

Bidder may withdraw the bid before the time fixed for the opening of bids, by communicating his purpose in writing to the City of Bellmead. Upon receipt of such notice, the unopened bid will be returned to the bidder. The bid guaranty of any bidder withdrawing his bid will be returned promptly.

11. Award of Contract/Rejection of Bids

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

12. Execution of Agreement/Performance and Payment Bonds

- a) The failure of the successful bidder to execute the agreement and supply the required bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the City of Bellmead may grant, shall constitute a default and the City of Bellmead may, at its option either award the contract to the next lowest responsible bidder, or re-advertise for bids. In either case, the City of Bellmead may charge against the bidder the difference between the amount of the bid, and the amount for which a contract is subsequently executed irrespective of whether this difference exceeds the amount of the bid bond. If a more favorable bid is received through re-advertisement, the defaulting bidder shall have no claim against the City of Bellmead for a refund.

BID FORM

PROJECT IDENTIFICATION: City of Bellmead
 Wheeler / LaClede Intersection Improvements

THIS BID IS SUBMITTED TO: City of Bellmead
 3015 Bellmead Drive
 Bellmead, Texas 76705

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

2. **BIDDER** accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for sixty (60) days after the day of Bid opening. **BIDDER** will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within ten days after the date of **OWNER**'s Notice of Award.

3. In submitting this bid, **BIDDER** represents, as more fully set forth in the Agreement, that:

a. **BIDDER** has examined copies of all the Bidding Documents and of the following addenda (receipt of all which is hereby acknowledged):

Number	Date	Name
_____	_____	_____
_____	_____	_____
_____	_____	_____

b. **BIDDER** has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

- c. BIDDER has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies which pertain to the subsurface of physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as BIDDER considers necessary for the performance or finishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 8 of the Agreement; and no additional examinations, investigations, explorations, tests, reports, or similar information or data are or will be required by BIDDER for such purposes.
 - d. BIDDER has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumed responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by BIDDER in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 8 of the Agreement.
 - e. BIDDER has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
 - f. BIDDER has given OWNER written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by OWNER is acceptable to BIDDER.
 - g. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other BIDDER to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other BIDDER or over OWNER.
4. BIDDER will complete work for the following prices:

**BID SCHEDULE
FOR
WHEELER / LACLEDE INTERSECTION IMPROVEMENTS**

Base Bid

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Amount (in numerals)
A1	100%	LS	Mobilization, Bonds and Insurance, not-to-exceed 5% of the Base Bid Amount, Complete For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Lump Sum.		
A2	100%	LS	Implement and Administer Stormwater Pollution Prevention Plan, Including Submission to and Receiving Permits from TCEQ, Complete For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Lump Sum.		
A3	100%	LS	Provide a Video DVD of the Project Area Prior to and After Construction, Complete For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Lump Sum.		
A4	100%	LS	Implementation of Traffic Control Plan, Complete For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Lump Sum.		
A5	2,075	SY	Mill and Dispose of Existing Asphalt/Base (6" Depth), Complete	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Square Yard.		

**BID SCHEDULE
FOR
WHEELER / LACLEDE INTERSECTION IMPROVEMENTS**

Base Bid

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Amount (in numerals)
A6	2,075	SY	Proofroll Existing Subgrade, Complete For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Square Yard.		
A7	2,075	SY	Furnish & Install 4" Type 'B' HMAC, Including Prime and Tack Coat, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Square Yard.		
A8	2,075	SY	Furnish & Install 2" Type 'D' HMAC, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Square Yard.		
A9	40	LF	Remove and Replace Existing Curb and Gutter as Directed by Engineer, Complete For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Linear Foot.		

**BID SCHEDULE
FOR
WHEELER / LACLEDE INTERSECTION IMPROVEMENTS**

Base Bid

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Amount (in numerals)
A10	2	EA	Adjust Existing Manholes to Grade, Complete For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		
A11	3	EA	Adjust Existing Water Valves to Grade, Complete For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		
A12	1	EA	Furnish and Install Blue Reflective Buttons in Front of Fire Hydrants, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		
A13	27	LF	Furnish and Install 24" White Thermoplastic Striping (Stop Bar), Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Linear Foot.		

**BID SCHEDULE
FOR
WHEELER / LACLEDE INTERSECTION IMPROVEMENTS**

Base Bid

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Amount (in numerals)
A14	91	LF	Furnish and Install 8" Solid White Thermoplastic Striping, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Linear Foot.		
A15	50	LF	Furnish and Install 4" Dashed White Thermoplastic Striping, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Linear Foot.		
A16	629	LF	Furnish and Install 4" Solid Yellow Thermoplastic Striping, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Linear Foot.		
A17	125	LF	Clean and Repaint Curb Yellow, Type II Traffic Paint, Complete For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Linear Foot.		

**BID SCHEDULE
FOR
WHEELER / LACLEDE INTERSECTION IMPROVEMENTS**

Base Bid

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Amount (in numerals)
A18	6	EA	Furnish & Install Thermoplastic Symbols and Text, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		
A19	1	EA	Replace Existing Yield Sign with Stop Sign, R1-1, 30"x30", Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		
A20	12	EA	Furnish & Install Raised Pavement Markers, Type I-C, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		
A21	34	EA	Furnish & Install Raised Pavement Markers, Type II-A-A, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		

**BID SCHEDULE
FOR
WHEELER / LACLEDE INTERSECTION IMPROVEMENTS**

Base Bid

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Amount (in numerals)
A22	100%	LS	Allowance for Utility Adjustments, As Needed, Complete For	\$ <u>30,000.00</u>	\$ <u>30,000.00</u>
			_____ Dollars		
			and _____ Cents		
			per Lump Sum.		

TOTAL BID AMOUNT BASE BID (ITEMS A1-A22)

BID AMOUNT \$ _____
(numerals)

(words)

**BID SCHEDULE
FOR
WHEELER / LACLEDE INTERSECTION IMPROVEMENTS**

Add Alternate 1 - Concrete Collars

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Amount (in numerals)
AA1	1	EA	For Constructing Reinforced Concrete Collar for Manhole Per City of Waco Detail ST-11, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		
AA2	1	EA	For Constructing Reinforced Concrete Collar for Manhole Per City of Waco Detail ST-12, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		
AA3	2	EA	For Constructing Reinforced Concrete Collar for Water Valve Per City of Waco Detail ST-13, Complete in Place For	\$ _____	\$ _____ -
			_____ Dollars and _____ Cents per Each.		

**BID SCHEDULE
FOR
WHEELER / LACLEDE INTERSECTION IMPROVEMENTS**

Add Alternate 1 - Concrete Collars

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Amount (in numerals)
AA4	1	EA	For Constructing Reinforced Concrete Collar for Water Valve Per City of Waco Detail ST-14, Complete in Place For	\$ _____	\$ _____ -
				_____ Dollars	
				and _____ Cents	
				per Each.	

TOTAL BID AMOUNT BASE BID (ITEMS AA1-AA4)

BID AMOUNT \$ _____ -
(numerals)

(words)

BID SUMMARY

Base Bid	_____	numerals
Add Alternate A	_____	numerals
Base Bid + Add Alternate A	_____	numerals

Receipt is hereby acknowledged of 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	_____

The City reserves the right to award any individual PART or any combination of PARTS.

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

The work proposed to be done shall be accepted when fully completed and finished in accordance with the plans, specifications and Project Schedule shown herein to the satisfaction of the Engineer.

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the Contract Documents pertaining to the work covered in the above bid, and that the bid prices contained in the proposal have been carefully checked and are submitted as correct and final.

It is understood that the description of work to be done at unit prices is intended principally to serve as a guide in evaluating bids and is not intended to fully describe all work required.

It is further agreed that the work to be done and material to be furnished at unit prices may be increased or diminished as may be considered necessary in the opinion of the Engineer and approved by the Owner to complete the work fully as planned and contemplated, and that estimated quantities may be increased to cover additional work ordered by the Engineer and approved by the Owner, but not shown on the Plans or required by the Specifications, in accordance with the provision of the General Conditions. Similarly, they may be decreased to cover deletion of the work so ordered.

The foregoing prices shall include all labor, materials, removal, overhead, profit, insurance, etc., to cover the finished work called for. Changes shall be processed in accordance with applicable provisions of the General Conditions.

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

The Bidder agrees that his bid shall be good and may not be withdrawn for a period of sixty (60) calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the formal contract attached within ten (10) days and deliver Surety Bonds as required by the Special Conditions.

The bid security attached in the sum of _____(five percent (5%) of the bid amount) is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Respectfully submitted:

Bidder:

Title:

(Seal - if bid by a corporation)

Address:

Phone No:

Facsimile No.:

Date:

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,
_____ as Principal, and
_____ as
Surety, are hereby held and firmly bound unto _____ as OWNER in
the penal sum of _____ for
payment of which, well and truly to be made, we hereby jointly and severally bind ourselves,
successors and assigns.

SIGNED, this _____ day of _____, 2025. The Condition of the above obligation is
such that whereas the Principal has submitted to _____
a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the

Wheeler / La Clede Intersection Improvements

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID,

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

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

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

_____(L.S.)
Principal

Surety

By: _____

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

END OF SECTION

STANDARD FORM OF AGREEMENT

STATE OF TEXAS

COUNTY OF McLennan }

THIS AGREEMENT, made and entered into this _____ day of _____, 2025, by and between The City of Bellmead, Texas of the County of McLennan and State of Texas, acting through Yousry Zakhary, City Manager thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and _____ of the City of _____, County of _____ and State of Texas, 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:

Wheeler / LaClede Intersection Improvements

and all extra work in connection therewith, under the terms as stated in the General Conditions of the Agreement and at his (or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said construction, in accordance with the conditions and prices stated in the Proposal attached hereto, and in accordance with the Notice to Contractors, General and Special Conditions of Agreement, Plans and other drawings and printing or written explanatory matter thereof, and the Specifications and addenda therefor, as prepared by Kasberg, Patrick & Associates, LP; Nineteen North Main; Temple, Texas, 76501; (254) 773-3731, herein entitled the ENGINEER, each of which has been identified by the CONTRACTOR and the ENGINEER, together with the CONTRACTOR'S written Proposal, the General Conditions of the Agreement, and the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire contract.

The CONTRACTOR agrees to commence work within ten (10) calendar days after the date written notice to do so shall have been given him, and to substantially complete construction within 30 calendar days after issuance of the "Notice to Proceed" and to be at Final Completion within 45 calendar days after the issuance of the "Notice to Proceed", subject to such extensions of time as are provided by the General and Special Conditions.

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

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

City of Bellmead

Party of the First Part (OWNER)

Party of the Second Part (CONTRACTOR)

By: _____
Yousry Zakhary, City Manager

By: _____
Title: _____

ATTEST:

ATTEST:

Holly Owens, City Clerk

APPROVED AS TO FORM:

Charlie Buenger, City Attorney

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, That _____, a Texas corporation, whose address is _____, Texas, _____; as Principal, and _____, whose address is _____, a corporation organized and existing under the laws of the State of Texas, as Surety, are held firmly bound unto the City of Bellmead, Texas as Obligee, in the amount of _____ Dollars (\$ _____) for the payment of which sum we will bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 2025, for the construction of the

Wheeler / LaClede Intersection Improvements

specifically including in the scope of this work the bond, the additional guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein, as well as Principal's primary obligation to perform according to the plans and specifications.

NOW, THEREFORE, the condition of this obligation is such, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidders, general and special conditions and other contract documents and shall fully indemnify and save harmless Obligee from all costs and damage which Obligee may suffer by reason of Principal's default, and reimburse and repay Obligee all outlay and expense which Obligee may incur in making good such default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to Chapter 2253 of the Texas Government Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of such statute, to the same extent as if it were copied at length herein.

PROVIDED further that if any legal action be filed on this bond, venue shall be in McLennan County, Texas.

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 to be performed thereunder, or the plans, specifications, or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed thereunder. The Surety is responsible for additional amounts authorized by any change orders.

IN WITNESS WHEREOF, this instrument has been executed by the duly authorized representatives of the Principal and the Surety.

Signed and sealed this ____ day of _____, 2025.

Principal: _____

By: _____

_____(Title)

Surety: _____

By: _____

TDI Company Number: _____

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

Note: Attach Power of Attorney and Required Notices Rider

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, That _____ a Texas corporation, whose address is _____, Texas; as Principal, and _____, whose address is _____, a corporation organized and existing under the laws of the State of Texas, as Surety, are held firmly bound unto the City of Bellmead, Texas as Obligee, in the amount of _____ Dollars (\$ _____) for the payment of which sum we will bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 2025, for the construction of the

Wheeler / LaClede Intersection Improvements

specifically including in the scope of this work the bond, the additional guaranty provisions set forth in the contract conditions, 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 well and faithfully make payment to each and every claimant (as defined in Chapter 2253, Texas Government Code, as amended) supplying labor or materials to it 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 further that if any legal action be filed on this bond, venue shall be in McLennan County, Texas.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code, as currently amended, and all liabilities on this bond shall be determined in accordance with the provisions of said statute 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 to be performed thereunder, or the plans, specifications, or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such

change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed thereunder. The Surety is responsible for additional amounts authorized by any change orders.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on the ____ day of _____, 2025.

Principal: _____

By: _____
_____, (Title)

Surety: _____

By: _____

TDI Company Number: _____

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

Note: Attach Power of Attorney and Required Notices Rider

CERTIFICATE OF INSURANCE

THIS CERTIFICATE IS ISSUED FOR THE DURATION OF THE PROJECT AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

NAME AND ADDRESS OF AGENCY	COMPANIES AFFORDING COVERAGES COMPANY A <u>LETTER</u> COMPANY B <u>LETTER</u>
NAME AND ADDRESS OF INSURED	COMPANY C <u>LETTER</u> COMPANY D <u>LETTER</u> COMPANY E <u>LETTER</u>

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	POLICY EXPIRATION DATE	LIMITS OF LIABILITY IN THOUSANDS (000)		
					EACH OCCURRENCE	AGGREGATE
_____	GENERAL LIABILITY ___ Comprehensive Form Premises-Operations ___ Explosions and Collanse Hazard ___ Underground Hazard ___ Products/Completed Operations Hazard ___ Contractual Insurance ___ Broad Form Property Damage ___ Independent Contractors ___ Personal Injury			Bodily Injury	\$	\$
				Property Damage	\$	\$
				Bodily Injury and Property Damage Combined	\$	\$
				Personal Injury		\$

_____	AUTOMOBILE LIABILITY <input type="checkbox"/> Comprehensive Form <input type="checkbox"/> Owned <input type="checkbox"/> Hired <input type="checkbox"/> Non-Owned			Bodily Injury (Each Person)		\$
				Bodily Injury (Each Accident)		\$
				Property Damage		\$
				Bodily Injury and Property Damage Combined		\$
_____	EXCESS LIABILITY <input type="checkbox"/> Umbrella Form <input type="checkbox"/> Other than Umbrella					
_____	WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY			Statutory		
						\$ (Each Account)

OTHER

Builders Risk

Description of Operations/
Locations/Vehicles

PROJECT TITLE: Wheeler / LaClede Intersection Improvements
PROJECT LOCATION: Bellmead, Texas

The City of Bellmead and the Engineer are named as an additional insureds under all insurance, other than Workman's Compensation.

Cancellation: No policies will be cancelled or reduced, restricted, or limited until ten (10) days after the owner has received written notice as evidence by return receipt or registered or certified letter.

NAME AND ADDRESS OF CERTIFICATE HOLDER:

DATE ISSUED: _____, 2025 **AUTHORIZED REPRESENTATIVE**

END OF SECTION

Notice of Award

Date: _____, 2025

Project: **Wheeler / LaCleda Intersection Improvements**

Owner: City of Bellmead Texas

Owner's Contract No.:

Contract: **Wheeler / LaCleda Intersection Improvements**

Engineer's Project No.: 2025-115

Bidder:

Bidder's Address:

You are notified that your Bid dated _____, 2025, for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for:

Wheeler / LaCleda Intersection Improvements

The amount of the Contract is _____ (\$ _____).

5 copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

5 sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [5] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders, General Conditions, and Supplementary Conditions.
3. Other conditions precedent:

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

Kasberg, Patrick & Associates, LP

By: _____

John A. Simcik, P.E.

Project Manager

Notice to Proceed

Date: _____

Contract: Wheeler / LaClede Intersection Improvements

Engineer's Project No.: 2025-115

To: _____

In accordance with the Agreement dated _____, by and between the City of Bellmead, Texas (Owner) and _____ (Contractor) for work to be performed in conjunction with the Wheeler / LaClede Intersection Improvements.

Construction shall be completed within 45 calendar days of the issuance of this Notice to Proceed.

1. Contractor is hereby notified to commence work on _____, 2025. The Project shall be fully complete within 45 calendar days.
2. Liquidated damages to be paid by the Contractor for failure to complete the work by the completion date will be assessed at the rate of \$ 500.00 per day for each working day after the working days allotted have expired. The procedure and basis for the assessment of damages will be in accordance with the Special Conditions, Section 21.

ISSUED ON BEHALF OF

ACCEPTED ON BEHALF OF

City of Bellmead Texas

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Date

Date

AFFIDAVIT AND RELEASE OF LIEN

**THE STATE OF TEXAS
COUNTY OF MCLENNAN**

WHEREAS, the undersigned _____,
who being duly sworn , on oath, says that he/she is the legal representative of _____
_____, has been employed by _____ The City of Bellmead Texas _____,
to furnish labor and materials for the installation of the _____ Wheeler / LaClede Intersection
Improvements _____ in _____ Bellmead, Texas.

NOW THEREFORE, for and in consideration of the sum of _____
_____ DOLLARS (\$ _____) and other
good and valuable consideration, the receipt of which is hereby anticipated, being payment in full for all
labor and/or materials furnished by the undersigned up to and including _____ 20____,
the undersigned hereby waives and releases any and all lien or claim of right of lien on said project or
premises on account of labor and/or materials furnished and further states that all applicable sales
taxes, State, Local and Federal, and all labor hired by him and all material purchased by him and used
in the construction of said project improvements have been paid in full. The undersigned hereby
warrants to defend _____ The City of Bellmead Texas _____ against any liens or claims made by said laborers
or suppliers of materials used in connection with said project.

Date _____

By: _____

Title: _____

SWORN TO AND SUBSCRIBED BEFORE ME ON THIS THE _____ DAY OF _____, 2025,
_____ DID PERSONALLY APPEAR AND SIGN IN
ACKNOWLEDGMENT OF THE AFOREGOING AFFIDAVIT.

NOTARY PUBLIC IN AND FOR
THE STATE OF TEXAS

GENERAL CONDITIONS

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FOR
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GENERAL CONDITIONS OF AGREEMENT

1. DEFINITIONS OF TERMS

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

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

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

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

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

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

1.06 ... EXTRA WORK. The term "Extra Work" as used in this contract shall be understood to mean and include all work that may be required by the ENGINEER or OWNER to be done by the CONTRACTOR to accomplish any change, alteration or addition to the work

shown upon the plans, or reasonably implied by the specifications, and not covered by the CONTRACTOR'S Proposal, except as provided under "Changes and Alterations", herein.

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

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

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

2. RESPONSIBILITIES OF THE ENGINEER AND THE CONTRACTOR

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

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

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

made any examination to determine how or for what purpose CONTRACTOR has used the moneys paid on account of the Contract price.

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

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

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

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

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

Likewise, the CONTRACTOR shall be solely responsible for the safety of himself, his employees and other persons, as well as for the protection of the safety of the improvements being erected and the property of himself or any other person, as a result of his operations hereunder. Engineering construction drawings and specifications as well as any additional information concerning the work to be performed passing from or through the ENGINEER shall not be interpreted as requiring or allowing CONTRACTOR to deviate from the plans and specifications, the intent of such drawings, specifications and any other such instructions being to define with particularity the agreement of the parties as to the work the CONTRACTOR is to perform. CONTRACTOR shall be fully and completely liable, at his own expense, for design, construction, installation and use, or non-use of all items and methods incident to performance of

the contract, and for all loss, damage or injury incident thereto, either to person or property, including, without limitation, the adequacy of all temporary supports, shoring, bracing, scaffolding, machinery or equipment, safety precautions or devices, and similar items or devices used by him during construction.

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

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

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

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

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

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

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

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

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

2.14 ... DEFECTS AND THEIR REMEDIES. It is further agreed that if the work of any part thereof, or any material brought on the site of the work for use in the work or selected for the same, shall be deemed by the ENGINEER as unsuitable or not in conformity with the

specifications, the CONTRACTOR shall, after receipt of written notice thereof from the ENGINEER, forthwith remove such material and rebuild or otherwise remedy such work so that it shall be in full accordance with this contract.

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

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

3. GENERAL OBLIGATIONS AND RESPONSIBILITIES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3.13 ... PROTECTION AGAINST CLAIMS OF SUB-CONTRACTORS, LABORERS, MATERIALMEN AND FURNISHERS OF MACHINERY, EQUIPMENT AND SUPPLIES. The CONTRACTOR agrees that he will indemnify and save the OWNER and ENGINEER harmless from all claims growing out of the lawful demands of sub-contractors, laborers, workmen, mechanics, materialmen and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this contract. When so desired by the OWNER, the CONTRACTOR shall furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged or waived. If the CONTRACTOR fails so to do, then the OWNER may at the option of the CONTRACTOR either pay directly any unpaid bills, of which the OWNER has written notice, or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to liquidate any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged, whereupon payments to the CONTRACTOR shall be resumed in full, in accordance with the terms of this contract, but in no event shall the provisions of this sentence be construed to impose any obligation upon the OWNER by either the CONTRACTOR or his Surety.

3.14 ... PROTECTION AGAINST ROYALTIES OR PATENTED INVENTION.

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

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

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

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

-(1) . . . is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom; and

.....(2) . . . is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any one of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

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

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

.....(1) . . . Workmen's compensation claims, disability benefits and other similar employee benefit acts;

.....(2) . . . Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees, and claims insured by usual bodily injury liability coverages;

.....(3) . . . Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees, and claims insured by usual bodily injury liability coverages; and

.....(4) . . . Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

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

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

4. PROSECUTION AND PROGRESS

4.01 ... TIME AND ORDER OF COMPLETION. It is the meaning and intent of this contract, unless otherwise herein specifically provided, that the CONTRACTOR shall be allowed to prosecute his work at such times and seasons, in such order of precedence, and in such manner as shall be most conducive to economy of construction: provided, however, that the

order and the time of prosecution shall be such that the work shall be substantially completed as a whole and in part, in accordance with this contract, the plans and specifications, and within the time of completion designated in the Proposal; provided, also, that when the OWNER is having other work done, either by contract or by his own force, the ENGINEER may direct the time and manner of constructing the work done under this contract, so that conflict will be avoided and the construction of the various works being done for the OWNER shall be harmonized.

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

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

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

5. MEASUREMENT AND PAYMENT

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

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

Where payment is based on the unit price method, the CONTRACTOR agrees that he will make no claim for damages, anticipated profits or otherwise on account of any differences which may be found between the quantities of work actually done, the material actually

furnished under this contract and the estimated quantities contemplated and contained in the proposal; provided, however, that in case the actual quantity of any major item should become as much as 20% more than, or 20% less than the estimated or contemplated quantity for such items, then either party to this Agreement, upon demand, shall be entitled to a revised consideration upon the portion of the work above or below 20% of the estimated quantity.

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

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

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

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

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

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

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

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

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

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

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

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

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

6. EXTRA WORK AND CLAIMS

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

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

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

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

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

6.03 ... EXTRA WORK. It is agreed that the basis of compensation to the CONTRACTOR for work either added or deleted by a Change Order for which a claim for Extra Work is made shall be determined by one or more of the following methods:

.....Method (A) - ... By agreed unit prices; or

.....Method (B) - ... By agreed lump sum; or

.....Method (C) - ...If neither Method (A) nor Method (B) be agreed upon before the Extra work is commenced, then the CONTRACTOR shall be paid the “actual field cost” of the work, plus fifteen (15) percent.

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

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

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

final decision. It is further agreed that final acceptance of the work by the OWNER and the acceptance by the CONTRACTOR of the final payment shall be a bar to any claims by either party, except where noted otherwise in the Contract Documents.

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

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

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

7. ABANDONMENT OF CONTRACT

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

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

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

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

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

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

In the event the statement of accounts shows that the cost to complete the work is less than that which would have been the cost to the OWNER had the work been completed by the CONTRACTOR under the terms of this contract; or when the CONTRACTOR and/or his Surety shall pay the balance shown to be due by them to the OWNER, then all machinery, equipment, tools, materials or supplies left on the site of the work shall be turned over to the CONTRACTOR and/or his Surety. Should the cost to complete the work exceed the contract price, and the CONTRACTOR and/or his Surety fail to pay the amount due the OWNER within the time designated hereinabove, and there remains any machinery, equipment, tools materials or supplies on the site of the work, notice thereof, together with an itemized list of such equipment and materials shall be mailed to the CONTRACTOR and his Surety at the respective addresses designated in this contract, provided, however, that actual written notice given in any manner will satisfy this condition. After mailing, or other giving of such notice, such property shall be held at the risk of the CONTRACTOR and his Surety subject only to the duty of the OWNER to

exercise ordinary care to protect such property. After fifteen (15) days from the date of said notice, the OWNER may sell such machinery, equipment, tools, materials or supplies and apply the net sum derived from such sale to the credit of the CONTRACTOR and his Surety. Such sale may be made at either public or private sale, with or without notice, as the OWNER may elect. The OWNER shall release any machinery, equipment, tools, materials, or supplies, which remain on the work, and belong to persons other than the CONTRACTOR or his Surety, to their proper owners. The books on all operations provided herein shall be open to the CONTRACTOR and his Surety.

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

SPECIAL CONDITIONS

CITY OF BELLMEAD, TEXAS

WHEELER / LACLEDE INTERSECTION IMPROVEMENTS

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CITY OF BELLMEAD, TEXAS

WHEELER / LACLEDE INTERSECTION IMPROVEMENTS

SPECIAL CONDITIONS

SC.01 GENERAL

The provisions of this section of the specifications shall govern in the event of any conflict between them and the "General Conditions of Agreement."

SC.02 DEFINITIONS

Agreement. "Agreement" shall mean the contract document as herein set forth.

Calendar Day. "Calendar Day" shall mean any day of the week or month, no days being excepted.

Working Day. "Working Day" shall mean Monday through Friday, except for Federal Holidays. No work shall be performed on Sundays. Written authorization shall be received by the Contractor from the City of Bellmead before Thursday at 12:00 noon if work is anticipated to be performed on a Federal Holiday or Saturday. Work performed on a Federal Holiday or Saturday will be charged and counted as a working day. Additionally, a working day is defined as time used from 7 AM to 6 PM or in case of night time work, from 7 PM to 6 AM.

Extra Work. "Extra Work" shall mean and include all work that may be required by the Owner to be done by the Contractor to accomplish any change, alteration, or addition to the work shown on the plans or reasonably implied by the specifications, and not covered by the Contractor's proposal.

Parties. The parties to this agreement are the Owner and the Contractor.

Project. "Project" shall mean the work embraced by this agreement, including the Plans and Specifications, General and Special Conditions, Performance and Payment Bonds attached hereto; generally described as follows:

WHEELER / LACLEDE INTERSECTION IMPROVEMENTS

Subcontractor. "Subcontractor" shall mean only those having a direct contract with the Contractor for performance of work on the project contemplated by these contract documents.

Substantially Completed. "Substantially Completed" shall mean that the project contemplated by the contract documents has been made suitable for use or occupancy, or the facility is in a condition to serve its intended purpose; but still may require minor miscellaneous work and adjustment, provided, however, that final payment of the contract price including retainage, shall not be made until completion of all punch list items and upon acceptance by the Owner. Acceptance by the Owner shall not impair any warranty obligation of the Contractor.

Work. "Work" or "Scope or Work" shall mean Wheeler / LaCledde Intersection Improvements, as more fully described in the Scope of Work contained in SC.06.

SC.03 ENGINEER

The word "Engineer" in these specifications shall be understood as referring to Kasberg, Patrick & Associates, LP, Consulting Engineers; 19 North Main; Temple, Texas 76501, Engineer of the Owner, or such other representatives as may be authorized by said Owner to act in any particular position.

SC.04 LOCATION OF PROJECT

This project is located at the intersection of Wheeler and LaClede in the City of Bellmead, Texas.

SC.05 EXAMINATION OF SITE OF PROJECT

Prospective bidders shall make a careful and thorough examination of the site of the project, including all soil and water conditions to be encountered, improvements to be protected, disposal sites for surplus materials, arrangements necessary for providing ingress and egress to private properties and methods of handling traffic during prosecution of all the work involved.

SC.06 SCOPE OF WORK

The work to be performed under this contract consists of furnishing all materials, labor, supervision, tools, equipment and incidentals required, and performing all work necessary for the improvements of:

Pulverizing and cement stabilizing the existing subgrade then overlaying with asphalt. There is also an alternate bid for full depth mill and overlay in lieu of cement stabilization.

SC.07 FORMS, PLANS AND SPECIFICATIONS

Forms of Proposal, Contract and Bonds, and Plans and Specifications may also be viewed at the office of Kasberg, Patrick & Associates, LP. The non-refundable fee for the printed and bound plans and specifications is \$50.00 per set.

SC.08 COPIES OF PLANS AND SPECIFICATIONS FURNISHED

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

SC.09 PRE-BID CONFERENCE

Prior to receiving bids on this project, the Owner will conduct a virtual non-mandatory pre-bid conference with all prospective bidders and other interested parties. The non-mandatory pre-bid conference will be held at 9:00 AM; on May 6, 2025. A Microsoft Teams Meeting invitation for the Pre-Bid Conference will be sent to bidders via email.

SC.10

ADDENDA

Bidders desiring further information, or interpretation of the plans and specifications must make a request in writing to the Engineer as outlined in this Section and in the Instructions to Bidders for Construction. Each interpretation made will be in the form of an Addendum to the contract documents and will be distributed to all parties holding contract documents. It is the bidder's responsibility to make inquiry as to any addenda issued. All addenda will be bound with and made a part of the contract documents. No other explanation or interpretation will be considered official or binding.

The proposals as submitted by the Contractor will be so constructed as to include any addenda if such are issued by the Engineer prior to twenty-four (24) hours before the opening of bids.

In order that all plan holders will have equal access to information on this project, all requests to the Engineer for information or interpretation of the plans and specifications must be received before 12:00 PM (Noon) on Wednesday, May 14, 2025. If there is a need to clarify any requests at that time, the Engineer will issue a written addendum after 12:00 PM, (Noon) on Wednesday, May 14, 2025. The Engineer and Owner will not attempt to further clarify any written or oral requests after that time.

SC.11

PREPARATION OF PROPOSAL

The Bidder shall submit his proposal on the forms furnished. All blank spaces in the form shall be correctly filled in and the bidder shall state the price, in numerals, for which he proposes to do the work contemplated or furnish the materials required. Such prices shall be written in ink, distinctly and legibly, or typewritten. If the proposal is submitted by an individual, his name must be signed by him or his duly authorized agent. If a proposal is submitted by a firm, association, or partnership, the name and address of each member must be given and the proposal signed by a member of the firm, association or partnership, or person duly authorized. If the proposal is submitted by a company or corporation, the company or corporate name and business address must be given, and the proposal signed by an official or duly authorized agent. Powers of attorney authorizing agents or others to sign proposal must be properly certified and must be in writing and submitted with the proposal. The proposal shall be executed in ink.

Each proposal shall be enclosed in a sealed envelope, addressed as specified in the Notice to Contractors, and endorsed on the outside of the envelope in the following manner:

- a. Bidder's name.
- b. Proposal for "Wheeler / LaClede Intersection Improvements."

Bid proposal may be withdrawn and resubmitted at any time prior to the time set for opening of the bids, but no proposal may be withdrawn or altered after the opening of the bids.

SC.12 QUALIFICATION OF LOW BIDDER

Prior to award of contract, the bidder shall submit such evidence as the Owner may require to establish the bidder's qualifications to satisfactorily perform the work included in this project. Information that may be required shall include (1) the bidder's current financial statement including amount of funds readily available to commence and carry out the work, (2) a list of equipment available for this project, (3) a list of projects that of the same general type as included in this contract, together with the names, addresses and phone numbers of persons familiar with this work, and (4) other information that may be pertinent to the bidder's qualifications.

Should the bidder fail to promptly produce evidence satisfactory to the Owner on any of the foregoing points, he may be disqualified and the work awarded to the next bidder so qualifying.

SC.13 AWARD OF CONTRACT

It is the intention of the Owner to award a contract on the basis of the lowest acceptable bid submitted by a qualified bidder as determined by the Owner. 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.

The City of Bellmead will notify the successful bidder, in writing, within sixty (60) days of the date of receiving bids, of its acceptance of his proposal. The Contractor shall complete the execution of the required Bond and Contract within ten (10) days of such notice.

SC.14 SEQUENCE OF CONSTRUCTION

The time allotted for completion of this project is described under Section SC.16 of these Special Conditions.

Prior to beginning construction on this project, the Contractor shall prepare a written construction sequence and schedule for review by the Engineer and approval by the Owner. This construction sequence and schedule shall be followed by the Contractor unless changes are approved by the Owner.

No partial payment estimates will be issued until the Sequence and Schedule of Construction has been approved.

SC.15 TIME ALLOTTED FOR COMPLETION AND NOTICE TO PROCEED

The Wheeler / LaCiede Intersection Improvements shall be substantially completed within 30 calendar days and final completion within 45 calendar days of the issuance

of the Notice to Proceed. The Notice to Proceed shall consist of a written request by the city Engineer for the Contractor to proceed with the construction of the project.

SC.16 PRECONSTRUCTION CONFERENCE

After award of bid and prior to beginning construction, a conference will be held with representatives of the Contractor, Owner, Engineer, and the affected Utility Companies to discuss schedules and utility conflicts in the project. The purpose is to establish lines of communication between the parties involved. The time and place for the Preconstruction Conference shall be determined at the time of Bid Award.

SC.17 CONSTRUCTION IN PUBLIC ROADS AND PRIVATE DRIVES

No public or private road shall be entirely closed overnight. It shall be the responsibility of the Contractor to build and maintain all weather bypasses and detours, if necessary, and 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 be responsible for repair and maintenance of all roadways damaged as a result of the construction of this project for a period of one year after completion or acceptance of the work. Within this period of one year time, if it becomes necessary for the Owner to make such repairs, the Contractor shall reimburse the Owner for the cost of such repairs.

SC.18 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.19 EXTENSION OF TIME

Contractor agrees he has submitted his proposal in full recognition of the time required for the completion of this project, taking into consideration the average climatic range and material manufacturing conditions prevailing in this locality, and has considered the liquidated damage provision herein, and that he shall not be entitled to, nor will he request, an extension of time on this contract, except when his work has been delayed by an act or neglect of the Owner, employees or representatives of the Owner, or other contractors employed by the Owner, or by changes ordered in the work, or reductions thereto in writing. The Contractor may apply in writing for an extension of time, submitting therewith all written justification as may be required by the Engineer for such and extension as requested by Contractor. The Engineer, within ten (10) days after receipt of a written request for an extension of time by the Contractor, which is supported by all requested documentation, shall decide if an extension of time shall be allowed.

SC.20 LIQUIDATED DAMAGES FOR DELAY BY CONTRACTOR

The Contractor agrees that time is of the essence on this contract and that the Owner will be damaged as a result of any delay beyond the date agreed upon in the completion of all items of work herein specified and contracted for. The parties understand and agree that the actual damages will be sustained by the Owner because of such delay will be uncertain and difficult of ascertainment and it is further agreed that a reasonable estimate of the actual amount of such damages in light of the facts known to the parties at the time of execution of this contract will be five hundred dollars (\$500.00) per day.

It is therefore agreed that the Owner may withhold permanently from the Contractor's total compensation, the total sum of \$500.00 per day as liquidated damages for delay for each day of delaying completion beyond the date agreed upon for completion of the items of work herein specified and contracted for (after due allowance for such extension of time as is provided for in the General Conditions of Agreement and in Paragraph SC.20).

SC.21 DAMAGES

Article 3.08 of the General Conditions of Agreement is hereby voided and replaced with the following:

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

SC.22 OBJECTIONS AND TIME OF FILING CLAIMS

In Paragraph 6.04 of the General Conditions, add the following after the first sentence:

“Failure to file such an objection during such period shall constitute waiver thereof and consent to the decision rendered by the Engineer.”

Also, delete the third sentence, which deals with arbitration.

Also, in Paragraph 2.05 of the General Conditions, delete the last clause dealing with arbitration and insert:

“Failure to file such an objection during such period shall constitute waiver thereof and consent to the decision rendered by the Engineer.”

SC.23 MEDIATION

Article 6.05 of the General Conditions of Agreement is hereby voided and replaced with the following:

In an effort to resolve any conflicts that arise during the construction of the Project or following the completion of the Project, the Owner and the Contractor agree that all disputes between them arising out of or relating to this Agreement or the Project shall be submitted to nonbinding mediation unless the parties mutually agree otherwise.

The Owner and Contractor further agree to include a similar mediation provision in all agreements with their subcontractors, subconsultants, suppliers and fabricators, thereby providing for mediation as the primary method for dispute resolution between the parties to all those agreements.

SC.24 FEES AND ROYALTIES

All fees or royalties for any patented invention, process, article, or arrangement in any manner connected with the work, or with these specifications, shall be included in the price stated in the proposal.

SC.25 INDEMNITY

Contractor agrees to and shall indemnify and hold harmless Owner, its officers, agents and employees, from and against any and all claims, losses, damages, causes of action, suits, and liability of every kind, including all expenses damages, causes of action, suits, and liability of every kind, including all expenses of litigation, court costs, and attorney's fees, for injury to or death of any person, or for damage to any property, arising out of or in connection with the work done by Contractor under this contract, regardless of whether such injuries, death or damages are caused in whole or in part by the negligence of the City of Bellmead.

Contractor assumes full responsibility for the work to be performed hereunder, and hereby releases, relinquishes and discharges Owner, its officers, agents and employees, from all claims, demands, and causes of action of every kind and character including the cost of defense thereof, for any injury to, including death of, person (whether they be third persons, contractor, or employees of either the parties hereto) and any loss of or damage to property (whether the same be that of either of the parties hereto or of third parties) caused by or alleged to be caused by, arising out of, or in connection with Contractor's work to be performed hereunder whether or not said claims, demands and causes of action in whole or in part are covered by insurance regardless of whether such loss, damage, or injury was caused by Owner. Owner, by this agreement does not give consent to litigation.

SC.26 LAWS TO BE OBSERVED

The Contractor shall, at his own expense, do those things necessary for the procurement of and shall procure all permits, certificates and licenses required of him by the law or governmental regulation for the performance of his work. He shall comply with all federal, state and local laws, ordinances or rules and regulations relating to the performance of his work. In addition to all other laws, ordinances and rules and

regulations, these shall include any such laws, ordinances or rules and regulations relating to noise from the Contractor's operations.

SC.27 STATE AND CITY SALES TAXES

This contract is issued by an organization which qualifies for exemption provisions pursuant to Provisions of the Texas Tax Code. Sections 151.301, 151.307, 151.309 and 151.311. The Contractor must obtain a limited sales excise and use tax permit or exemption certificate which shall enable him to buy the materials to be incorporated into the work without paying the tax at the time of purchase.

SC.28 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. Section 1, et seq, (1973).

SC.29 GUARANTY AGAINST DEFECTIVE WORK

The Contract shall indemnify the Owner against any repairs which may become necessary to any part of the work performed under each contract, arising from defective workmanship or material used therein, for a period of one (1) year from the date of final acceptance of the work, unless the technical specifications provide for another period.

Neither the Certificate of Acceptance nor any provision in the Contract Documents, nor partial or entire use, or occupancy of the premise by the Owner will constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials.

SC.30 INSURANCE

Satisfactory certificates of insurance for all coverage listed herein shall be filed with the Owner prior to starting any construction work on this contract. Insurance shall include the Owner, the Engineer and the State of Texas as additional insured parties.

Workmen's Compensation and Employer's Liability

This insurance shall protect Contractor against all claims under applicable state workmen's compensation laws. Contractor shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a workmen's compensation law. This policy shall include an "all states" endorsement.

The liability limits shall not be less than:

Workmen's Compensation	Statutory
Employer's Liability	\$100,000 each occurrence

Comprehensive Automobile Liability

This insurance shall be written in comprehensive form and shall protect Contractor against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, and shall cover operation on or off site of all motor vehicles licensed for highway use, whether they are owned, non-owned, or hired.

The liability limits shall not be less than:

Bodily Injury	\$250,000 each person \$500,000 each occurrence \$1,000,000 aggregate
Property Damage	\$100,000 each occurrence \$100,000 aggregate

Comprehensive General Liability

This insurance shall be written in comprehensive form and shall protect Contractor and additional insured parties against all claims arising out of any act or omission of the Contractor or his agents, employees or subcontractors.

The liability limits shall be not less than:

Bodily Injury	\$500,000 each person \$500,000 each occurrence \$500,000 aggregate
Property Damage	\$100,000 each occurrence \$100,000 aggregate

Excess Liability Insurance

The Contractor shall obtain, pay for and maintain a policy during the contract term, insuring Contractor for an amount of not less than \$1,000,000 combined single limit bodily injury and property damage liability insurance, including death, in excess of the primary coverage required hereinabove. The Owner and the Engineer shall be named as additional insureds.

The Contractor shall furnish a Certificate of Insurance for the above coverage with a provision that the Owner will be notified by the insurance company ten (10) days prior to cancellation of the policy during the term of the contract, and if canceled, a new policy must be furnished prior to cancellation.

SC.31 PAYMENTS TO CONTRACTOR

Progress Payments

Article 5.04 of the General Conditions of Agreement, is hereby voided and replaced by the following:

The Contractor shall prepare a requisition for progress payment as of the 25th day of the month and submit to the Engineer. On or before the 10th day of each month, the Engineer will then verify quantities and prepare a statement showing as completely as practicable the total value of the work done by the Contractor up to and including the last day of the preceding month; said statement shall also include the invoice value of all sound materials delivered, and properly stored and protected, on the site of the work that are to be fabricated into the work.

The Owner shall then issue payment the Contractor on or before the 25th day of the current month the total amount of the approved statement. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) five percent (5%) of the total amount, as a retainage and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit process contained in the agreement and adjusted by approved change orders. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be furnished to the Engineer.

The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. Such payment shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

The five percent (5%) retainage of the progress payments otherwise due to the Contractor may not be reduced until the building of the project is substantially complete and a reduction in the retainage has been authorized by the Owner.

Withholding Payments

The Owner may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the Owner and if so elects may also withhold amounts due from the Contractor to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his subcontractors or material dealers, or to withhold any moneys for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any moneys from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

Separate Payment

Except as modified by Change Orders subsequent to execution of the Contract for this proposed work, no separate payment shall be made for work described in these Specifications or shown on the Plans. Total compensation to the Contractor shall be as set forth in the various Bid Items in the Proposal and Bid Schedule.

The Owner, before paying the final estimate, may require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Owner deems the same necessary in order to protect the Owner's interests. The Owner, however, may if it deems such action advisable make payment in part or in full to such Contractor without requiring the furnishing of such releases or receipts and any payments so made shall in no way impart the obligations of any surety or sureties furnished under this Contract.

Withholding of any amount due the Owner, under general and/or special conditions regarding "Liquidated Damages," shall be deducted from the final payment due the Contractor.

All sentences of Article 5.07 of the General Conditions shall remain and govern the contract as stipulated.

SC.32 WAGE RATES

All employees of the Contractor on the work to be performed under this contract shall be paid the prevailing wage scale in this locality for work of similar character, and in no event less than the rates shown in the schedule of minimum wage rates furnished in these Special Conditions.

SC.33 EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this contract, the Contractor agrees as follows:

- (a) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin. The Contractor shall take affirmative action to insure that applicants are employed, that employees are treated during employment without regard to their race, color, sex, religion, age or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination, rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees or applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (b) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants shall receive consideration for employment without regard to race, color, religion, sex, national origin or age.

- (c) The Contractor shall send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (d) The Contractor shall include the provisions of this section in all subcontracts pertaining to the work.

SC.34 SUPERINTENDENCE BY CONTRACTOR

The Contractor shall have on the project at all times, as his agent, a competent Superintendent capable of reading and of thoroughly understanding the plans and specifications and thoroughly experienced in the type of work being performed. The Superintendent shall have full authority to execute orders or directions and to promptly supply such materials, equipment, tools, labor and incidentals as may be required. Such superintendence shall be furnished regardless of the amount of the work subcontracted.

SC.35 INSPECTION

The word "Inspection" or other forms of the word, as used in the contract documents for this project shall be understood as meaning the Engineer 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.36 SHOP DRAWINGS

Contractor shall submit shop drawings in accordance with the following:

All shop drawings submitted by subcontractors for review by the Owner shall be sent directly to the Contractor for checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.

The Contractor shall review all subcontractor's shop drawings regarding measurements, size of members, materials, and details to satisfy himself that they conform to the intent of the Drawings and Specifications. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission thereof.

All details on shop drawings submitted for review shall show clearly the relation of the various parts to the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted for review.

The review of shop drawings, samples or product data by the Engineer shall not relieve the Contractor from his/her responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will have no responsibility therefor.

No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the review of such item.

Fabrication performed, materials purchased or on-site construction accomplished which does not conform to reviewed shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.

When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections, of the Specifications, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the Work.

Shop Drawings may be submitted to the Project Engineer in digital format. Each shop drawing shall be legible and submitted in a format no larger than 11" x 17". The submission is also applicable to the Trench Safety Plan, the Traffic Control Plan and the Storm Water Pollution Prevention Plan as well.

SC.37

TRADE NAMES AND MATERIALS

Where materials or equipment are specified by a trade or brand name, it is not the intention of the Owner to discriminate against any 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. Unless otherwise specified all materials shall be of the best of their respective kinds, shall be in all cases fully equal to approved samples and shall never have been used for any temporary purpose whatsoever. Notwithstanding that the words "or equal to" or other such expressions may be used in the specifications in connection with a material, manufactured article or process specifically designated shall be used, unless a substitute shall be approved in writing before installation.

SC.38

TESTING OF MATERIALS

Testing and control of construction materials and methods used in the work shall be done by an approved local commercial laboratory employed and paid directly by the Owner, or other approved personnel employed by the Owner. Where a commercial laboratory is used, all representative testing caused by test failure will be accomplished at the Contractor's expense plus 10%.

SC.39 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 that of other contractors.

SC.40 EXISTING UTILITIES AND SERVICE LINES

The Contractor shall be responsible for the protection of all existing utilities or service lines crossed or exposed by his construction operations. Where existing utilities or service lines are cut, broken, or damaged, the Contractor shall replace or pay for replacement of the utilities or service lines with the same type of original construction, or better, at his own cost and expense.

SC.41 EXISTING STRUCTURES

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

SC.42 CONNECTIONS TO EXISTING FACILITIES

Connections to existing facilities which are in service shall be thoroughly planned in advance, and all required equipment, materials and labor shall be on hand at the time of undertaking the connections. Work shall proceed continuously (around the clock if necessary) to complete connections in the minimum time. Operations of valves or other appurtenances on existing utilities, when required, shall be by or under direct supervision of the Owner.

The Contractor should anticipate that the length of time for various connections, disconnections and modifications will be minimal. Also, the time of day when connections and disconnections may be accomplished will generally be during periods of low flow. The Contractor should plan his construction sequence and schedule accordingly.

SC.43 PROPERTY LINES AND MONUMENTS

The Contractor shall protect all property corner markers, and when any such markers or monuments are in danger of being disturbed they shall be properly referenced and if disturbed shall be reset at the expense of the Contractor.

SC.44 USE OF EXPLOSIVES

Use of explosives will not be allowed.

SC.45 LINES AND GRADES

All work under this Contract shall be constructed with the lines and grades shown on the Plans or as given by the Engineer. The full responsibility for holding to alignment and grade shall rest upon the Contractor.

The Engineer will provide offset construction staking once for the project.

The Contractor shall stockpile excavation and other materials as to cause no inconvenience in the use of the lines and grades given. The Contractor shall remove any obstruction created by him contrary to this provision.

The Contractor shall safeguard all control points and bench marks established on the site by the Engineer, shall bear the cost of re-establishing same, if disturbed, and shall assume the entire expense of rectifying work improperly constructed due to failure to maintain and protect such established control points and bench marks.

SC.46 ACCESS TO PROJECT SITE AND RIGHT-OF-WAY

The Contractor shall provide at its expense all improvements and make suitable provisions for ingress and egress. The Contractor also shall provide at its expense necessary all weather access roads to the project location as required for transporting equipment and materials.

If additional area is needed by the Contractor, it shall be the responsibility of the Contractor to make all necessary arrangements and pay all costs associated with the acquisition and utilization of such area.

Specific right-of-way easement arrangements between the Owner and property owners include restrictions that may affect the Contractor's construction operations. These restrictions are summarized on a sheet included in the plans.

SC.47 BARRICADES, LIGHTS AND WATCHMEN

The Contractor shall, at his own cost and expense, furnish and erect such barricades, fences, lights and danger signals, shall provide such watchmen, and shall provide such other precautionary measures for the protection of persons or property and of work as are necessary. There shall be no open trenches not properly barricaded at the end of each workday. Barricades shall be painted in a color that will be visible at night. From sunset to sunrise, the Contractor shall furnish and maintain sufficient lights at each barricade and sufficient numbers of barricades shall be erected to keep vehicles from being driven on or into any work under construction. The Contractor shall furnish watchmen in sufficient numbers to protect the work.

The Contractor will be held responsible for all damage due to failure of barricades, signs, lights and watchmen. The Contractor's responsibility for the maintenance of

barricades, signs and lights, and for providing watchmen shall not cease until the project has been accepted by the Owner.

SC.48 PROTECTION OF TREES AND LANDSCAPING

No trees or landscaping shall be removed or cut without the Owner's approval except those that provide direct interference with the installation of the utility line within the permanent and temporary easements. The Contractor shall use proper caution to minimize removal of trees within the temporary easement. Trees adjacent to the permanent and temporary easements, but not interfering with the work, shall be protected from damage by the construction operations.

SC.49 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.50 WATER FOR CONSTRUCTION AND TESTING

The Contractor shall make the necessary arrangements for securing and transporting all water required in the construction.

SC.51 TRENCH SAFETY SYSTEM

Contractor shall provide a trench safety system which conforms to OSHA Standards. The trench safety system shall meet all the requirements of Trench Safety Requirements Section of the Technical Specifications.

SC.52 TOOLS AND ACCESSORIES

The Contractor shall, unless otherwise stated in the specifications, furnish with each type, kind or size of equipment, one (1) complete set of suitably marked high grade special tools and appliances which may be needed to adjust, operate, maintain, or repair the equipment. Ordinary mechanic's tools are not considered special tools. Such special tools and appliances shall be furnished in approved painted steel cases, properly labeled and equipped with good grade cylinder locks and duplicate keys.

Each piece of equipment shall be provided with a substantial name plate, securely fastened in place and clearly inscribed with the manufacturer's name, year or manufacture, and principal rating data.

SC.53 PROJECT MAINTENANCE

The Contractor shall maintain, and keep in good repair, the improvements covered by these plans and specifications during life of this contract.

SC.54 FENCES, IMPROVEMENTS AND DRAINAGE CHANNELS

Fencing and gates removed to permit 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. Fences to be removed and not replaced are noted on the plans.

Where surface drainage channels, storm sewers, or drainage structures are disturbed or altered during construction, they shall be restored to their original condition as soon as possible.

SC.55 DISPOSAL OF WASTE AND SURPLUS EXCAVATION

All trees, stumps, slashings, brush or other debris removed from the site as a preliminary to the construction shall be chipped or removed from the property. No burning will be allowed. No trash, debris or refuse from construction shall exist on the ground.

All excavated earth in excess of that required for backfilling shall be disposed of in a satisfactory manner in locations approved by the Owner.

SC.56 CLEANUP

The Contractor shall at all times keep the job site as free from all material, debris and rubbish as is practical and shall remove same from any portion of the job site as construction of that portion is completed.

Upon completion of the work, the Contractor shall remove from the site all plant, materials, tools and equipment belonging to him and leave the site with an acceptable appearance. 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.57 ARCHEOLOGICAL DISCOVERIES

No activity which may affect a State Archeological Landmark is authorized until the Owner has complied with the provisions of the Antiquities Code of Texas. The Owner has previously coordinated with the appropriate agencies and impacts to known cultural or archeological deposits have been avoided or mitigated. However, the Contractor may encounter unanticipated cultural or archeological deposits during construction.

If archeological sites or historic structures are discovered after construction operations are begun, the Contractor shall immediately cease operations in that particular area and notify the Owner, and the Texas Historical Commission, (512-463-6096). The Contractor shall take reasonable steps to protect and preserve the discoveries until they have been inspected by the Owner. The Owner will promptly coordinate with the Texas Historical Commission and any other appropriate agencies to obtain any necessary approvals or permits to enable the work to continue. The Contractor shall not resume work in the area of the discovery until authorized to do so by the Owner.

Compensation to the Contractor, if any, for lost time or changes in construction resulting from the find, shall be determined in accordance with changed or extra work provisions of the Contract Documents.

SC.58 SERVICE OF MANUFACTURER'S REPRESENTATIVE

The contract price for the project shall include the cost of furnishing competent and experienced representatives from the manufacturers involved. Such representatives shall assist the Contractor, when required, to install, adjust, and test the equipment in conformity with the contract documents. After the equipment is placed in permanent operation by the City of Bellmead, such representatives shall make all adjustments and tests as specified or required to comply with the contract documents, and shall instruct the Owner in the operation and maintenance of the equipment.

SC.59 FINAL FIELD TESTS

Upon completion of the work and prior to final payment, all items installed under this contract shall be subject to acceptance tests as specified or required to provide compliance with the contract documents.

SC.60 AS-BUILT (RECORD DRAWINGS) DIMENSIONS AND DRAWINGS

Contractor shall make appropriate daily measurements of work constructed and keep accurate records of location (horizontal and vertical) of all constructed work.

Upon completion of the project, the Contractor shall furnish the Owner with one set of direct prints, marked with red pencil, to show as-built dimensions and locations of all work constructed. As a minimum, the final drawings shall include the following:

- (1) Horizontal and vertical locations of work.
- (2) Changes in material and dimensions due to substitutions.
- (3) Deletions, additions, and changes to scope of work.
- (4) Any other changes made.

This set of marked up prints shall be incorporated into record drawings prepared by the Engineer.

Final payment will not be made until such drawings are provided to the Engineer.

Payment for the preparation of record drawings will be made to the Contractor as shown in the Bid Schedule.

The wage rates listed herein are those predetermined by the Secretary of Labor and State Statute and listed in the United States Department of Labor's (USDOL) General Decisions dated 01-03-2025 and are the minimum wages to be paid accordingly for each specified classification. To determine the applicable wage rate zone, a list entitled "TEXAS COUNTIES IDENTIFIED BY WAGE RATE ZONES" is provided in the contract. Any wage rate that is not listed in the USDOL's general decision, must be requested by the contractor through the completion of an Additional Classification and Wage Rate Request and be submitted for approval. A blank cell indicates that the classification and wage rate are not listed on the USDOL's general decision and therefore must be requested by the contractor through the completion of an Additional Classification and Wage Rate Request. IMPORTANT NOTICE FOR STATE PROJECTS: only the controlling wage rate zone applies to the contract. Effective 01-03-2025.

CLASS. #	CLASSIFICATION DESCRIPTION	ZONE TX02 *(TX20250002)	ZONE TX03 *(TX20250003)	ZONE TX04 *(TX20250004)	ZONE TX05 *(TX20250005)	ZONE TX06 *(TX20250006)	ZONE TX07 *(TX20250007)	ZONE TX08 *(TX20250008)	ZONE TX24 *(TX20250024)	ZONE TX25 *(TX20250025)	ZONE TX27 *(TX20250027)	ZONE TX28 *(TX20250028)	ZONE TX29 *(TX20250029)	ZONE TX30 *(TX20250030)	ZONE TX37 *(TX20250037)	ZONE TX38 *(TX20250038)	ZONE TX42 *(TX20250042)
1428	Agricultural Tractor Operator						\$12.69					\$12.35			\$11.75		
1300	Asphalt Distributor Operator	\$14.87	\$13.48	\$13.88	\$15.72	\$15.58	\$15.55	\$15.72	\$13.28	\$15.32	\$15.62	\$14.36	\$14.25	\$14.03	\$13.75	\$14.06	\$14.40
1303	Asphalt Paving Machine Operator	\$13.40	\$12.25	\$12.35	\$13.87	\$14.05	\$14.36	\$14.20	\$13.26	\$13.99	\$14.68	\$12.92	\$13.44	\$12.53	\$14.00	\$14.32	\$12.99
1106	Asphalt Raker	\$12.28	\$10.61	\$12.02	\$14.21	\$11.65	\$12.12	\$11.64	\$11.44	\$12.69	\$12.05	\$11.34	\$11.67	\$11.40	\$12.59	\$12.36	\$11.78
1112	Batching Plant Operator, Asphalt																
1115	Batching Plant Operator, Concrete																
1214	Blaster																
1615	Boom Truck Operator						\$18.36										
1444	Boring Machine Operator																
1305	Broom or Sweeper Operator	\$11.21	\$10.33	\$10.08	\$11.99		\$11.04	\$11.62		\$11.74	\$11.41	\$10.30		\$10.23	\$10.60	\$12.68	\$11.05
1144	Communications Cable Installer																
1124	Concrete Finisher, Paving and Structures	\$13.55	\$12.46	\$13.16	\$12.85	\$12.64	\$12.56	\$12.77	\$12.44	\$14.12	\$13.04	\$13.38	\$12.64	\$12.80	\$12.79	\$12.98	\$13.32
1318	Concrete Pavement Finishing Machine Operator				\$16.05		\$15.48			\$16.05		\$19.31				\$13.07	
1315	Concrete Paving, Curing, Float, Texturing Machine Operator											\$16.34				\$11.71	
1333	Concrete Saw Operator				\$14.67					\$14.48	\$17.33					\$13.99	
1399	Concrete/Gunite Pump Operator																
1344	Crane Operator, hydraulic 60 tons or less				\$18.22		\$18.36			\$18.12	\$18.04	\$20.21			\$18.63	\$13.86	
1345	Crane Operator, Hydraulic Over 80 Tons																
1342	Crane Operator, Lattice Boom 80 Tons or Less	\$16.82	\$14.39	\$13.85	\$17.27		\$15.87			\$17.27		\$14.67			\$16.42	\$14.97	\$13.87
1343	Crane Operator, Lattice Boom Over 80 Tons				\$20.52		\$19.38			\$20.52		\$17.49			\$25.13	\$15.80	
1306	Crawler Tractor Operator	\$13.96	\$16.63	\$13.62	\$14.26		\$15.67			\$14.07	\$13.15	\$13.38			\$14.60	\$13.68	\$13.50
1351	Crusher or Screen Plant Operator																
1446	Directional Drilling Locator						\$11.67										
1445	Directional Drilling Operator				\$20.32		\$17.24										
1139	Electrician	\$20.96		\$19.87	\$19.80		\$26.35		\$20.27	\$19.80		\$20.92				\$27.11	\$19.87
1347	Excavator Operator, 50,000 pounds or less	\$13.46	\$12.56	\$13.67	\$17.19		\$12.88	\$14.38	\$13.49	\$17.19		\$13.88			\$14.09	\$12.71	\$14.42
1348	Excavator Operator, Over 50,000 pounds		\$15.23	\$13.52	\$17.04		\$17.71			\$16.99	\$18.80	\$16.22				\$14.53	\$13.52
1150	Flagger	\$9.30	\$9.10	\$8.50	\$10.28	\$8.81	\$9.45	\$8.70		\$10.06	\$9.71	\$9.03	\$8.81	\$9.08	\$9.90	\$10.33	\$8.10
1151	Form Builder/Setter, Structures	\$13.52	\$12.30	\$13.38	\$12.91	\$12.71	\$12.87	\$12.38	\$12.26	\$13.84	\$12.98	\$13.07	\$13.61	\$12.82	\$14.73	\$12.23	\$12.25
1160	Form Setter, Paving & Curb	\$12.36	\$12.16	\$13.93	\$11.83	\$10.71	\$12.94			\$13.16	\$12.54	\$11.33	\$10.69		\$13.33	\$12.34	\$13.93
1360	Foundation Drill Operator, Crawler Mounted				\$17.99					\$17.99						\$17.43	
1363	Foundation Drill Operator, Truck Mounted		\$16.86	\$22.05	\$21.51		\$16.93			\$21.07	\$20.20	\$20.76		\$17.54	\$21.39	\$15.89	\$22.05
1369	Front End Loader Operator, 3 CY or Less	\$12.28	\$13.49	\$13.40	\$13.85		\$13.04	\$13.15	\$13.29	\$13.69	\$12.64	\$12.89			\$13.51	\$13.32	\$12.17
1372	Front End Loader Operator, Over 3 CY	\$12.77	\$13.69	\$12.33	\$14.96		\$13.21	\$12.86	\$13.57	\$14.72	\$13.75	\$12.32			\$13.19	\$13.17	\$13.02
1329	Joint Sealer																
1172	Laborer, Common	\$10.30	\$9.86	\$10.08	\$10.51	\$10.71	\$10.50	\$10.24	\$10.58	\$10.72	\$10.45	\$10.30	\$10.25	\$10.03	\$10.54	\$11.02	\$10.15
1175	Laborer, Utility	\$11.80	\$11.53	\$12.70	\$12.17	\$11.81	\$12.27	\$12.11	\$11.33	\$12.32	\$11.80	\$11.53	\$11.23	\$11.50	\$11.95	\$11.73	\$12.37
1346	Loader/Backhoe Operator	\$14.18	\$12.77	\$12.97	\$15.68		\$14.12			\$15.18	\$13.58	\$12.87		\$13.21	\$14.13	\$14.29	\$12.90
1187	Mechanic	\$20.14	\$15.47	\$17.47	\$17.74	\$17.00	\$17.10			\$17.68	\$18.94	\$18.58	\$17.00	\$16.61	\$18.46	\$16.96	\$17.47

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1380	Milling Machine Operator Motor Grader Operator,	\$15.54	\$14.64	\$12.22	\$14.29		\$14.18			\$14.32	\$14.35	\$12.86			\$14.75	\$13.53	\$12.80
1390	Fine Grade	\$17.49	\$16.52	\$16.88	\$17.12	\$18.37	\$18.51	\$16.69	\$16.13	\$17.19	\$18.35	\$17.07	\$17.74	\$17.47	\$17.08	\$15.69	\$20.01
1393	Motor Grader Operator, Rough	\$16.15	\$14.62	\$15.83	\$16.20	\$17.07	\$14.63	\$18.50		\$16.02	\$16.44	\$15.12	\$16.85	\$14.47	\$17.39	\$14.23	\$15.53
1413	Off Road Hauler			\$10.08	\$12.26		\$11.88			\$12.25		\$12.23			\$13.00	\$14.60	
1196	Painter, Structures Pavement Marking Machine Operator					\$21.29	\$18.34						\$21.29			\$18.62	
1396		\$16.42		\$13.10	\$13.55		\$19.17	\$12.01		\$13.63	\$14.60	\$13.17		\$16.65	\$10.54	\$11.18	\$13.10
1443	Percussion or Rotary Drill Operator																
1202	Piledriver															\$14.95	
1205	Pipelayer		\$11.87	\$14.64	\$13.17	\$11.17	\$12.79		\$11.37	\$13.24	\$12.66	\$13.24	\$11.17	\$11.67		\$12.12	\$14.64
1384	Reclaimer/Pulverizer Operator	\$12.85			\$11.90		\$12.88			\$11.01		\$10.46					
1500	Reinforcing Steel Worker	\$13.50	\$14.07	\$17.53	\$16.17		\$14.00			\$16.18	\$12.74	\$15.83		\$17.10		\$15.15	\$17.72
1402	Roller Operator, Asphalt	\$10.95		\$11.96	\$13.29		\$12.78	\$11.61		\$13.08	\$12.36	\$11.68			\$11.71	\$11.95	\$11.50
1405	Roller Operator, Other	\$10.36		\$10.44	\$11.82		\$10.50	\$11.64		\$11.51	\$10.59	\$10.30		\$12.04	\$12.85	\$11.57	\$10.66
1411	Scraper Operator	\$10.61	\$11.07	\$10.85	\$12.88		\$12.27		\$11.12	\$12.96	\$11.88	\$12.43		\$11.22	\$13.95	\$13.47	\$10.89
1417	Self-Propelled Hammer Operator																
1194	Servicer	\$13.98	\$12.34	\$14.11	\$14.74		\$14.51	\$15.56	\$13.44	\$14.58	\$14.31	\$13.83		\$12.43	\$13.72	\$13.97	\$14.11
1513	Sign Erector Slurry Seal or Micro-Surfacing Machine Operator																
1708																	
1341	Small Slipform Machine Operator									\$15.96							
1515	Spreader Box Operator	\$12.60		\$13.12	\$14.71		\$14.04			\$14.73	\$13.84	\$13.68		\$13.45	\$11.83	\$13.58	\$14.05
1705	Structural Steel Welder															\$12.85	
1509	Structural Steel Worker						\$19.29									\$14.39	
1339	Subgrade Trimmer																
1143	Telecommunication Technician																
1145	Traffic Signal/Light Pole Worker Trenching Machine Operator,						\$16.00										
1440	Heavy						\$18.48										
1437	Trenching Machine Operator, Light																
1609	Truck Driver Lowboy-Float	\$14.46	\$13.63	\$13.41	\$15.00	\$15.93	\$15.66			\$16.24	\$16.39	\$14.30	\$16.62	\$15.63	\$14.28	\$16.03	\$13.41
1612	Truck Driver Transit-Mix				\$14.14					\$14.14							
1600	Truck Driver, Single Axle Truck Driver, Single or Tandem Axle Dump Truck	\$12.74	\$10.82	\$10.75	\$13.04	\$11.61	\$11.79	\$13.53	\$13.16	\$12.31	\$13.40	\$10.30	\$11.61		\$11.97	\$11.46	\$10.75
1606	Truck Driver, Tandem Axle Tractor with Semi Trailer	\$11.33	\$14.53	\$11.95	\$12.95		\$11.68		\$14.06	\$12.62	\$11.45	\$12.28		\$13.08	\$11.68	\$11.48	\$11.10
1607	Tunneling Machine Operator, Heavy	\$12.49	\$12.12	\$12.50	\$13.42		\$12.81	\$13.16		\$12.86	\$16.22	\$12.50			\$13.80	\$12.27	\$12.50
1441	Tunneling Machine Operator, Light																
1706	Welder		\$14.02		\$14.86		\$15.97		\$13.74	\$14.84					\$13.78		
1520	Work Zone Barricade Servicer	\$10.30	\$12.88	\$11.46	\$11.70	\$11.57	\$11.85	\$10.77		\$11.68	\$12.20	\$11.22	\$11.51	\$12.96	\$10.54	\$11.67	\$11.76

Notes:

*Represents the USDOL wage decision.

Any worker employed on this project shall be paid at the rate of one and one half (1-1/2) times the regular rate for every hour worked in excess of forty (40) hours per week.

For reference, the titles and descriptions for the classifications listed here are detailed further in the AGC of Texas' *Standard Job Classifications and Descriptions for Highway, Heavy, Utilities, and Industrial Construction in Texas* posted on the AGC's Web site for any contractor.

**TEXAS COUNTIES IDENTIFIED BY
WAGE RATE ZONES: 2, 3, 4, 5, 6, 7, 8, 24, 25, 27, 28, 29, 30, 37, 38, 42**

County Name	Zone	County Name	Zone	County Name	Zone	County Name	Zone
Anderson	28	Donley	37	Karnes	27	Reagan	37
Andrews	37	Duval	30	Kaufman	25	Real	37
Angelina	28	Eastland	37	Kendall	7	Red River	28
Aransas	29	Ector	2	Kenedy	30	Reeves	8
Archer	25	Edwards	8	Kent	37	Refugio	27
Armstrong	2	El Paso	24	Kerr	27	Roberts	37
Atascosa	7	Ellis	25	Kimble	37	Robertson	7
Austin	38	Erath	28	King	37	Rockwall	25
Bailey	37	Falls	28	Kinney	8	Runnels	37
Bandera	7	Fannin	28	Kleberg	27	Rusk	4
Bastrop	7	Fayette	27	Knox	37	Sabine	28
Baylor	37	Fisher	37	Lamar	28	San Augustine	28
Bee	27	Floyd	37	Lamb	37	San Jacinto	38
Bell	7	Foard	37	Lampasas	7	San Patricio	29
Bexar	7	Fort Bend	38	LaSalle	30	San Saba	37
Blanco	27	Franklin	28	Lavaca	27	Schleicher	37
Borden	37	Freestone	28	Lee	27	Scurry	37
Bosque	28	Frio	27	Leon	28	Shackelford	37
Bowie	4	Gaines	37	Liberty	38	Shelby	28
Brazoria	38	Galveston	38	Limestone	28	Sherman	37
Brazos	7	Garza	37	Lipscomb	37	Smith	4
Brewster	8	Gillespie	27	Live Oak	27	Somervell	28
Briscoe	37	Glasscock	37	Llano	27	Starr	30
Brooks	30	Goliad	29	Loving	37	Stephens	37
Brown	37	Gonzales	27	Lubbock	2	Sterling	37
Burleson	7	Gray	37	Lynn	37	Stonewall	37
Burnet	27	Grayson	25	Madison	28	Sutton	8
Caldwell	7	Gregg	4	Marion	28	Swisher	37
Calhoun	29	Grimes	28	Martin	37	Tarrant	25
Callahan	25	Guadalupe	7	Mason	27	Taylor	2
Cameron	3	Hale	37	Matagorda	27	Terrell	8
Camp	28	Hall	37	Maverick	30	Terry	37
Carson	2	Hamilton	28	McCulloch	37	Throckmorton	37
Cass	28	Hansford	37	McLennan	7	Titus	28
Castro	37	Hardeman	37	McMullen	30	Tom Green	2
Chambers	38	Hardin	38	Medina	7	Travis	7
Cherokee	28	Harris	38	Menard	37	Trinity	28
Childress	37	Harrison	42	Midland	2	Tyler	28
Clay	25	Hartley	37	Milam	28	Upshur	4
Cochran	37	Haskell	37	Mills	37	Upton	37
Coke	37	Hays	7	Mitchell	37	Uvalde	30
Coleman	37	Hemphill	37	Montague	37	Val Verde	8
Collin	25	Henderson	28	Montgomery	38	Van Zandt	28
Collingsworth	37	Hidalgo	3	Moore	37	Victoria	6
Colorado	27	Hill	28	Morris	28	Walker	28
Comal	7	Hockley	37	Motley	37	Waller	38
Comanche	37	Hood	28	Nacogdoches	28	Ward	37
Concho	37	Hopkins	28	Navarro	28	Washington	28
Cooke	37	Houston	28	Newton	28	Webb	3
Coryell	7	Howard	37	Nolan	37	Wharton	27
Cottle	37	Hudspeth	8	Nueces	29	Wheeler	37
Crane	37	Hunt	25	Ochiltree	37	Wichita	5
Crockett	8	Hutchinson	37	Oldham	37	Wilbarger	37
Crosby	2	Irion	2	Orange	38	Willacy	30
Culberson	8	Jack	28	Palo Pinto	28	Williamson	7
Dallam	37	Jackson	27	Panola	28	Wilson	7
Dallas	25	Jasper	28	Parker	25	Winkler	37
Dawson	37	Jeff Davis	8	Parmer	37	Wise	25
Deaf Smith	37	Jefferson	38	Pecos	8	Wood	28
Delta	25	Jim Hogg	30	Polk	28	Yoakum	37
Denton	25	Jim Wells	27	Potter	2	Young	37
DeWitt	27	Johnson	25	Presidio	8	Zapata	30
Dickens	37	Jones	25	Rains	28	Zavala	30
Dimmit	30			Randall	2		



April 9, 2025

KPA Engineers
19 North Main Street
Temple, Texas 76501

Attention: Mr. John Simcik, P.E., CFM
Principal

Regarding: Geotechnical Pavement Report
Wheeler and La Clede Streets Intersection
Bellmead, Texas
LE Report No. W25-017

Dear Mr. Simcik:

This letter transmits our report for the referenced project. It has been electronically produced. We appreciate the opportunity to provide geotechnical engineering services for you.

Once the project plans and specifications are completed, we would be pleased to review those portions that pertain to this report. We would also appreciate the chance to provide construction phase services such as materials testing as a part of the success of the project.

If you have any questions regarding our report, please call me at (254) 235-1048 or email me at JElmshaeuser@LFEctx.com.

Regards,

LANGERMAN ENGINEERING

Texas Registered Engineering Firm No. F-13144

A handwritten signature in black ink that reads 'Jakob S. Elmshaeuser'.

Jakob S. Elmshaeuser
Graduate Engineer

Distribution List:

- KPA Engineers – Mr. John Simcik, P.E. (JSimcik@KPAEngineers.com)

GEOTECHNICAL PAVEMENT REPORT
Wheeler and La Clede Streets Intersection
Bellmead, Texas

LE Project No. W25-017



Report Prepared For:

KPA Engineers
Temple, Texas

Report Prepared By:

Jakob S. Elmshaeuser
Graduate Engineer



April 9, 2025

Report Reviewed By:

Scott M. Langerman, P.E.
Principal / Geotechnical Engineer



2000 S. 15th Street, Waco, Texas 76706
Ph: 254/235-1048 LFEctx.com

GEOTECHNICAL PAVEMENT REPORT WHEELER AND LA CLEDE STREETS INTERSECTION CLIFTON, TEXAS

1.0 INTRODUCTION

Purpose: The purpose of this geotechnical report is to provide recommendations for rehabilitation of an existing intersection located in Bellmead. Geotechnical data and recommendations are provided in a brief, and hopefully user-friendly manner.

Authorization: Services were performed in general accordance with LE Proposal No. GEO25-027, dated March 5, 2025. Authorization to proceed was provided by Mr. John Simcik, P.E., on March 17, 2025.

2.0 SUBSURFACE EXPLORATION

Drilling Date: March 26, 2025

Boring Layout: The borings were marked in the field by LE personnel based on information provided by KPA Engineers. Plates 1 and 2 show the approximate boring locations.

If precise location and elevation data are desired, then a registered professional land surveyor should be retained to locate the borings and determine the ground surface elevations.

Sampling Methods: Prior to drilling, the pavement was cored using an 8-inch core barrel. Pictures of the cores are shown in Section 3 of this report. A drill rig was then used to sample below the pavement. Sampling was performed using a push-tube for the cohesive soils, and with a split-spoon sampler in less cohesive soils. The split spoon sampler was used in conjunction with standard penetration tests, and N-Values were recorded on the boring logs.

3.0 LABORATORY TESTS

Cores: Cores were taken at boring locations to assess the existing pavement structure. Photographs of the cores are shown below.

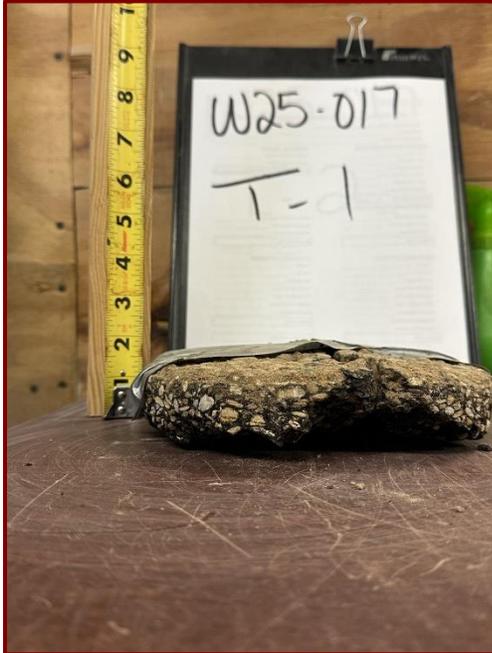


Photo 1: T-1 Core

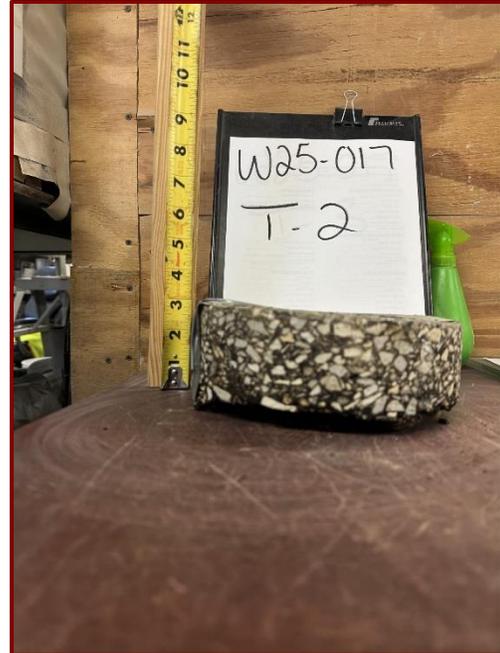


Photo 2: T-2 Core

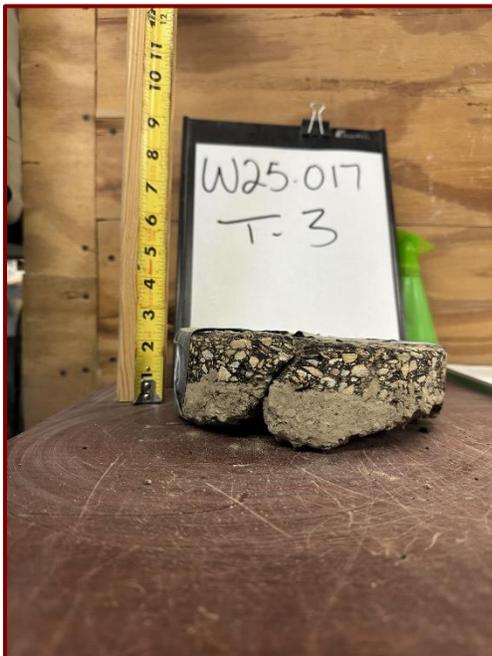


Photo 3: T-3 Core

Test Procedures: The following tests were conducted in general conformance with the standards noted in Table 3.1.

TABLE 3.1: LABORATORY TESTS	
<i>Test Name</i>	<i>Test Method</i>
Atterberg Limits	ASTM D 4318
-#200 Mesh Sieve	ASTM D 1140
Moisture Content	ASTM D 2216
Soil Classification	ASTM D 2487
Unconfined Compression (soil)	ASTM D 2166

Test Results: Laboratory test results are shown on Plate 3 in the Appendix, and selected test results on the boring logs.

4.0 SUBSURFACE MATERIALS

Stratigraphy: Major strata types for the borings are listed in Table 4.1. Individual boring logs are contained in the Appendix. Material descriptions are general and range of depths approximate because boundaries between different strata are seldom clear and abrupt in the field.

TABLE 4.1: MAJOR STRATA TYPES			
<i>Strata</i>	<i>Depth to Top of Strata (ft)</i>	<i>Depth to Base of Strata (ft)</i>	<i>General Description</i>
I	0	1	1" to 2" Asphalt over 10" to 11" Clayey Gravel and Gravel; dark brown, brown, and light brown, with sand
II	1	6	FAT CLAY and SANDY LEAN CLAY; dark brown, brown, light brown, reddish brown, and light gray, with iron oxide stains and calcareous nodules
Strata changes are approximate, and in-situ transitions are usually gradual.			

Geology: Based on the available geologic map¹ of the area, and the contents of the borings, the site is located within the *Terrace Deposits* overlying the primary *Taylor Formation*.

Terrace Deposits are derived from ancient meandering paths and flood events of the Brazos River. The deposits vary both horizontally and vertically in content and engineering properties, but generally consist of interbedded layers of clay, sand, and gravel. From a geologic perspective, *Terrace Deposits* are considered recent.

The underlying *Taylor Formation* consists of montmorillonitic clays that were deposited in a shallow marine environment, and have a maximum thickness of about 500 to 775 feet in the Central Texas area. After deposition, the clays consolidated to form a weak rock-like shale material when sufficient amounts of calcium carbonate were present as a cementing agent. This soft rock-like material is usually gray to dark gray in the unweathered state. Subsequent weathering over a period of at least 60 million years has produced tan to dark gray weathered shale.

TABLE 4.1: EXISTING PAVEMENT THICKNESS MEASUREMENTS			
<i>Boring No.</i>	<i>Total Pavement Thickness (in)</i>	<i>Depth of Asphalt (in)</i>	<i>Base Thickness (in) and Base Description</i>
B-1	12	1	11 – Gravel, with sand
B-2	12	2	10 – Gravel, with sand
B-3	12	2	10 - Clayey Gravel, with sand
Note: Asphalt and base thicknesses are approximate and rounded to the nearest 0.5 inch due to the small diameter of the boreholes.			

Groundwater: The borings were each drilled to a depth of 6 feet using dry drilling methods meaning that water was not used in the drilling process. Groundwater was not observed in the borings.

Although groundwater was not encountered in the borings during our field exploration, transient groundwater is common in this area, and may be present during construction. The water tends to percolate down through the surficial soils until encountering a relatively impervious layer, and then either flow down gradient or become trapped.

The water observations conducted for this investigation are short-term and should not be interpreted as a groundwater study. However, the presence of groundwater may affect construction and long-term performance of the proposed pavements.

If groundwater is encountered during construction, then we must be contacted to evaluate whether more subsurface drain systems or other improvements are needed.

5.0 PAVEMENT RECOMMENDATIONS

General: The project consists of rehabilitation of an existing intersection. We understand that a deep mill and overlay, up to 6 inches, with spot subgrade repairs or cement stabilization with an overlay is planned.

Risk: Pavement design methods are intended to provide an adequate thickness of structural materials over the subgrade to support the wheel loads. Design methods do not account for shrink and swell movements of expansive clays, nor do design methods account for settlement of randomly placed fill materials. *The pavement may be adequate from a structural standpoint, yet still experience cracking due to shrink/swell movement of the subgrade.* It is critical to minimize moisture changes in the subgrade to reduce shrink/swell movements.

The pavement and adjacent areas must be well drained, and positive drainage should be obvious to the casual observer. Proper maintenance must be performed on cracks in the pavement surface to prevent water passing through to the base or subbase material. Extending the base material out about 2 feet (where practical) from the edge of the pavement curb will also aid in reducing edge related cracking. Even with these precautions, some movements and related cracking may still occur. Routine maintenance is essential.

Pavement “islands” often provide a means of water infiltration into the base and subgrade materials below the pavement. If islands are used, then we recommend that a synthetic lining or clay soils be used to limit infiltration of water into the base and subgrade. Water entry into the base and subgrade will cause softening of the materials, and will cause potholes and/or ruts to form.

The presence of trees and vegetation adjacent to paved areas can exacerbate the formation of cracks in pavements due to moisture loss in the subgrade from transpiration to the root systems of the vegetation. Soil moisture loss from vegetation can extend a distance from the vegetation about equal to its height.

Mill and Overlay: We understand that a deep mill and overlay, up to 6 inches, is desired to the extent practical. After the pavement section is milled, 2 inches of DG-C over DG-B asphalt will be placed. Associated ESALs values for the mill and overlay are provided in Table 5.3. After milling, repairs must be made where failures are observed on the exposed pavement surface before the overlay is installed.

Reclamation: The process of reclamation includes using existing pulverized pavement materials mixed with cement to create a field-mixed cement treated recycled base (CTRB). This method has many benefits such as reduced wasting and importing. Reclamation requires a pavement section with at least 6-inches of total pavement thickness, including asphalt and base materials. Recommendations for reclamation are included Table 5.3.

Reconstruction: If it is determined that mill and overlay and reclamation are not viable options for the intersection, reconstruction is an available option. Contact us for additional recommendations if reconstruction is desired.

Traffic Loads: We anticipate that traffic will consist of light vehicles and occasional medium duty vehicles, such as delivery trucks. Heavy vehicles, such as semi-trucks and garbage trucks, will be infrequent.

Because exact traffic data were not available for this project, we have made assumptions based on past experience and traffic criteria used for other projects. These estimates should be reviewed by the design team because the traffic information has an impact on the pavement thickness and future performance.

TABLE 5.1: TRAFFIC ESTIMATES			
Traffic Area	Typical Traffic	ESAL's	Reference Table
Local Streets Light Duty	Light cars and pickups, occasional medium delivery trucks, rare heavy vehicles, similar to a low volume residential street	20,000	Table 5.2A
Mill and Overlay	Light cars and pickups, occasional medium delivery trucks, rare heavy vehicles	48,000	Table 5.2B
Collector Medium Duty	Light cars and trucks, few heavy vehicles, similar to a moderate volume residential street	60,000	Table 5.2C
Collector Heavy Duty	Delivery Trucks, Trash Trucks, and Buses	100,000	Table 5.2D

TABLE 5.2A: ESTIMATED TRAFFIC CHARACTERISTICS (20,000 ESAL'S – LOCAL STREETS)		
<i>Vehicle Type</i>	<i>Gross Vehicle Weight (lbs)</i>	<i>Vehicles per Day (per lane)</i>
Cars / Pickups	4,000	2,000
Medium Delivery Trucks	20,000	10
Heavy Trucks	60,000 to 80,000	1 per week

TABLE 5.2B: ESTIMATED TRAFFIC CHARACTERISTICS (48,000 ESAL'S – MILL & OVERLAY)		
<i>Vehicle Type</i>	<i>Gross Vehicle Weight (lbs)</i>	<i>Vehicles per Day (per lane)</i>
Cars / Pickups	4,000	2,000
Medium Delivery Trucks	20,000	15
Heavy Trucks	60,000 to 80,000	1

TABLE 5.2C: ESTIMATED TRAFFIC CHARACTERISTICS (60,000 ESAL'S – MEDIUM DUTY, COLLECTOR)		
<i>Vehicle Type</i>	<i>Gross Vehicle Weight (lbs)</i>	<i>Vehicles per Day (per lane)</i>
Cars / Pickups	4,000	2,000
Medium Delivery Trucks	20,000	20
Heavy Trucks	60,000 to 80,000	1

TABLE 5.2D: ESTIMATED TRAFFIC CHARACTERISTICS (100,000 ESAL'S – HEAVY DUTY, COLLECTOR)		
<i>Vehicle Type</i>	<i>Gross Vehicle Weight (lbs)</i>	<i>Vehicles per Day (per lane)</i>
Cars / Pickups	4,000	2,000
Medium Delivery Trucks	20,000	22
Heavy Trucks	60,000 to 80,000	4

Subgrade: Subgrade materials (below the existing asphalt and base) consist primarily of clay. Based on correlations between soil index properties and pavement strength parameters, a resilient modulus (M_r) of 3,200 psi was assigned. This assumes that any soft or weak subgrade areas are re-worked or replaced with better material.

Design Method: AASHTO and American Concrete Institute guidelines.

Thickness: Pavement thickness designs are provided in Tables 5.3. A reliability value of 80 percent was assigned to the pavement that corresponds to occasional interruption of traffic for pavement repairs. These designs reflect a theoretical "design Life" of 20 years.

The "design life" of a pavement is defined as the expected life at the end of which reconstruction of the pavement will need to occur. Normal maintenance, including crack sealing, slurry sealing, and/or chip sealing, should be performed during the life of the pavement.

TABLE 5.3: PAVEMENT THICKNESS OPTIONS

<i>Design Condition</i>	<i>Option</i>	<i>Surface Course</i>	<i>Base Course</i>	<i>Calculated ESALs</i>
Local Streets Light Duty 20,000 ESAL	1- Asphalt	2" DG-C or DG-D	7" CTRB ⁽¹⁾	23,000
	2- Asphalt	2.5" DG-C or DG-D	6" CTRB ⁽¹⁾	23,000
Mill and Overlay 48,000 ESAL	1- Asphalt*	2" DG-C over 4" DG-B	Prepared Subgrade ⁽²⁾	48,000
Collector Medium Duty 60,000 ESAL	1- Asphalt	2.5" DG-C or DG-D	8" CTRB ⁽¹⁾	67,500
	2- Asphalt	3" DG-C or DG-D	7" CTRB ⁽¹⁾	69,000
Collector Heavy Duty 100,000 ESAL	1- Asphalt	3" DG-C or DG-D	8" CTRB ⁽¹⁾	111,000

DG-B, DG-C, or DG-D... Hot Mix Asphalt Concrete, TxDOT Item 341
 CTRB... Cement Treated Recycled Base

⁽¹⁾Low to Moderate risk of cracking due to expansive soils and random settlement

⁽²⁾Moderate to High risk of cracking due to expansive soils

*Any areas of soft subgrade must be addressed before the first lift of HMAC is placed. See Site Preparation and Subgrade Improvement sections on the following pages.

Site Preparation: Surficial vegetation, trees, root systems, weak soils, and all underground structures (to the extent practical) must be removed below the new pavement areas. The stripping depth must be based on field observations with attention given to old drainage areas, uneven topography, and wet soils. Proof-rolling should be used to detect soft spots or pumping subgrade areas. Proof-rolling should be performed using a heavy pneumatic tired roller, loaded dump truck, or similar piece of equipment weighing at least 25 tons.

CTRB: Cement Treated Recycled Base (CTRB) is essentially weak concrete. It offers relatively high strength, and generally performs better than other base materials such as crushed limestone when exposed to water. Ideally, the thickness of the existing base material should be equal or greater to the recommended lift of CTRB.

The existing asphalt and base/fill section was 12 inches in the borings. In the event that the existing pavement is less than the recommended CTRB thickness, CTRB can still be used, provided that either additional base material is imported or a higher percentage of cement is used to account for the increased fines content from using some subgrade materials in the CTRB.

Langerman Engineering will need to work with the contractor to make sure that appropriate mixtures of CTRB are constructed.

For streets that are rehabilitated in-place, we recommend at least 6% cement for planning purposes. Laboratory tests must be conducted to determine the appropriate amount of cement for the soils actually encountered to meet a target strength of about 250 to 500 psi.

Tables 5.4 contains the approximate weights of cement to add per square yard for the various thicknesses of CTRB at 6 percent cement.

TABLE 5.4: CEMENT WEIGHTS AT 6 PERCENT	
<i>Thickness of CTRB (inches)</i>	<i>Lbs. Cement per Square Yard at 6%</i>
6	33
7	38
8	44
Note: The above weights are for planning purposes. Laboratory tests must be conducted to determine the appropriate amount of cement for the soils actually encountered to meet a target strength of about 250 to 500 psi.	

Although the use of cement in the base material produces a material of superior structural performance as compared to untreated base material, the addition of cement also produces a material subject to shrinkage and cracking as the base matures. These cracks will propagate to the surface of asphalt pavements and will require cracking sealing, possibly soon after completion of the pavement installation.

One method to reduce reflective cracking is a procedure termed “pre-cracking” in accordance with TxDOT Item 275.4.7. The concept of pre-cracking is to induce multiple microcracks instead of occasional transverse cracks. After placement and compaction, the CTRB must be kept continuously moist for 24 to 48 hours. The pre-cracks are created within one or two days after construction using a 10- to 12-ton vibratory roller with the vibrator set on the maximum amplitude and traveling at a speed of about 2 mph. Usually, two vibratory rolling passes are sufficient to generate the microcracks. *Do not make more than 2 passes to avoid damaging the CTRB.*

Imported materials may be added to existing pavement materials to create CTRB. In general, pit run sands/gravels with low percentages of fines are preferred. Sources and materials will need to be evaluated on a case-by-case basis.

Recycling: The following steps summarize the procedures provided in TxDOT Item 275.4 and apply to recycling of the existing base with the addition of Portland cement.

Step 1- Scarification and Pulverization: The existing pavement should be scarified (ripped) before it can be pulverized. The depth of pulverization should correspond to the desired base thickness shown in Table 5.3. The particle distribution should have 100% smaller than 2 inch and 55% passing a No. 4 sieve. More than one pass with the pulverizing equipment may be needed.

Step 2- Shaping and Grading: The pulverized materials must be shaped to the desired cross-section and grade. This process may involve additional earthwork, including the addition or removal of material.

Step 3- Add Cement: Portland cement should be spread in a measured amount on the surface of the pulverized material in slurry form. The amount of cement applied to the recycled pulverized material is critical in this process, and approximate weights are shown in Table 5.4.

Step 4- Water Application: Water must be added to bring the aggregate-cement mixture to optimum moisture content. Adding too much moisture will be detrimental to the pavement performance, and should be avoided.

Step 5- Mixing: The mixture must be combined and blended using a pulverizing/mixing machine. Multiple passes of the mixer may be required to achieve a uniform blend of materials. Proper mixing and blending are critical in this process.

Step 6- Compaction: Compaction is usually performed with a smooth-drum vibratory roller. A pneumatic-tired roller may follow to finish the surface. Final compaction should take place no more than 3 hours past initial mixing of the cement. The mixture should be compacted to at least 95% of standard Proctor (ASTM D698) at optimum moisture or higher. Depending on the uniformity of the mixture across the site, the density requirement may be waived.

Step 7- Curing: The surface must be kept moist by periodically applying water to the surface to avoid drying. This should be performed continuously for the first 24 hours. The prime coat should be applied as soon as possible thereafter to better seal the moisture inside the base.

Subgrade
Improvement:

Some of the onsite soils are subject to instability, especially in the presence of water. When unstable or pumping soils are encountered during construction, then clean stone may be used to improve the subgrade. Clean crushed stone should be placed to create a firm working surface where needed and/or specified. We expect that a layer of about 6 to 8 inches in thickness will be needed if soft and/or wet subgrade conditions are present, but field conditions may dictate an increased thickness. If more than about 10 inches is used, then a filter fabric should be placed on top of the stone to prevent migration of fines.

The crushed stone must be clean and should generally range in size from 3 to 6 inches. Compaction specifications do not apply; however, the stone should be placed in such a manner that will stabilize the subgrade. This type of clean stone is normally used to stabilize construction entrances and should be readily available.

Be aware that utilities and other features that require trenching will be difficult to install if the trenches extend into clean stone.

Specifications: Pavement specifications. The TxDOT citations below reference the 2024 Edition unless stated otherwise.

1. Hot Mix Asphalt Concrete (HMAC): TxDOT Item 341, DG-B, DG-C, or DG-D.
2. Cement Treated Recycled Base (CTRB): TxDOT Item 275. Consists of a mixture of recycled asphalt/base/fill and Portland cement. Use the approximate weights of cement listed in Table 5.4 of this report for planning purposes. A target compressive strength of about 250 to 500 psi is desired, although variations will occur due to the mixed nature of the base materials. **Trial mixtures will be needed to assess the appropriate percentage of cement to add.** During field placement, strength samples should be taken twice per day.
3. Subgrade: For roads that will be completely reconstructed, if the subgrade is exposed, scarify and re-compact the existing subgrade (and/or existing base), where practical, to at least 95% of ASTM D698 (or TEX-113-E) maximum dry density at a moisture content range of 0% to +3% of optimum moisture content. Each section of the road should be proof-rolled, and any soft, weak, or otherwise problematic material should be either re-worked or replaced with better material.
4. Pavement Transitions: Transitions from an asphalt pavement to a rigid pavement are often problematic in that over time a depression usually forms in the asphalt at the joint. This is caused when vehicle tires pass from the rigid concrete pavement to the flexible asphalt pavement. One method to reduce this effect is to continue a “lip” of concrete under the asphalt.
5. Drainage: The pavement must have positive drainage, and water must not pond in areas directly adjoining paved sections. Excess watering with sprinkler systems near the pavement should be avoided.

6.0 DESIGN REVIEW AND LIMITATIONS

Design Review: The recommendations contained in this report were based on preliminary site plans and design information provided by the Client. Our recommendations may not be applicable if changes have been made to the original information that formed the basis for this report, and we must be retained to determine if changes have been made. We also must be given the opportunity to review construction documents to affirm that our recommendations have been interpreted correctly. We cannot be responsible for misinterpretations if not given the opportunity to review aspects of the project that are based on the contents of this report. A review is considered an additional service.

Limitations: This report has been prepared for the exclusive use of our client and their designated project design team. Preparation of the report has been performed using that degree of care and skill ordinarily exercised under similar conditions by reputable geotechnical engineers practicing in the same locality. No warranties, express or implied, are intended or made.

As stated in the attachment “Important Information about Your Geotechnical Engineering Report”, the subsurface conditions are interpreted from samples taken only at the boring locations. During construction, variations will be encountered, and will require interpretation by LE to verify the adequacy of the geotechnical recommendations. Other concerns and limitations are discussed in the attachment.

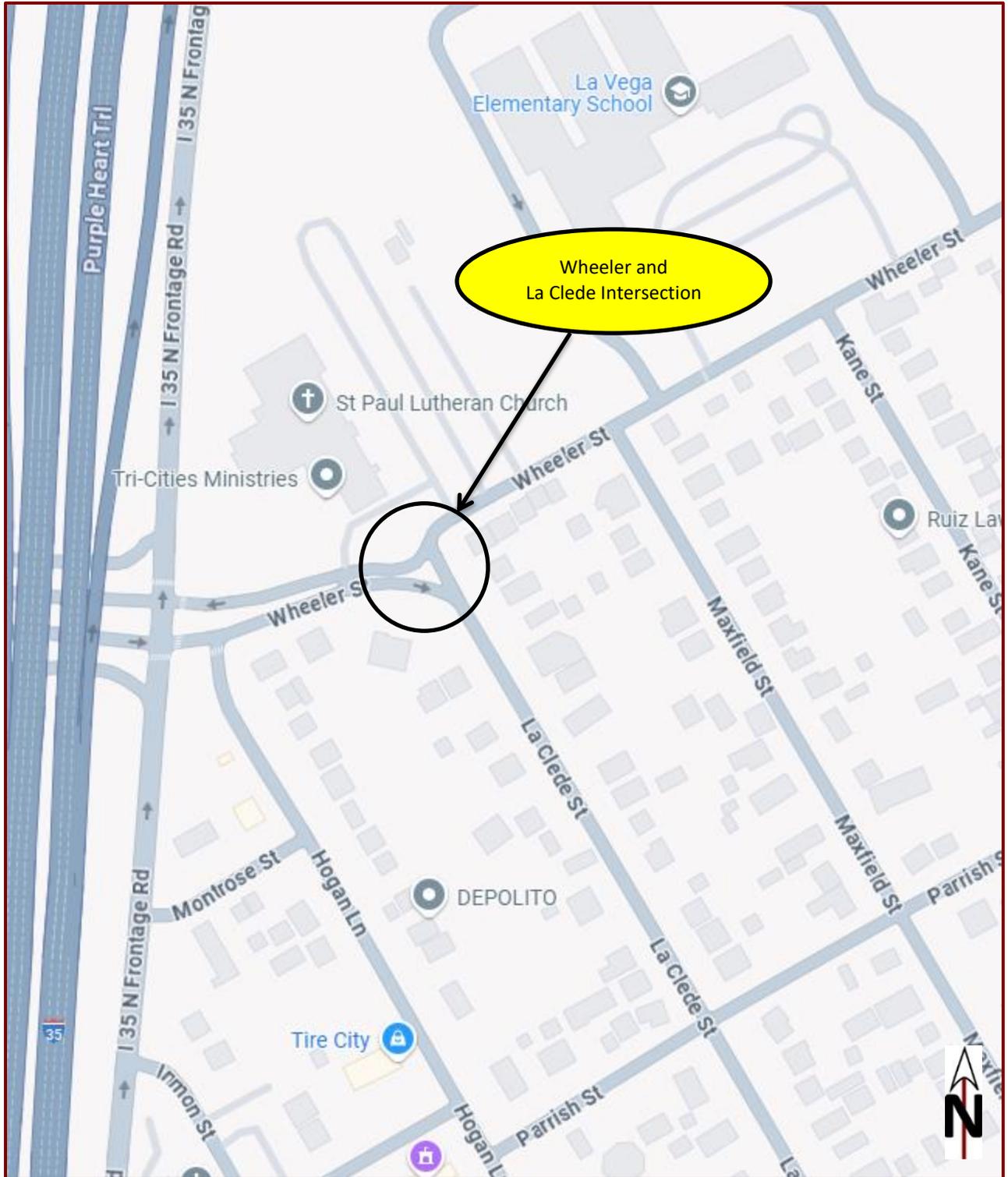
This investigation did not include environmental testing or evaluations, and does not address whether landfilling operations, as defined by the State of Texas, have occurred on the property. An environmental professional should be retained to address environmental issues.

7.0 REFERENCES

¹ Virgil E. Barnes, Project Director, Geologic Atlas of Texas, Waco Sheet, The University of Texas at Austin Bureau of Economic Geology, 1970.

8.0 APPENDIX

- Site Location Map
- Boring Location Sketch
- Laboratory Test Results
- Boring Logs
- Important Information about Your Geotechnical Engineering Report



SITE LOCATION MAP

WHEELER AND LA CLEDE STREETS INTERSECTION
BELLMEAD, TEXAS
LE PROJECT NO. W25-017

PLATE

1



**LANGERMAN
ENGINEERING**

BORING LOCATION MAP

WHEELER AND LA CLEDE STREETS INTERSECTION
BELLMEAD, TEXAS
LE PROJECT NO. W25-017

PLATE

2

Boring No.	Sample Depth (ft.)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Moisture Content (%)	Unit Dry Weight (pcf)	Unconfined Compressive Strength (tsf)	Strain at Failure (%)
T-1	0.1 - 1.0				1	5			
T-1	2.0 - 4.0	51	17	34	88	21			
T-1	4.0 - 6.0					20	107.2	1.3	9.8
T-2	0.2 - 1.0				0	7			
T-2	1.0 - 2.0	64	20	44	87	24			
T-2	2.0 - 4.0					22	103.8	2.0	8.8
T-3	0.2 - 1.0				18	6			
T-3	1.0 - 2.0	35	16	19	69	22			
T-3	3.5 - 5.0	50	17	33	91	18			



**LANGERMAN
ENGINEERING**

Summary of Laboratory Results

Project: Wheeler and La Clede Streets Intersection
Project Number: W25-017



Langerman Engineering
 Waco and Harker Heights (Killeen), Texas
 Ph: 254-235-1048 www.LFECTX.com

BORING NO. T-1

PAGE 1 OF 1

CLIENT KPA Engineers **PROJECT NAME** Wheeler and La Clede Streets Intersection
PROJECT NUMBER W25-017 **PROJECT LOCATION** Bellmead, TX

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	DCP BLOW COUNTS	POCKET PEN. (tsf)	ATTERBERG LIMITS			FINES CONTENT (%)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	STRAIN AT FAILURE (%)
							LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX					
0.0		1" Asphalt over 11" Gravel; brown, with sand	A											
		FAT CLAY; light brown, with iron oxide stains	A						1	5				
		--- dark gray and dark brown below 2 feet	ST			4.0								
2.5			ST			4.5	51	17	34	88	21			
5.0			ST			2.0					20	107	1.3	9.8

LANGERMAN FOSTER - NO ELEVATION - GINT STD US LAB.GDT - 4/9/25 13:40 - Z:\GINT PROJECTS\W25-017 - WHEELER AND LA CLEDE STREETS.GPJ

Completion Depth: 6 ft.
Date Started: 3/26/25
Completed: 3/26/25
Logged by: T. Skains

Remarks: Boring was advanced to a depth of 6 feet using dry drilling techniques. Groundwater was not observed above that depth.



Langerman Engineering
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BORING NO. T-2

PAGE 1 OF 1

CLIENT KPA Engineers PROJECT NAME Wheeler and La Clede Streets Intersection
 PROJECT NUMBER W25-017 PROJECT LOCATION Bellmead, TX

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	DCP BLOW COUNTS	POCKET PEN. (tsf)	ATTERBERG LIMITS			FINES CONTENT (%)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	STRAIN AT FAILURE (%)
							LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX					
0.0		2" Asphalt over 10" Gravel; dark brown, with sand	A											
		A							0	7				
		FAT CLAY; brown, with iron oxide stains	ST			3.5	64	20	44	87	24			
2.5		ST			3.0					22	104	2.0	8.8	
5.0		ST			4.5									

LANGERMAN FOSTER - NO ELEVATION - GINT STD US LAB.GDT - 4/9/25 13:40 - Z:\GINT PROJECTS\W25-017 - WHEELER AND LA CLEDE STREETS.GPJ

Completion Depth: 6 ft.
 Date Started: 3/26/25
 Completed: 3/26/25
 Logged by: T. Skains

Remarks: Boring was advanced to a depth of 6 feet using dry drilling techniques. Groundwater was not observed above that depth.



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CLIENT KPA Engineers **PROJECT NAME** Wheeler and La Clede Streets Intersection
PROJECT NUMBER W25-017 **PROJECT LOCATION** Bellmead, TX

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	DCP BLOW COUNTS	POCKET PEN. (tsf)	ATTERBERG LIMITS			FINES CONTENT (%)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	STRAIN AT FAILURE (%)
							LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX					
0.0		2" Asphalt over 10" Clayey Gravel; light brown, with sand	A											
			A							18	6			
		SANDY LEAN CLAY; brown, with iron oxide stains and calcareous nodules	ST			2.0	35	16	19	69	22			
2.5			SS		3-2-4 (6)									
		FAT CLAY; reddish brown, with calcareous nodules	SS				50	17	33	91	18			
5.0			SS		3-4-8 (12)									

LANGERMAN FOSTER - NO ELEVATION - GINT STD US LAB.GDT - 4/9/25 13:40 - Z:\GINT PROJECTS\W25-017, WHEELER AND LA CLEDE STREETS.GPJ

Completion Depth: 5 ft.
Date Started: 3/26/25
Completed: 3/26/25
Logged by: T. Skains

Remarks: Boring was advanced to a depth of 5 feet using dry drilling techniques. Groundwater was not observed above that depth.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* **Confront the risk of moisture infiltration** by including building-envelope or mold specialists on the design team. **Geotechnical engineers are not building-envelope or mold specialists.**



Telephone: 301/565-2733

e-mail: info@geoprofessional.org www.geoprofessional.org

PRE-BID CONFERENCE

WHEELER / LACLEDE INTERSECTION IMPROVEMENTS
CITY OF BELLMEAD

May 6, 2025

	NAME	ORGANIZATION	PHONE	EMAIL
1	John Simcik, PE	KPA Engineers	254-773-3731	jsimcik@kpaengineers.com
2	Craig Rice	Bellmead	254-799-5829	crice@bellmeadtx.gov
3	Todd Gerjets	TX Materials	267-718-9253	todd.gerjets@texasmaterials.com
4	Brandon Powell	JH Contracting LLC	254-722-1824	BRANDON@JHContractingLLC.NET
5	Colin Wood	Bellmead	903-390-6955	awood@bellmeadtx.gov
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Wheeler / LaCleda Intersection Improvements

ADDENDUM NO. 1

May 14, 2025

The construction plans, specifications and contract documents for the Wheeler / LaCleda Intersection Improvements Project in Bellmead, Texas on which bids are scheduled to be received until 2:00 p.m. on Tuesday, May 20, 2025, are hereby modified:

A Non-Mandatory Pre-Bid Conference was held on Tuesday, May 6, 2025; 9:00 AM at Bellmead City Hall. A copy of the sign-in sheet is attached to this addendum.

I. GENERAL

- A. A copy of the Bid Form is attached to this Addendum in PDF and Excel formats. Bidders shall submit their bid using the revised Bid Form.
- B. A copy of the current Plan Holders List is attached this Addendum.
- C. The City of Bellmead reserves the right to eliminate a portion of the work or add additional work as required to keep the total contract amount within the funds budgeted. The City also has the right to award any parts or combinations of parts of the project it deems necessary. Low bidder shall be established by the sum of the combination of parts chosen by the City.
- D. Working hours are Monday through Friday, 7am-6pm. Work outside of these hours and work on weekends may only be done after requesting and receiving approval from the City of Bellmead.
- E. The Opinion of Probable Construction Cost for this project is \$175,000 for the Base Bid and \$2,700 for Add Alternate 1.
- F. Refer to Page 91 of the Bid Manual. Replace the language of Section 1.26.3 with the following: **'1.26.3. "UMBRELLA" EXCESS LIABILITY INSURANCE:** Contractor shall obtain, pay for and maintain this policy during the Contract term insuring Contractor for an amount of not less than \$1,000,000 combined single limit bodily injury and property damage liability insurance, including death in excess of the primary coverage required hereinabove, with Owner named as an additional insured. Instead of the above mentioned "umbrella" excess liability insurance, Contractor may obtain, as an alternative, minimum combined single limits of \$1,000,000 instead of \$500,000 under the insurance requirements of paragraphs 1.26. 1(b) and 1.26.2 above.'
- G. The warranty period for this project is for a period of one (1) year from the date of final completion/acceptance of the project.

- H. Liquidated damages are based on the awarded contract amount and are listed in a table found in Item 1.36.1 of the General Provisions.

II. BID FORM

- A. The use of electronic bid forms by Contractors will be allowed by the Owner and is attached to this Addendum. The Owner and Engineer do not guarantee the accuracy of these electronic bid forms and shall have no responsibility for any errors or omissions in Contractor's bid amounts arising from use of these electronic bid forms. Accuracy of all bids submitted shall be full responsibility of the Contractor.
- B. Refer to Bid Item A3 of the Base Bid. This bid item is for the Contractor to provide video documentation of the right-of-way prior to beginning construction and then again after construction. The purpose of this is to document existing conditions as well as conditions at the conclusion of construction in an effort to protect the Contractor, City, and Consultant from fraudulent damage claims by property owners (i.e. cracked driveways or sidewalks, broken sprinkler heads, damaged landscaping, etc.).
- C. Refer to Bid Item A5 of the Base Bid. The description is revised to the following: "Scarify and Pulverize Existing Pavement Section (11" Depth), Including Removal and Disposal of 3" of Existing Material, Complete For". This item will be bid per square yard (SY) and the quantity will be 2,075 SY.
- D. Refer to Bid Item A6 of the Base Bid. The description is revised to the following: "Furnish, Place, and Mix 8" Cement Stabilization (6% Cement, Target Strength 250-500 psi), Complete For". This item will be bid per square yard (SY) and the quantity will be 2,075 SY.
- E. Refer to Bid Item A7 of the Base Bid. The description is revised to the following: "For Grading and Compacting Cement Treated Material, Including Microcracking, Complete For". This item will be bid per square yard (SY) and the quantity will be 2,075 SY.
- F. Refer to Bid Item A8 of the Base Bid. The description is revised to the following: "Furnish & Install 3" Type 'D' HMA, Complete in Place For". The unit and quantity remain unchanged.

III. PLANS

- A. Construction staking will not be provided for this project. A CAD file will be provided prior to construction for staking purposes.
- B. Existing utilities shown on the plans are for reference only and no warranty as to their exact location is implied by their inclusion in the plans. The Contractor

is responsible for performing a one-call for utility locates prior to beginning construction.

- C. The Contractor shall maintain adequate traffic control signage at all times during the project in accordance with his traffic control plan which shall be signed and sealed by a licensed engineer.
- D. The City of Bellmead will provide the project signage.
- E. Cement for cement stabilization shall be provided in slurry form per the Geotechnical Report and as noted on Sheet G-03 (Cement Stabilization Procedure Note 3) of the Plans. Cement slurry equipment shall be as described in TxDOT Item 275 Section 3.2 of the 2014 TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, which includes distribution equipment capable of evenly spreading the slurry onsite.
- F. Any testing of submitted materials required to support compliance with the project specifications shall be done at the Contractor's expense. Field tests for densities, concrete compressive strength, etc. shall be paid for by the City. Any retests due to failure shall be paid for by the Contractor. Testing requirements are described in Section 1.42.3 of the General Conditions and Section S1.24 of the Special Conditions. Testing frequencies for this project shall be as follows:

Cement Stabilization:

Pick up samples in field, 2 per day, morning and afternoon (3 molds per sample). Test is similar to concrete cylinder breaks for strength testing.

Per Day of Asphalt Production:

- 1 Extraction/Grading
- 1 Rice Gravity
- 1 Specimen Molding, Bulk Density & Stability/Flow (3 per set)

For Concrete:

1 set of 4 cylinders per every 100 CY poured on curb/pavement/valley gutters. Test 1@7 and 2@28 days. Keep the 4th cylinder as a hold cylinder to be tested if there are low breaks.

IV. CONTRACTOR QUESTIONS

- A. Q. *Is there an estimated cost for the project?*
Ans. Base Bid OPC is \$175,000. Add Alternate 1 OPC is \$2,700.
- B. Q. *Is there an excel version of the bid schedule?*

Ans. An Excel version of the Bid Form will be issued with Addendum No. 1. Addendum No. 1 will be distributed after questions cut off at noon on May 14, 2025.

- C. Q. *The paving detail on Sheet G-03 is showing 3" HMA over 8" cement stabilized base but the bid sheet is calling for a 6" mill out and 6" HMA being place back. Please clarify.*

Ans. The detail on Sheet G-03 is correct and is the section that will be used. The bid items will be corrected in the revised Bid Form that will be issued in Addendum No. 1.

- D. Q. *Per Sheet G-03 this project is reclaiming and cement treating the existing material and surfaced with 3" of HMA. Since most of the curb is to remain in place, how is the removal of the excess material on site to be addressed since the final elevation of the roadway will be approximately the same as the existing? Shouldn't there be an item similar to A5, except for 3" average depth?*

Ans. Bid Item A5 has been revised to include scarification and pulverization of the existing pavement section and removal of 3" of existing material.

- E. Q. *The bid form currently does not have items for the cement treatment of the existing material. There needs to be a bid item by the SY for the cement treatment (8") depth, and a bid item for the TONS of cement to treat the subgrade. The contractor can't be expected to guess how much cement will be required. Will these items be added to the bid form?*

Ans. As noted in the response to Question 3, the bid items are revised in Addendum No. 1 to correspond to cement stabilization of the existing base material. The item for cement stabilization (Item A6) will be bid by the square yard (SY) and includes a depth of 8" and a 6% cement amount in the bid item description. The contractor shall reference Table 5.4 on Page 11 of the Geotechnical Report which provides the pounds of cement per square yard at 6% concentration by depth of stabilization. For 6% cement at an 8" depth, contractor shall plan for 44 lbs. of cement per square yard as the basis for their bid. As discussed in the pre-bid meeting, the contractor is encouraged to run samples at various concentrations of cement to determine which mixture is appropriate to hit the target strength of 250-500 psi.

- F. Q. *Since approximately 3" of material will need to be removed from the roadway prior to stabilization, the remaining material is shown in the soil borings as high PI material (PI = 33 to 44). Please confirm the intent is to cement treat this high PI material.*

Ans. Yes. The intent is to cement treat the existing material in place.

Bidders shall acknowledge receipt of this ADDENDUM NO. 1 in the space provided on the Bid Form and on the outer envelope of each sealed bid.



John A. Simcik, P.E., C.F.M.

Date 5/14/2025



Kasberg, Patrick & Associates LP
19 North Main
Temple, Texas 76501
(254) 773-3731

Wheeler / LaClede Intersection Improvements

Company	Company Type	Contact Name	Contact Phone	Contact Fax	Email	Notes	Certifications
City of Bellmead	Gov Agency	Craig Rice	254-799-5829		crice@bellmeadtx.gov	Download Plans	
Texas Materials	SubContractor	kenneth Voet	5122217331		kenneth.voet@texasmaterials.com	Download Plans	
AMTEK Austin	Plan Room	KAYLAN BURKE	2813764577		amtek.austin@amtekusa.com	Interested,Download Plans	
Texas Materials	SubContractor	Todd Gerjets	2547189253		todd.gerjets@texasmaterials.com	Download Plans	
Peek Traffic	Manufacturer	Eduardo Coronel	281-453-0186		eduardo.coronel@oriux.com	Download Plans	
Virtual Builders Exchange	Plan Room	Jeannette Olguin	210-564-6900	210-564-6902	addenda@virtualbx.com	Download Plans	
JDR Excavation, LLC	General Contractor	Jim Robinson	512-422-9578		jim@jdrexcavation.com	Download Plans	
ConstructConnect	Plan Room	Michael Stubbs	800-364-2059	866-570-8187	content@constructconnect.com	Download Plans	
EARTC Telecommunications, LLC DBA EARTC	General Contractor	Carlos Reyes	5122184200	5122184201	abilio.gonzalez@eartc.com	Download Plans	HUB,DBE,MBE
Holy Contractors LLC	General Contractor	Jose Camarillo	254-227-4915	254-224-6773	jose@holycontractors.com	Download Plans	
JH contracting LLC	General Contractor	Jordan Holy	254-424-7650		Jordan@JHContractingllc.net	Download Plans	
AGC Plan Room	Plan Room	Elaine Hobbs	254-772-5400	254-772-5451	plans@centexagc.org	Download Plans	
CCGMG LLC Series B	General Contractor	Bryndis Velazquez	4693247770		bperez@ccg-llc.org	Download Plans	
TTG Utilities, LP	General Contractor	Dawna James	254-248-1151	254-248-1242	DJames@TTGUtilities.com	Download Plans	
H&B Contractors	SubContractor	Lucas Steinkamp	254-405-2530		lsteinkamp@kullc.net	Download Plans	
Prime Vendor Inc.	Plan Room	Bid Clerk Bid Clerk	800-746-9554	800-746-8307	govtbids@prime-vendor.com	Download Plans	
Apsco Quinlan	Supplier	RUGER cates	469-343-3809		RUGER@APSCOTX.COM	Download Plans	
Longhorn Burnt Orange Oil Supply	Manufacturer	Jimbo Jenkins	6028884652		arthurfamily2636@gmail.com	Download Plans	
EARTC	General Contractor	Ana Perez	6824049905		ana.perez@eartc.com	Download Plans	
Onyx Paving & Utility, LLC.	General Contractor	Chima Obi	(214)293-4390		chima.ob@ugcontracting.com	Download Plans	
Mechell Contracting LLC	General Contractor	Scott Mechell	2544051888		scottmechell@gmail.com	Download Plans	
Beck-reit & Sons LTD	General Contractor	Christian Gonzales	2544045901		christian@beckreit.com	Download Plans	
tei	Engineer	Emily Preston	713-410-0511		emily.preston@teiconnects.com	Download Plans	
Quality Contractors LLC	General Contractor	Daniel Salmeri	254-829-0001	(254) 829-3107	estimating@qualityw.com	Download Plans	
Mickie Service Company Inc.	Not Specified	Jessica Anttila	2188519410		jessicamickie40@gmail.com	Download Plans	
THM	General Contractor	Chad Brown	9728223043		chad@thmtx.com	Download Plans	
Palasota contracting LLC	General Contractor	Ricky Palasota jr	9792298450	9798463159	Rj@palasota.net	Download Plans	

BID TABULATION
CITY OF BELLMEAD
Wheeler / LaClede Intersection Improvements
May 20, 2025; 2:00 PM

BIDDER INFORMATION			
Knife River Corporation 6310 State Hwy 21 West Bryan, TX 77806		JH Contracting, LLC 330 Elco Ln China Spring, TX 76633	
Unit Price	Extended Amount	Unit Price	Extended Amount

Bid No.	Estimated Quantity	Unit	Bid Data Description	Unit Price	Extended Amount	Unit Price	Extended Amount
BASE BID							
1	100%	LS	Mobilization, Bonds & Insurance, not-to-exceed 5% of the Base Bid Amount	\$ 11,400.00	\$ 11,400.00	\$ 6,500.00	\$ 6,500.00
2	100%	LS	Implement and Administer Stormwater Pollution Prevention Plan, Including Submission to and Receiving Permits from TCEQ	1,550.00	1,550.00	3,350.00	3,350.00
3	100%	LS	Provide a Video DVD of the Project Area Prior to and After Construction	935.00	935.00	2,500.00	2,500.00
4	100%	LS	Implementation of Traffic Control Plan	4,700.00	4,700.00	4,000.00	4,000.00
5	2,075	SY	Scarify and Pulverize Existing Pavement Section (11" Depth), Including Removal and Disposal of 3" of Existing Material	8.75	18,156.25	14.25	29,568.75
6	2,075	SY	Furnish, Place, and Mix 8" Cement Stabilization (6% Cement, Target Strength 250-500 psi)	18.35	38,076.25	13.00	26,975.00
7	2,075	SY	For Grading and Compacting Cement Treated Material	0.35	726.25	3.50	7,262.50
8	2,075	SY	Furnish & Install 3" Type 'D' HMA	28.60	59,345.00	37.75	78,331.25
9	40	LF	Remove and Replace Existing Curb and Gutter as Directed by Engineer	260.00	10,400.00	65.00	2,600.00
10	2	EA	Adjust Existing Manholes to Grade	1,950.00	3,900.00	1,875.00	3,750.00
11	3	EA	Adjust Existing Water Valves to Grade	1,100.00	3,300.00	600.00	1,800.00
12	1	EA	Furnish and Install Blue Reflective Buttons in Front of Fire Hydrants	25.00	25.00	100.00	100.00
13	27	LF	Furnish and Install 24" White Thermoplastic Striping (Stop Bar)	23.55	635.85	15.00	405.00
14	91	LF	Furnish and Install 8" Solid White Thermoplastic Striping	16.45	1,496.95	10.00	910.00
15	50	LF	Furnish and Install 4" Dashed White Thermoplastic Striping	7.00	350.00	10.00	500.00
16	629	LF	Furnish and Install 4" Solid Yellow Thermoplastic Striping	7.00	4,403.00	3.50	2,201.50
17	125	LF	Clean and Repaint Curb Yellow, Type II Traffic Paint	7.00	875.00	5.00	625.00
18	6	EA	Furnish & Install Thermoplastic Symbols and Text	535.00	3,210.00	700.00	4,200.00
19	1	EA	Replace Existing Yield Sign with Stop Sign, R1-1, 30"x30"	530.00	530.00	1,200.00	1,200.00
20	12	EA	Furnish & Install Raised Pavement Markers, Type I-C	10.00	120.00	20.00	240.00
21	34	EA	Furnish & Install Raised Pavement Markers, Type II-A-A	10.00	340.00	20.00	680.00
22	100%	LS	Allowance for Utility Adjustments, As Needed	30,000.00	30,000.00	30,000.00	30,000.00
TOTAL BASE BID AMOUNT - (Items 1 - 22)					\$ 194,474.55	\$ 207,699.00	

ADD ALTERNATE							
AA1	1	EA	Mobilization, Bonds & Insurance, not-to-exceed 5% of the Base Bid Amount	\$ 2,700.00	\$ 2,700.00	\$ 3,500.00	\$ 3,500.00
AA2	1	EA	For Constructing Reinforced Concrete Collar for Manhole Per City of Waco Detail ST-12	2,700.00	2,700.00	3,000.00	3,000.00
AA3	2	EA	For Constructing Reinforced Concrete Collar for Water Valve Per City of Waco Detail ST-13	1,480.00	2,960.00	1,100.00	2,200.00
AA4	1	EA	For Constructing Reinforced Concrete Collar for Water Valve Per City of Waco Detail ST-14	1,480.00	1,480.00	850.00	850.00
TOTAL ADD ALTERNATE AMOUNT - (Items AA1 - AA4)					\$ 9,840.00	\$ 9,550.00	

BID SUMMARY			
TOTAL BASE BID AMOUNT		\$ 194,474.55	\$ 207,699.00
TOTAL ADD ALTERNATE AMOUNT		\$ 9,840.00	\$ 9,550.00
TOTAL BID - ALL PARTS		\$ 204,314.55	\$ 217,249.00

Did Bidder Acknowledge Addendum No. 1?	YES	YES
Did Bidder provide Bid Security?	YES	YES
Did Bidder provide required documents?	YES	YES

I hereby certify that this is a correct & true tabulation of all bids received

 5/20/2025
 John A. Simcik, PE, CFM Date
 Kasberg, Patrick & Associates, LP



* - Unit price in words did not match unit price in numerals.

BID TABULATION
CITY OF BELLMEAD
Wheeler / LaClede Intersection Improvements
May 20, 2025; 2:00 PM

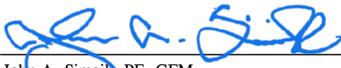
				BIDDER INFORMATION			
				Quality Contractors, LLC 8575 Gholson Rd Waco, TX 76705		Texas Materials Group, INC 1320 Arrow Point Drive #600 Cedar Park, TX 78613	
Bid No.	Estimated Quantity	Unit	Bid Data Description	Unit Price	Extended Amount	Unit Price	Extended Amount
BASE BID							
1	100%	LS	Mobilization, Bonds & Insurance, not-to-exceed 5% of the Base Bid Amount	\$ 12,645.00	\$ 12,645.00	\$ 14,000.00	\$ 14,000.00
2	100%	LS	Implement and Administer Stormwater Pollution Prevention Plan, Including Submission to and Receiving Permits from TCEQ	1,001.00	1,001.00	2,000.00	2,000.00
3	100%	LS	Provide a Video DVD of the Project Area Prior to and After Construction	717.00	717.00	100.00	100.00
4	100%	LS	Implementation of Traffic Control Plan	10,000.00	10,000.00	5,000.00	5,000.00
5	2,075	SY	Scarify and Pulverize Existing Pavement Section (11" Depth), Including Removal and Disposal of 3" of Existing Material	26.00	53,950.00	* 26,352.50	54,681,437.50
6	2,075	SY	Furnish, Place, and Mix 8" Cement Stabilization (6% Cement, Target Strength 250-500 psi)	21.00	43,575.00	* 69,927.50	145,099,562.50
7	2,075	SY	For Grading and Compacting Cement Treated Material	9.00	18,675.00	* 8,300.00	17,222,500.00
8	2,075	SY	Furnish & Install 3" Type 'D' HMAC	36.00	74,700.00	* 114,540.00	237,670,500.00
9	40	LF	Remove and Replace Existing Curb and Gutter as Directed by Engineer	143.00	5,720.00	* 3,200.00	128,000.00
10	2	EA	Adjust Existing Manholes to Grade	2,150.00	4,300.00	* 4,020.00	8,040.00
11	3	EA	Adjust Existing Water Valves to Grade	956.00	2,868.00	* 2,970.00	8,910.00
12	1	EA	Furnish and Install Blue Reflective Buttons in Front of Fire Hydrants	25.00	25.00	15.00	15.00
13	27	LF	Furnish and Install 24" White Thermoplastic Striping (Stop Bar)	15.00	405.00	* 540.00	14,580.00
14	91	LF	Furnish and Install 8" Solid White Thermoplastic Striping	6.00	546.00	* 1,274.00	115,934.00
15	50	LF	Furnish and Install 4" Dashed White Thermoplastic Striping	3.00	150.00	* 300.00	15,000.00
16	629	LF	Furnish and Install 4" Solid Yellow Thermoplastic Striping	3.00	1,887.00	* 3,774.00	2,373,846.00
17	125	LF	Clean and Repaint Curb Yellow, Type II Traffic Paint	3.00	375.00	* 750.00	93,750.00
18	6	EA	Furnish & Install Thermoplastic Symbols and Text	750.00	4,500.00	* 2,730.00	16,380.00
19	1	EA	Replace Existing Yield Sign with Stop Sign, R1-1, 30"x30"	1,938.00	1,938.00	440.00	440.00
20	12	EA	Furnish & Install Raised Pavement Markers, Type I-C	15.00	180.00	* 96.00	1,152.00
21	34	EA	Furnish & Install Raised Pavement Markers, Type II-A-A	15.00	510.00	* 272.00	9,248.00
22	100%	LS	Allowance for Utility Adjustments, As Needed	30,000.00	30,000.00	30,000.00	30,000.00
TOTAL BASE BID AMOUNT - (Items 1 - 22)				\$ 268,667.00		\$ 457,510,395.00	

ADD ALTERNATE							
AA1	1	EA	Mobilization, Bonds & Insurance, not-to-exceed 5% of the Base Bid Amount	\$ 4,613.00	\$ 4,613.00	\$ 1,925.00	\$ 1,925.00
AA2	1	EA	For Constructing Reinforced Concrete Collar for Manhole Per City of Waco Detail ST-12	4,926.00	4,926.00	2,250.00	2,250.00
AA3	2	EA	For Constructing Reinforced Concrete Collar for Water Valve Per City of Waco Detail ST-13	2,307.00	4,614.00	* 1,350.00	2,700.00
AA4	1	EA	For Constructing Reinforced Concrete Collar for Water Valve Per City of Waco Detail ST-14	3,180.00	3,180.00	790.00	790.00
TOTAL ADD ALTERNATE AMOUNT - (Items AA1 - AA4)				\$ 17,333.00		\$ 7,665.00	

BID SUMMARY					
TOTAL BASE BID AMOUNT				\$ 268,667.00	\$ 457,510,395.00
TOTAL ADD ALTERNATE AMOUNT				\$ 17,333.00	\$ 7,665.00
TOTAL BID - ALL PARTS				\$ 286,000.00	\$ 457,518,060.00

Did Bidder Acknowledge Addendum No. 1?	YES	YES
Did Bidder provide Bid Security?	YES	YES
Did Bidder provide required documents?	YES	YES

I hereby certify that this is a correct & true tabulation of all bids received


 John A. Simcik, PE, CFM
 Kasberg, Patrick & Associates, LP

5/20/2025
 Date



* - Unit price in words did not match unit price in numerals.

CITY OF BELLMEAD, TEXAS

CONSTRUCTION PLANS FOR WHEELER ST. & LA CLEDE ST. INTERSECTION REHABILITATION



2025

SHEET INDEX
COVER SHEET
G-01 GENERAL NOTES
G-02 GENERAL NOTES
SEE G-01 FOR TABLE OF CONTENTS



John A. Simcik

04-11-2025

Submitted By:



KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
TEMPLE, TEXAS 76501
KPA Firm Registration Number F-510

APPROVED BY THE CITY OF BELLMEAD, TEXAS
THIS _____ DAY OF _____, 2025.

Yousry Zakhary

YOUSRY ZAKHARY
CITY MANAGER

4/24/25

DATE

Craig Rice

CRAIG RICE
DIRECTOR OF PUBLIC WORKS

4/13/25

DATE

City Council

James Cleveland	Mayor
Bryan Winget	Mayor Pro-Tem
Karen Coleman	Council Member
Travis Gibson	Council Member
Tommy Bainbridge	Council Member
Gary Moore	Council Member

City Staff

Yousry Zakhary	City Manager
Craig Rice	Director of Public Works

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REHABILITATION

- P-01 REHABILITATION
- P-02 STRIPING & SIGNAGE
- P-03 DETOUR

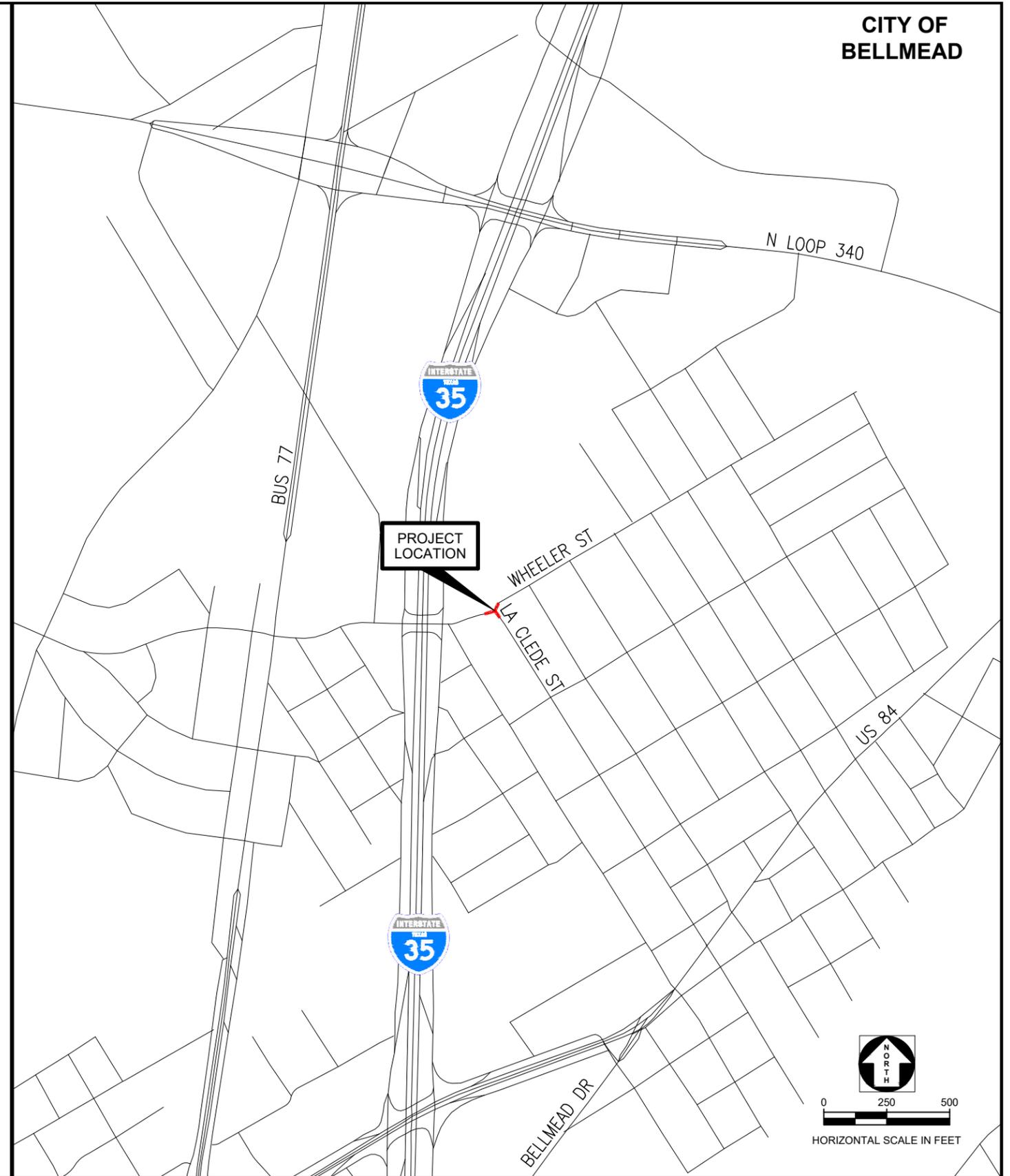
DETAILS

- D-01 GENERAL DETAILS 1 OF 3
- D-02 GENERAL DETAILS 2 OF 3
- D-03 GENERAL DETAILS 3 OF 3
- D-04 STRIPING DETAILS
- D-05 *TCP (2-1) - 18
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- D-08 *BC (3) - 21
- D-09 *BC (4) - 21
- D-10 *BC (5) - 21
- D-11 *BC (6) - 21
- D-12 *BC (7) - 21
- D-13 *BC (8) - 21
- D-14 *BC (9) - 21
- D-15 *BC (10) - 21
- D-16 *BC (11) - 21
- D-17 *BC (12) - 21
- D-18 *PM (1) - 22
- D-19 *PM (2) - 22
- D-20 *PM (3) - 22

* - THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN ISSUED BY JOHN A. SIMCIK, P.E. AND ARE APPLICABLE TO THIS PROJECT

LEGEND

	PROPOSED WATERLINE		TEMPORARY BENCH MARK
	PROPOSED WASTEWATER LINE		FIRE HYDRANT
	EXISTING WATER LINE (TO REMAIN)		GUY WIRE
	EXISTING WATER LINE (TO BE ABANDONED)		IRON PIN FOUND
	EXISTING WASTEWATER LINE (TO REMAIN)		EXISTING MANHOLE
	EXISTING WASTEWATER LINE (TO BE ABANDONED)		POWER POLE
	EXISTING GAS LINE		STREET SIGN
	PROPOSED RIGHT-OF-WAY / PROPERTY LINE		WATER VALVE
	BARBED WIRE FENCE		PROPOSED WATER VALVE
	CHAIN LINK FENCE		PROPOSED FIRE HYDRANT
	WOODEN PRIVACY FENCE		PROPOSED MANHOLE
	OVERHEAD ELECTRIC LINE		FLOW LINE ELEVATION
	UNDERGROUND TELEPHONE CABLE		TOP OF CURB ELEVATION
	TOP OF SLOPE		TOP OF ASPHALT ELEVATION
	TOE OF SLOPE / FLOWLINE		LINEAR FEET
	EXISTING EDGE OF ASPHALT		STATION
	PERMANENT UTILITY EASEMENT (P.U.E.)		POINT OF INTERSECTION
	TEMPORARY CONSTRUCTION EASEMENT (T.C.E.)		HORIZONTAL POINT OF INTERSECTION
	EXISTING PROPERTY LINE		VERTICAL POINT OF INTERSECTION
			TOP OF CURB
			EDGE OF CONCRETE
			EDGE OF PAVEMENT



P:\Bellmead\2025\25-115 W & LC Int. Improv\CAD\Working\25-115 General.dwg - GENERAL-G-01

NO.	DATE	REVISION	BY

© 2025 Kasberg, Patrick & Associates, LP
KPA Firm Registration Number F-510

Plot Date: Apr 17, 2025 - 2:14pm
Plotted By: KHOLMES

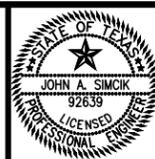
PROJECT NO. 25-115

DRAWN BY Kyle E. Holmes

DESIGNED BY John A. Simcik, P.E.

APPROVED BY

DATE 04-17-2025



KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
TEMPLE, TEXAS 76501

CITY OF BELLMEAD, TEXAS
WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS
REHABILITATION

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SHEET NO. **G-01**
OF **4**

A. BIDDER/CONTRACTOR ELIGIBILITY

- 1. A NON-MANDATORY PRE-BID CONFERENCE WILL BE HELD PRIOR TO BID OPENING FOR THE PROJECT.

B. GENERAL NOTES

- 1. ALL CONSTRUCTION FOR THIS PROJECT SHALL GENERALLY CONFORM TO THE REQUIREMENTS OF THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS AND BRIDGES (2024 EDITION) UNLESS EXCEPTED OR NOTED ON THESE PLANS.
- 2. ALL BARRICADES, SIGNS AND TRAFFIC CONTROL FOR THIS PROJECT SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
- 3. THE BIDDERS FOR THIS PROJECT SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIREMENTS OF WORKING IN STATE AND CITY OF TEMPLE RIGHTS-OF-WAY AND EASEMENTS. THE BIDDERS SHALL FAMILIARIZE THEMSELVES WITH ALL INSURANCE REQUIREMENTS FOR SAID WORK AND SHALL INCLUDE IN THEIR BIDS, INSURANCE COSTS AND INSURANCE PREMIUMS THAT PROVIDE FOR THE STATE OF TEXAS, THE CITY OF BELLMEAD, AND THE ENGINEER AS ADDITIONAL INSURED UNDER THE CONTRACTOR'S POLICIES.
- 4. THE CONTRACTOR SHALL IF REQUIRED PROVIDE THE CITY OF BELLMEAD WITH A BARRICADE, SIGNING AND TRAFFIC PLAN WHICH WILL INCLUDE HOW TRAFFIC WILL BE HANDLED DURING CONSTRUCTION. THE BARRICADES, SIGNS AND LIGHTS SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. THE PLAN SHALL BE PREPARED BY A TEXAS REGISTERED PROFESSIONAL ENGINEER. STANDARD TRAFFIC CONTROL PLANS HAVE BEEN PROVIDED. SHOULD THE CONTRACTOR CHOOSE TO DEVIATE AND DEVELOP THEIR OWN TRAFFIC CONTROL IT SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS.
- 5. CONTRACTOR SHALL NOTIFY THE CITY OF BELLMEAD A MINIMUM OF TWO (2) WEEKS (MONDAY-FRIDAY) IN ADVANCE OF CONSTRUCTION STARTUP, FOLLOWED BY A LETTER OF CONFIRMATION. CONTRACTOR SHALL ALSO GIVE A MINIMUM OF THREE (3) WORKING DAYS (MONDAY-FRIDAY) NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS OR PERSONS IN CHARGE OR PRIVATE AND PUBLIC UTILITIES AFFECTED BY HIS OPERATIONS PRIOR TO COMMENCEMENT OF WORK. THE FOLLOWING ARE TELEPHONE NUMBERS OF THE ENTITIES MOST LIKELY TO BE AFFECTED:
TEXAS ONE CALL 1-800-545-6005
TEXAS EXCAVATION SAFETY SYSTEM 1-800-344-8377
TXU ELECTRIC DELIVERY 1-512-244-5691
ATMOS ENERGY 1-866-332-8667
CITY OF BELLMEAD, TEXAS 1-254-799-2436
SBC 1-254-954-4102 OR 1-800-669-8344
CENTROVISION 1-254-773-1163
AT&T 1-800-252-1133
- 6. LOCATION OF EXISTING UTILITIES SHOWN ON THE PLANS WAS COMPILED FROM RECORD INFORMATION. NO WARRANTY IS IMPLIED AS TO THE ACTUAL LOCATION OF EXISTING UTILITIES. CONTRACTOR TO FIELD VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION BY POTHOLING. CONTRACTOR SHALL CALL THE CITY OF BELLMEAD AT (254) 799-2436. IF THERE ARE ANY CONFLICTS BETWEEN PROPOSED AND EXISTING UTILITIES, OR IF THE EXISTING UTILITIES ARE IN ANY WAY DIFFERENT FROM WHAT IS SHOWN ON THE DRAWINGS, THEN IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OR OTHER AFFECTED UTILITY BEFORE PROCEEDING WITH ANY CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESOLVING ALL CONFLICTS AT HIS EXPENSE. THE OWNER WILL CONSIDER ANY CONFLICTS AT SAID LOCATIONS ON A CASE BY CASE BASIS IN ORDER TO DETERMINE IF THE CONTRACTOR SHOULD BE REIMBURSED FOR HIS EXPENSE IN SOLVING SAID CONFLICT.
- 7. CONTRACTOR SHALL MAKE ALL DUE PRECAUTIONS TO PROTECT EXISTING FACILITIES FROM DAMAGE. ANY DAMAGE TO EXISTING FACILITIES INCURRED AS A RESULT OF THESE CONSTRUCTION OPERATIONS ARE TO BE REPAIRED IMMEDIATELY BY THE CONTRACTOR TO AT LEAST THE PREEXISTING CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- 8. CONTRACTOR SHALL COORDINATE INTERRUPTIONS OF ALL UTILITIES AND SERVICES WITH ALL APPLICABLE UTILITY COMPANY OR COMPANIES. ALL WORK TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY COMPANY OR AGENCY INVOLVED.
- 9. WHEN UNLOCATED OR INCORRECTLY LOCATED UNDERGROUND PIPING OR A BREAK IN A LINE OR OTHER UTILITIES AND SERVICES ARE ENCOUNTERED DURING SITE WORK OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE APPLICABLE UTILITY COMPANY IMMEDIATELY TO OBTAIN PROCEDURE DIRECTIONS. CONTRACTOR TO COOPERATE WITH THE APPLICABLE UTILITY COMPANY IN MAINTAINING ACTIVE SERVICES IN OPERATION.
- 10. THE CONTRACTOR SHALL CONTACT 811 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION. IN ADVANCE OF CONSTRUCTION, THE CONTRACTOR IS TO VERIFY THE LOCATIONS OF ALL UTILITIES TO BE EXTENDED, TIED TO OR ALTERED, OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. THE CITY OF BELLMEAD WATER AND WASTEWATER MAINTENANCE RESPONSIBILITY ENDS AT RIGHT-OF-WAY/EASEMENT LINES.
- 11. CONTRACTOR SHALL STRIP 6 INCHES OF TOPSOIL FROM ALL AREAS SUBJECT TO GRADE MODIFICATIONS. REMOVE ANY AREA OF WEAK SOIL.
- 12. WITHIN CITY OF BELLMEAD RIGHT-OF-WAY, RESIDENTIAL DRIVEWAYS ARE TO HAVE A 10% MAXIMUM GRADE. NON RESIDENTIAL DRIVEWAYS ARE TO HAVE A 3% MAXIMUM GRADE FOR THE FIRST THIRTY (30) FEET OFF THE EDGE OF PAVEMENT.
- 13. THE CONTRACTOR SHALL PROTECT ALL EXISTING FENCES. IN THE EVENT THAT A FENCE MUST BE REMOVED, THE CONTRACTOR SHALL REPLACE SAID FENCE OR PORTION THEREOF WITH THE SAME TYPE OF FENCING TO A QUALITY OF EQUAL OR BETTER THAN THE ORIGINAL FENCE. THIS WILL NOT BE A SEPARATE PAY ITEM, UNLESS SPECIFICALLY NOTED ON THE CONSTRUCTION DRAWINGS.
- 14. THE CONTRACTOR SHALL MAKE AN EXAMINATION OF THE PROJECT SITE AND COMPLETELY FAMILIARIZE HIMSELF WITH THE NATURE AND EXTENT OF THE WORK TO BE ACCOMPLISHED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR ANY WORK MADE NECESSARY BY UNUSUAL CONDITIONS OR OBSTACLES ENCOUNTERED DURING THE PROGRESS OF THE WORK, WHICH CONDITIONS OR OBSTACLES ARE READILY APPARENT UPON A VISIT TO THE SITE. IF THERE ARE ANY QUESTIONS OF THIS REGARD OR IF THERE ARE ANY DISCREPANCIES BETWEEN THE PLANS AND ACTUAL SITE CONDITIONS THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO THE SUBMISSION OF BIDS.
- 15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF HIS MATERIALS AND EQUIPMENT FROM THEFT, VANDALISM, ANIMALS, FIRE, ETC., WHILE SAID MATERIALS AND EQUIPMENT ARE ON THE PROJECT WHETHER STORED OR INSTALLED IN PLACE, UNTIL THE PROJECT HAS BEEN ACCEPTED BY THE CITY OF BELLMEAD.
- 16. UPON COMPLETION OF THE PROJECT, THE SITE(S) AS DEFINED HEREIN, SHALL BE CLEANED OF ALL DEBRIS AND LEFT IN A NEAT AND PRESENTABLE CONDITION.
- 17. IN THOSE CASES WHERE FIXED FEATURES REQUIRE, THE DESIGN SLOPES INDICATED HEREIN AND ON THE CROSS SECTIONS MAY BE MODIFIED IN THE FIELD AS DETERMINED BY THE ENGINEER IF EXISTING CONDITIONS SO REQUIRE.

- 18. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT ALL ADJOINING PAVEMENT SECTIONS SHALL BE PROTECTED DURING ALL PHASES OF CONSTRUCTION AND ANY DAMAGES INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED AND/OR REPLACED AT THE CONTRACTOR'S EXPENSE.
- 19. WHERE EXISTING PAVEMENT ADJOINS NEW PAVEMENT, THE EXISTING PAVEMENT SHALL BE SAWED TO A NEAT TRANSVERSE LINE TO PERMIT ADEQUATE JOINING.
- 20. ACCESS TO RESIDENCES AND DRIVEWAYS ALONG THE PROJECT MUST RECEIVE PRIORITY BY THE CONTRACTOR. ACCESS SHALL BE MAINTAINED AT ALL TIMES.
- 21. EXISTING PAVING, BUILDINGS AND OTHER ITEMS SHOWN ON THE PLANS ARE NOT SPECIFICALLY RELATED TO THE WORK OF THE CONTRACTOR AND IS FOR INFORMATION ONLY, UNLESS OTHERWISE NOTED.
- 22. THE PROCUREMENT AND TRANSPORTATION OF WATER REQUIRED FOR INCLUSION IN THE PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR.

C. CONSTRUCTION LAYOUT/PROJECT COORDINATION

- 1. CONTRACTOR SHALL LOCATE, PROTECT AND MAINTAIN BENCHMARKS, MONUMENTS AND CONTROL POINTS. RE-ESTABLISHMENT OF DISTURBED OR DESTROYED ITEMS SHALL BE ACCOMPLISHED BY A TEXAS REGISTERED PROFESSIONAL LAND SURVEYOR AT NO COST TO THE OWNER.
- 2. PRE-CONSTRUCTION CONFERENCE
 - A. PRIOR TO BEGINNING WORK ON THE PROJECT AND SOON AFTER THE AWARD OF THE CONTRACT, A CONFERENCE WILL BE HELD AMONG THE REPRESENTATIVES OF THE CITY OF BELLMEAD, THE ENGINEER, THE CONTRACTOR AND ANY SUBCONTRACTOR THAT WILL BE INVOLVED IN THE WORK. AT THAT TIME, THE CONTRACTOR SHALL SUBMIT CHARTS OR BRIEFS, OUTLINING THE MANNER OF EXECUTION OF THE WORK THAT IS INTENDED IN ORDER TO COMPLETE THE SPECIFIED WORK WITHIN THE ALLOTTED TIME. THIS CONFERENCE WILL MORE COMPLETELY ESTABLISH THE SEQUENCE OF WORK TO BE FOLLOWED AND ESTABLISH THE ESTIMATED PROGRESS SCHEDULE FOR COMPLETION OF THE VARIOUS TASKS, WHEN APPLICABLE. THE PRE-CONSTRUCTION CONFERENCE WILL BE HELD ONLY AFTER INSTALLATION OF THE EROSION AND SEDIMENTATION CONTROLS. THIS CONFERENCE SHOULD TAKE PLACE ON THE SITE TO DEMONSTRATE COMPETENCE WITH THE EROSION AND SEDIMENTATION CONTROL PLAN AND WATER POLLUTION ABATEMENT PLAN.
 - B. IN ADDITION, AT THIS CONFERENCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING THE ENGINEER WITH ALL OF THE FOLLOWING, AS SPECIFIED HEREIN OR AS DIRECTED BY THE ENGINEER:
 - a. SAMPLES OF ALL MATERIALS TO BE USED ON THE PROJECT WITH IDENTIFICATION AS TO PRODUCT NAME, NAME, LOCATION, PHONE NUMBER (INCLUDING AREA CODE) AND MAILING ADDRESS OF PRODUCT SOURCE AND MANUFACTURER, IF DIFFERENT FROM SOURCE; CONTENT OF PRODUCT; AMOUNT OF EACH INGREDIENT IN THE PRODUCT, AND MANUFACTURER'S DIRECTIONS AS TO USE AND APPLICATION OF THE PRODUCT, IF APPLICABLE.
 - b. MANUFACTURER'S LITERATURE OF ALL MATERIALS AND EQUIPMENT INSTALLED ON THE PROJECT.
- 3. THE PLANS FOR THIS PROJECT SHOW PROPOSED ELEVATIONS, SLOPES AND DIMENSIONS THAT ARE INTENDED FOR ACTUAL PLACEMENT. HOWEVER, THERE MAY BE SOME INSTANCES WHERE EXISTING CONDITIONS MAKE IT IMPRACTICAL TO ACHIEVE THE IDEAL. IN THOSE INSTANCES, THE ENGINEER WILL ASSIST THE CONTRACTOR IN MAKING PROPER FIELD CHANGES TO BETTER ACCOUNT FOR FIELD CONDITIONS.
- 4. THE CONTRACTOR FOR THE PROJECT WILL MARK THE LIMITS OF CONSTRUCTION AND RIGHT-OF-WAY PRIOR TO COMMENCEMENT OF THE PROJECT. PRIVATE PROPERTY SHALL BE OFF LIMITS UNLESS WRITTEN PERMISSION IS GIVEN TO THE CONTRACTOR BY THE OWNER. THE CITY OF TEMPLE WILL NOT BE RESPONSIBLE FOR ANY CONTRACTOR OPERATIONS OFF OF THE PROJECT SITE.

D. STORM WATER NOTES

- 1. THROUGHOUT THE CONSTRUCTION, AND THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR IS TO ASSURE THAT DRAINAGE OF STORM WATER RUNOFF IS NOT BLOCKED.

E. SITE GRADING/CONNECTION NOTES

- 1. CONTRACTOR SHALL CONTROL DUST CAUSED BY THE WORK AND COMPLY WITH POLLUTION CONTROL REGULATIONS OF GOVERNING AUTHORITIES. THIS SHALL BE SUBSIDIARY TO THE PROJECT.
- 2. CONTRACTOR SHALL REMOVE BUILT UP MATERIAL ON ADJACENT PUBLIC ROADWAYS RESULTING FROM HIS WORK. CLEANING TO BE AT LEAST ONCE A DAY. THIS SHALL BE SUBSIDIARY TO THE PROJECT.
- 3. CONTRACTOR SHALL NOT STOCKPILE MATERIAL WITHIN THE 100 YEAR FLOOD PLAIN.
- 4. THIS PROJECT IS A UNIT PRICE PROJECT AND PAYMENTS SHALL BE MADE AT THE UNIT PRICE AND QUANTITY FOR ITEMS CONSTRUCTED AND/OR INSTALLED.
- 5. THE SUCCESSFUL CONTRACTOR SHALL DEVELOP A PROJECT SCHEDULE FOR THE PROJECT IN PRIMAVERA, MICROSOFT OFFICE, EXCEL, OR OTHER SOFTWARE THAT ILLUSTRATES THE TASKS TO COMPLETE THE PROJECT WITH A CRITICAL PATH. THE SCHEDULE SHALL BE MAINTAINED THROUGHOUT THE PROJECT AND THE CONTRACTOR SHALL BE PREPARED TO REVIEW AND DISCUSS THE SCHEDULE AT THE CONSTRUCTION PROGRESS MEETINGS. CONSTRUCTION PROGRESS MEETINGS WILL BE HELD AT A MINIMUM OF ONCE PER MONTH AND THE CITY RESERVES THE RIGHT TO HAVE CONSTRUCTION PROGRESS MEETINGS AS REGULARLY AS THEY DEEM NECESSARY. THIS SHALL BE SUBSIDIARY TO THE PROJECT.
- 6. ALL STORAGE AREAS FOR MATERIALS AND EQUIPMENT OR OTHER AREAS DISTURBED BY THE CONTRACTOR IN THE CONSTRUCTION OF THIS PROJECT THAT ARE OUTSIDE OF THE AREA TO REMAIN NON-VEGETATED SHALL BE RE-VEGETATED AT NO EXPENSE TO THE CITY.
- 7. THE CONTRACTOR SHALL NOTIFY AFFECTED PROPERTY OWNERS AND HOAS A MINIMUM OF 1 WEEK PRIOR TO THE START OF CONSTRUCTION IN AND AROUND THEIR RESPECTIVE PROPERTIES.
- 8. ALL WATER VALVES, WATER METERS, MANHOLES, HAND HOLES, PULL BOXES, JUNCTION BOXES, ETC. THAT ARE IN THE AREA OF CONSTRUCTION SHALL BE ADJUSTED TO THE FINAL GRADE OF INFRASTRUCTURE.
- 9. ALL ASPHALT PAVING SHALL RECEIVE PRIME COAT AND TACK COAT AS APPROPRIATE. THIS SHALL BE SUBSIDIARY TO THE RESPECTIVE ASPHALT BID ITEMS.
- 10. THERE MAY BE INSTANCES IN WHICH FIELD ADJUSTMENTS OR CHANGES WILL BE REQUIRED FOR CONSTRUCTION OF THIS PROJECT. IN THOSE INSTANCES, THE CONTRACTOR SHALL WORK WITH THE ENGINEER TO MAKE FIELD ADJUSTMENTS IN ORDER TO SUCCESSFULLY COMPLETE THE PROJECT. THESE ADJUSTMENTS WILL BE PAID UTILIZING EXISTING BID PRICES AT THE UNIT PRICE BID AND QUANTITY INSTALLED. IN THE EVENT THERE IS NOT A BID ITEM FOR A CONSTRUCTION TASK, A CHANGE ORDER WILL BE ISSUED.
- 11. ALL DEWATERING FOR CONSTRUCTION SHALL BE SUBSIDIARY TO THE PROJECT.
- 12. ANY EXISTING PAVEMENT, CURBS, AND/OR SIDEWALK DAMAGED OR REMOVED BY THE CONTRACTOR THAT ARE NOT A PART OF THIS CONTRACT ARE TO BE REPAIRED BY THE CONTRACTOR TO AT LEAST THE

PREEXISTING CONDITION AT HIS EXPENSE BEFORE ACCEPTANCE OF THE WORK.

- 13. MAKE CONNECTION BETWEEN NEW AND EXISTING ASPHALT STREETS BY REMOVING EXISTING STREET FROM THE END OF EXISTING PAVEMENT UNTIL FULL DEPTH BASE AND HMA ARE ENCOUNTERED AND HMA APPEARS TO BE IN SOUND CONDITION. PROVIDE EXPANSION JOINTS AND DOWELS WHERE CONNECTING EXISTING CURB TO NEW CONSTRUCTION.
- 14. AT INTERSECTIONS WHICH HAVE VALLEY DRAINAGE THE CROWN OF THE INTERSECTING STREETS TO CULMINATE IN A DISTANCE OF 40 FEET FROM THE INTERSECTING CURB LINE, UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.

F. TESTING AND SUBMITTALS

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MATERIAL SAMPLES AS WELL AS ANY MANUFACTURERS LITERATURE OF MATERIALS USED ON THIS PROJECT AS REQUIRED BY THE ENGINEER. ANY COSTS ASSOCIATED WITH ANY SAMPLING AND TESTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THESE COSTS SHALL BE CONSIDERED AS INCIDENTAL AND THE CONTRACTOR WILL NOT BE ENTITLED TO ANY ADDITIONAL COMPENSATION.
- 2. CONTRACTOR SHALL COORDINATE ALL MATERIALS TESTING WITH THE CITY OF BELLMEAD CONSTRUCTION REPRESENTATIVE AND THE CITY TESTING COMPANY, INCLUDING SOIL DENSITY TESTS AND RELATED SOILS ANALYSIS. TESTS TO BE ACCOMPLISHED BY AN INDEPENDENT LABORATORY UNDER CONTRACT WITH THE CITY OF BELLMEAD, AT THE FREQUENCY, TIME AND LOCATION AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS. A COPY OF THE TEST RESULTS TO BE FORWARDED TO THE CITY OF BELLMEAD, THE OWNERS REPRESENTATIVE, AND THE CONTRACTOR. TESTS WHICH SHOW UNSATISFACTORY RESULTS ARE TO BE REPEATED AT THE EXPENSE OF THE CONTRACTOR SUBSEQUENT TO THE CONTRACTOR'S REMEDIAL ACTIVITIES.
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND PAY FOR ALL CHARGES OF TESTING LABORATORIES FOR SERVICES IN CONNECTION WITH INITIAL TESTS MADE ON ALL IMPORTED MATERIALS TO THE PROJECT SITES INCLUDING BUT NOT LIMITED TO EMBEDMENT MATERIALS, FILL MATERIAL, BACKFILL MATERIAL, SELECT MATERIAL, CRUSHED LIMESTONE BASE, SUBBASE, CONCRETE, STEEL, WOOD FORMS, LIQUID ASPHALT, AGGREGATE, WATER, CEMENT, CURING COMPOUND, GUARD RAIL, HOT MIX, ETC.
- 4. THE TESTS FOR WHICH THE CONTRACTOR WILL TYPICALLY BE RESPONSIBLE ARE ATTERBERG LIMITS, SIEVE ANALYSIS, PLASTICITY INDICES, MIX DESIGN, CALIFORNIA BEARING RATIOS, TRIAXIAL TESTING, PROCTORS (MOISTURE DENSITY CURVES) AND ALL TESTS REQUIRED BY THE SPECIFICATIONS THAT PROVE THE MATERIAL BROUGHT TO THE PROJECT SITES MEETS OR EXCEEDS THE SPECIFICATIONS AND CONTRACT DOCUMENTS. THE CITY OF BELLMEAD WILL PAY ALL THE CHARGES OF TESTING LABORATORIES FOR SERVICES IN CONNECTION WITH IN PLACE FIELD DENSITIES, CONCRETE CYLINDERS TESTING, HMA DENSITY TESTS AND ANY IN PLACE TEST REQUIRED FOR QUALITY ASSURANCE. RETESTING AFTER FAILURE OF INPLACE TESTS SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

G. CONCRETE FOR CONSTRUCTION

- 1. THE CONCRETE FOR ALL CURBS SHALL BE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 P.S.I., A MINIMUM 7-DAY FLEXURAL STRENGTH OF 510 P.S.I., A MAXIMUM WATER TO CEMENT RATIO OF 6.0 GALLONS PER SACK AND BE A MINIMUM (6) SIX SACKS PER CUBIC YARD OF CONCRETE SHALL BE REQUIRED UNLESS OTHERWISE SPECIFIED IN PLANS. ALL OTHER CONCRETE SHALL BE AS SPECIFIED ON THE PLANS.
- 2. TYPE 2 MEMBRANE CURING COMPOUND (WHITE PIGMENTED) SHALL BE USED FOR THIS PROJECT.
- 3. ALL CONCRETE SHALL BE CURED IN ACCORDANCE WITH THE REQUIREMENTS OF TxDOT ITEM 526 "MEMBRANE CURING".
- 4. ALL EXPANSION JOINT MATERIAL FOR DRIVEWAY AND SIDEWALK INSTALLATIONS SHALL BE GRADE 1.5. REDWOOD (1/2" x 3 1/2" DIMENSION) OR 3/4" ASPHALT IMPREGNATED FIBERBOARD. SNAP-CAP, VOID CAP OR OTHER APPROVED MATERIAL TO ACHIEVE A CLEAN, STRAIGHT EXPANSION JOINT SHALL BE USED. THE EXPANSION JOINT SHALL BE SEALED WITH A TxDOT APPROVED MATERIAL MEETING THE REQUIREMENT OF DMS-6310.
- 5. ALL REINFORCING STEEL FOR CONCRETE SHALL MEET ASTM A 615, GRADE 60.

H. JOB SITE SAFETY NOTES

- 1. ALL CONSTRUCTION OPERATIONS FOR THIS PROJECT SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). COPIES OF THE OSHA STANDARDS MAY BE PURCHASED FROM THE U.S. GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE OBTAINED FROM OSHA: 903 SAN JACINTO; AUSTIN, TEXAS.
- 2. THESE PLANS, PREPARED BY KASBERG, PATRICK & ASSOCIATES, LP, DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR HIS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF KASBERG, PATRICK & ASSOCIATES, LP, REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THE WORK.
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE AND LIABLE FOR ALL JOB SITE SAFETY, FOR MANAGEMENT OF JOB SITE PERSONNEL, FOR SUPERVISION OF THE USE OF JOB SITE EQUIPMENT AND FOR DIRECTION OF ALL CONSTRUCTION PROCEDURES, METHODS AND ELEMENTS REQUIRED TO COMPLETE THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
- 4. BLASTING IS NOT PERMITTED ON THIS PROJECT.
- 5. IN ADDITION TO OTHER SAFETY REQUIREMENTS, ALL TRUCKS USED FOR HAULING MATERIAL AND/OR EQUIPMENT TO AND/OR FROM THIS PROJECT SHALL BE EQUIPPED WITH AN AUDIBLE BACKUP WARNING DEVICE THAT IS IN GOOD OPERATING CONDITION.
- 6. ADVISORY SPEED LIMIT SIGNS SHALL BE PLACED AS DIRECTED BY THE CITY OF BELLMEAD AND THE TEXAS DEPARTMENT OF TRANSPORTATION. THE LOCATION AND SPEED WILL BE DETERMINED BY THOSE TWO ENTITIES IN ORDER TO FIT PROJECT CONDITIONS.
- 7. PROTECTION OF VEHICULAR AND PEDESTRIAN TRAFFIC IS OF THE UTMOST IMPORTANCE FOR THE PROJECT. THE TRAFFIC CONTROL AND SEQUENCE OF CONSTRUCTION PLAN SHALL ADDRESS ALL ANTICIPATED SITUATIONS IN THIS REGARD WITH SUFFICIENT DETAIL. THE CONTRACTOR'S PLAN WILL BE REVIEWED BY LOCAL TxDOT OFFICIALS AND THE CITY OF TEMPLE.

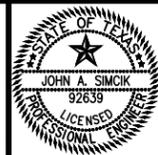
I. ENVIRONMENTAL NOTES

- 1. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING SANITARY FACILITIES ON THIS PROJECT FOR EMPLOYEES.
- 2. CONTRACTOR SHALL NOT PLACE ASPHALT PRODUCTS ON THE GROUND WITHIN 48 HOURS OF FORECASTED RAIN.
- 3. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS REGARDING EXCESS AND WASTE MATERIAL, INCLUDING METHODS OF HANDLING AND DISPOSAL.

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KPA Firm Registration Number F-510		Plot Date: Apr 17, 2025 - 2:14pm	
		Plotted By: KHOLMES	

PROJECT NO.	25-115
DRAWN BY	Kyle E. Holmes
DESIGNED BY	John A. Simcik, P.E.
APPROVED BY	
DATE	04-17-2025



KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
TEMPLE, TEXAS 76501

CITY OF BELLMEAD, TEXAS
WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS
REHABILITATION
GENERAL NOTES 1 OF 2

SHEET NO. **G-02**
OF **4**

J. PAVEMENT STRUCTURE SPECIFICATIONS / NOTES

- THE STANDARD WATER DETAILS FOR THE PAVEMENT STRUCTURE FOR THIS PROJECT IS SHOWN ON OTHER PLAN SHEETS.
- SINCE SOME VARIATION WAS FOUND IN SUBSURFACE CONDITIONS AT BORING LOCATIONS, ALL PARTIES INVOLVED SHOULD BE AWARE THAT EVEN MORE VARIATION MAY BE ENCOUNTERED BETWEEN BORING LOCATIONS. STATEMENTS IN THE GEOTECHNICAL REPORT FOR THE PROJECT AS TO SUBSURFACE COVER GIVEN AREAS ARE INTENDED ONLY AS ESTIMATIONS BASED ON DATA OBTAINED AT SPECIFIC BORING LOCATIONS.

K. STORMWATER POLLUTION PREVENTION PLAN (SW3P)

- CONTRACTOR SHALL PREPARE A STORMWATER POLLUTION PREVENTION PLAN (SW3P) FOR THE PROJECT. THE ENGINEER HAS INCORPORATED IN THESE CONSTRUCTION DRAWINGS SOME MINIMUM STORM WATER CONTROLS THAT SHOULD BE INCLUDED INTO THE CONTRACTOR'S PLANS.
- CONTRACTOR SHALL SUBMIT THE SW3P TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), THE ENGINEER AND THE CITY OF BELLMEAD, COMPLETE THE NOTICE OF INTENT (NOI) AND FORWARD THE NOTICE OF TERMINATION (NOT) WHEN THE PROJECT IS COMPLETED AND ACCEPTED BY THE CITY OF BELLMEAD, TEXAS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING, MAINTAINING, REPORTING AND INSPECTION OF THE WATER POLLUTION ABATEMENT PLAN AND INSTALLED CONTROLS.
- AFTER PERMANENT EROSION CONTROL HAS BEEN ESTABLISHED THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES. THIS SHALL BE SUBSIDIARY TO THE EROSION CONTROL PAY ITEMS.

L. RAIN/WEATHER DAYS

- THIS PROJECT IS A CALENDAR DAY PROJECT AND WILL ALLOW SUBMITTAL OF WEATHER DAYS. THE CITY OF BELLMEAD REQUIRES THAT THE AVERAGE RAIN DAYS IN A MONTH BE EXCEEDED BEFORE ANY WEATHER DAYS ARE ADDED TO THE PROJECT. A WEATHER DAY SHALL BE CONSIDERED ANY DAY WITH ANY AMOUNT OF PRECIPITATION. IN ORDER TO SUBMIT FOR ADDITIONAL DAYS FOR WEATHER, THE CONTRACTOR SHALL TRACK THE PRECIPITATION ON THE PROJECT SITE AND SUBMIT THE DAYS OF PRECIPITATION MONTHLY AND INCLUDE THE AVERAGE PRECIPITATION DAYS FOR THAT MONTH AS SHOWN IN THE TABLE BELOW. ONLY DAYS IN EXCESS OF THE AVERAGE PRECIPITATION FOR THE MONTH WILL BE ALLOWED FOR ADDITIONAL DAYS DUE TO WEATHER. AVERAGE RAIN DAYS SHALL BE AS FOLLOWS:

AVERAGE RAIN DAYS

JANUARY -	7 DAYS	JULY -	6 DAYS
FEBRUARY -	7 DAYS	AUGUST -	5 DAYS
MARCH -	7 DAYS	SEPTEMBER -	7 DAYS
APRIL -	7 DAYS	OCTOBER -	7 DAYS
MAY -	8 DAYS	NOVEMBER -	7 DAYS
JUNE -	6 DAYS	DECEMBER -	7 DAYS

M. PAVEMENT COMPONENTS

- HOT MIX ASPHALTIC CONCRETE (HMAC)** - THE ASPHALTIC CONCRETE SHALL BE PLANT MIXED, HOT LAID TYPE C (COARSE-GRADED SURFACE COURSE) AND TYPE B (FINE-GRADED BASE COURSE) MEETING THE MASTER SPECIFICATION REQUIREMENTS IN TXDOT ITEM 340. THE MIX SHALL BE DESIGNED FOR A STABILITY OF AT LEAST 35 IN ACCORDANCE WITH TEX-208-F AND SHALL BE COMPACTED TO BETWEEN 91 AND 96 PERCENT OF THE MAXIMUM THEORETICAL DENSITY, WHEN TESTED IN ACCORDANCE WITH TEX-207-F AND TEX-227-F. IN ACCORDANCE WITH TXDOT ITEM 340, COMPACTED LIFT THICKNESSES SHALL BE BETWEEN 2.5 AND 5 INCHES FOR TYPE B HMAC AND 2 AND 4 INCHES FOR TYPE C HMAC.

NOTES:

- CEMENT TREATMENT RECYCLED BASE SHALL CONTAIN 8% CEMENT. (250 PSI TO 500 PSI TARGET STRENGTH). SEE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION.
- CONTRACTOR SHALL PREPARE TRIAL MIXTURES TO ASSESS APPROPRIATE PERCENTAGE OF CEMENT TO ADD

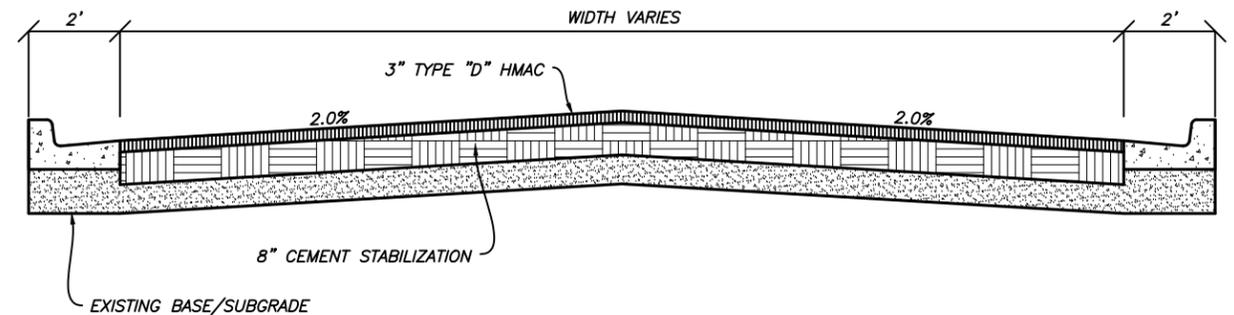
N. CEMENT STABILIZATION PROCEDURE

- SCARIFICATION AND PULVERIZATION: THE EXISTING PAVEMENT SHOULD BE SCARIFIED (RIPPED) BEFORE IT CAN BE PULVERIZED. THE DEPTH OF PULVERIZATION SHOULD CORRESPOND TO THE DESIRED BASE THICKNESS SHOWN IN PAVEMENT SECTION (OPTION 2). THE PARTICAL DISTRIBUTION SHOULD HAVE 100% SMALLER THAN 2 INCH AND 55% PASSING A NO. 4 SIEVE. MORE THEN ONE PASS WITH THE PULVERIZING EQUIPMENT MAY BE NEEDED.
- SHAPING AND GRADING: THE PULVERIZED MATERIALS MUST BE SHAPED TO THE DESIRED CROSS-SECTION AND GRADE. THIS PROCESS MAY INVOLVE ADDITIONAL EARTHWORK, INCLUDING THE ADDITIONAL OR REMOVAL OF MATERIAL.
- ADD CEMENT: PORTLAND CEMENT SHOULD BE SPREAD IN A MEASURED AMOUNT ON THE SURFACE OF THE PULVERIZED MATERIAL IN SLURRY FORM. THE AMOUNT OF CEMENT APPLIED TO THE RECYCLED PULVERIZED MATERIAL IS CRITICAL IN THIS PROCESS, AND APPROXIMATE WEIGHTS ARE SHOWN IN TABLES 5.4 OF THE GEOTECHNICAL REPORT.
- WATER APPLICATION: WATER MUST BE ADDED TO BRING THE AGGREGATE CEMENT MIXTURE TO OPTIMUM MOISTURE CONTENT. ADDING TOO MUCH MOISTURE WILL BE DETRIMENTAL TO PAVEMENT PERFORMANCE, AND SHOULD BE AVOIDED.
- MIXING: THE MIXTURE MUST BE COMBINED AND BLENDED USING A PULVERIZING/MIXING MACHINE. MULTIPLE PASSES OF THE MIXER MAY BE REQUIRED TO ACHIEVE A UNIFORM BLEND OF MATERIALS. PROPER MIXING AND BLENDED IS CRITICAL IN THIS PROCESS.
- COMPACTION: COMPACTION IS USUALLY PERFORMED WITH A SMOOTH DRUM VIBRATORY ROLLER. A PNEUMATIC TIRED ROLLER MAY FOLLOW TO FINISH THE SURFACE. FINAL COMPACTION SHOULD TAKE PLACE NO MORE THAN 3 HOURS PAST INITIAL MIXING OF THE CEMENT. IN LIEU OF DENSITY TESTING, FIELD SAMPLES SHALL BE OBTAINED IN THE MORNING AND AFTERNOON, AND THEN 3 SPECIMENS SHALL BE COMPACTED FROM EACH SAMPLE IN THE LAB FOR COMPRESSIVE STRENGTH TESTING AT 7 DAYS.
- CURING: THE SURFACE MUST BE KEPT MOIST BY PERIODICALLY APPLYING WATER TO THE SURFACE TO AVOID DRYING. THIS SHOULD BE PERFORMED CONTINUOUSLY FOR THE FIRST 24 HOURS. THE PRIME COAT SHOULD BE APPLIED AS SOON AS POSSIBLE THEREAFTER TO BETTER SEAL THE MOISTURE INSIDE THE BASE.

- PRECRACKING: WITHIN 48 HOURS AFTER MIXING AND COMPACTION, TWO PASSES WITH A 10 - TO 12 - TON VIBRATORY ROLLER SHALL BE MADE WITH THE VIBRATOR SET ON MAXIMUM AMPLITUDE AND TRAVELING AT A SPEED OF APPROXIMATELY 2 MPH. DO NOT MAKE MORE THAN 2 PASSES TO AVOID DAMAGING THE CTRB.
- SUBGRADE UNDERNEATH PROPOSED CURB SHALL BE PREPARED BY REMOVING ALL VEGETATION, ROOTS, EXISTING FILL, DEBRIS OR OTHER DELETERIOUS MATERIALS. THE SUBGRADE SHALL BE SCARIFIED AND RE-COMPACTED TO AT LEAST 100% OF TEX-114 AT OR ABOVE OPTIMUM MOISTURE CONTENT. THE SUBGRADE SHALL BE PROOF ROLLED IN ACCORDANCE WITH TXDOT ITEM 216 "PROOFROLLING" FOR SOFT OR WEAK AREAS. EXPOSED SUBGRADE SHOULD BE PROTECTED FROM DRYING.
- STREETS THAT SHALL BE CEMENT STABILIZED SHALL BE PULVERIZED AND THOROUGHLY MIXED TO ACHIEVE A WELL GRADED MIXTURE. THE WELL GRADED MIXTURE SHALL BE CEMENT STABILIZED IN ACCORDANCE WITH TXDOT ITEM 275 (1993 TXDOT SPECIFICATION) AND COMPACTED TO AT LEAST 98% TEX 113E WITHIN ±2% OF THE OPTIMUM MOISTURE CONTENT TO A DEPTH OF SIX (6) INCHES. AS SPECIFIED IN THE APPROPRIATE DETAIL. STRENGTH I SHALL BE USED. THE PULVERIZED SUBGRADE SHALL BE REGRADED TO MATCH THE ELEVATIONS AS SHOWN ON THE PLANS. IN THE EVENT THE IDEAL ELEVATION IS UNACHIEVABLE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND A SOLUTION WILL BE REACHED. EXCESS SPOIL SHALL BE REMOVED FROM THE PROJECT AND DISPOSED OF AT AN APPROPRIATE LOCATION. THIS SHALL BE SUBSIDIARY TO THE BID ITEM.
- CONTRACTOR SHALL TAKE EXTREME CARE WHEN FORMING AND PAVING CURBS. SLOPES FOR THE PROPOSED CURBS ARE CRITICAL TO THE STORM WATER DRAINAGE FOR THESE STREETS AND THE CONTRACTOR SHALL ENSURE THE CURBS HAVE POSITIVE DRAINAGE AS SHOWN ON THE PROPOSED ELEVATIONS.
- THE CONTRACTOR SHALL TAKE EXTREME CARE TO ENSURE THAT THE DRAINAGE OF YARDS IS IN A FINAL CONDITION AS GOOD AS OR BETTER THAN THE START OF THE CONSTRUCTION.
- ALL SAW CUTS SHALL BE AT FULL DEPTHS.

- ALL GEOTECHNICAL SERVICES FOR THIS PROJECT WERE BY LANGERMAN ENGINEERING OF WACO, TEXAS.
 - THE COMPLETE GEOTECHNICAL REPORT, DATED APRIL 9, 2025 BY LANGERMAN ENGINEERING IS INCLUDED IN THE TECHNICAL SPECIFICATIONS SECTION OF THE SPECIFICATIONS AND CONTRACT DOCUMENTS FOR THIS PROJECT. NO WARRANTY AS TO THE SPECIFICATION GEOTECHNICAL REPORT IS IMPLIED OR STATED BY KASBERG, PATRICK & ASSOCIATES, LP. CONTRACTORS SHOULD SATISFY THEIR RESPECTIVE COMPANIES AND SUB-PROVIDERS OF EXISTING SURFACE AND SUB-SURFACE CONDITION BY MEANS AND METHODS THEY SO DETERMINE WILL BE ADEQUATE INCLUDING, BUT NOT LIMITED TO, EXCAVATIONS, SITE OBSERVATIONS, BORINGS OR OTHER MEANS SO SELECTED BY EACH COMPANY. NO CLAIM FOR EXTRA WORK OR EXTRA PAYMENT WILL BE CONSIDERED BY THE CITY OF BELLMEAD DUE TO EXISTING SURFACE OR SUB-SURFACE CONDITIONS.

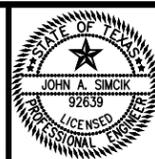
PAVEMENT SECTION
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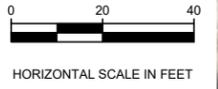
PROJECT NO.	25-115
DRAWN BY	Kyle E. Holmes
DESIGNED BY	John A. Simcik, P.E.
APPROVED BY	<i>[Signature]</i>
DATE	04-17-2025



KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
TEMPLE, TEXAS 76501

CITY OF BELLMEAD, TEXAS
WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS REHABILITATION
GENERAL NOTES 2 OF 2

SHEET NO. **G-03**
OF **4**



ADD ALTERNATE 1:
 CONSTRUCT CONCRETE
 PAD/DIAMOND AROUND EACH
 EXISTING MANHOLE AND WATER
 VALVE PER APPLICABLE DETAILS
 ST-11, ST-12, ST-13, OR ST-14 ON
 SHEETS D-02 & D-03

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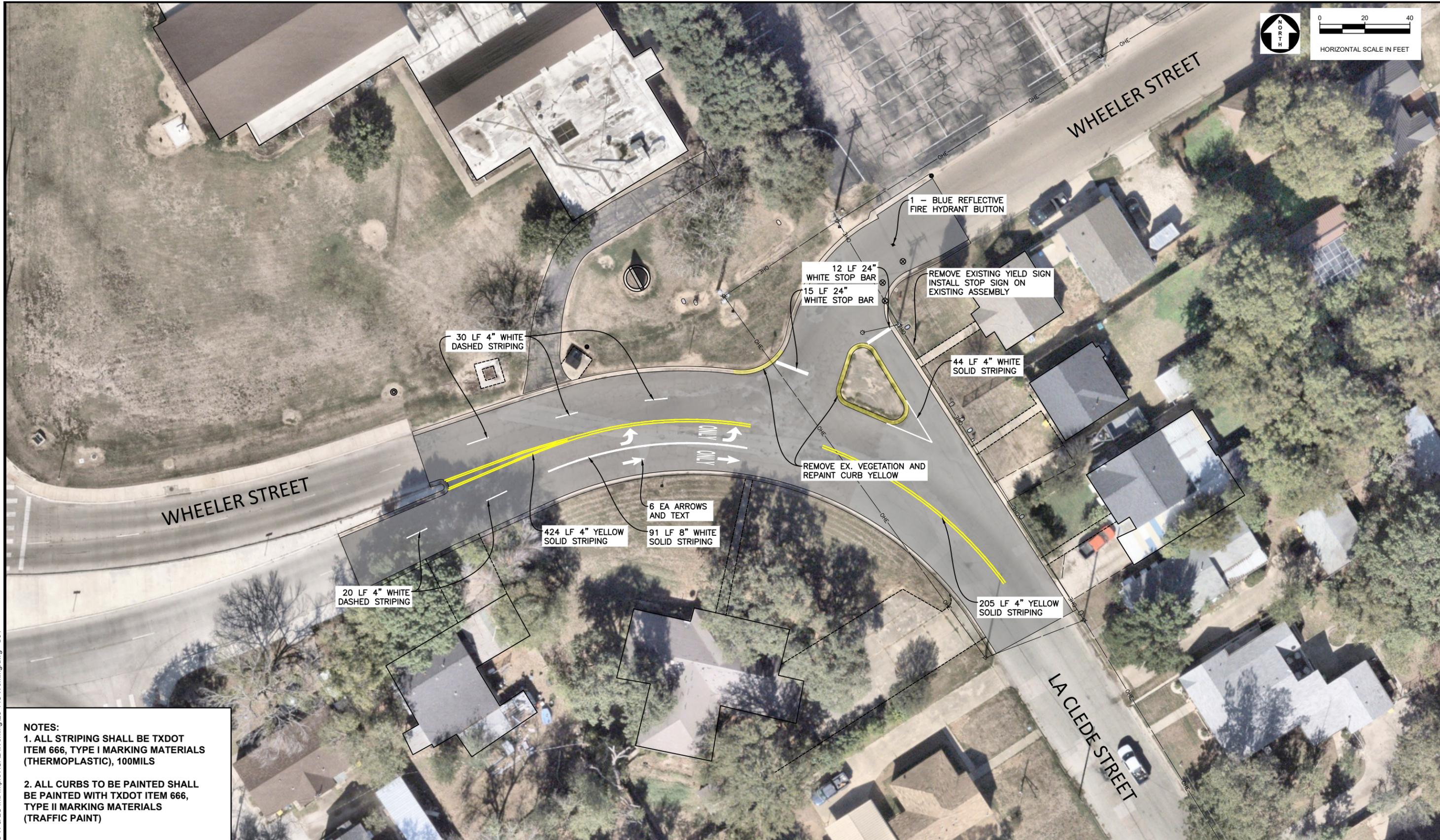
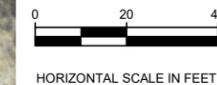
PROJECT NO. 25-115
 DRAWN BY Kyle E. Holmes
 DESIGNED BY John A. Simcik, P.E.
 APPROVED BY *[Signature]*
 DATE 04-17-2025



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 CONSULTING ENGINEERS
 TEMPLE, TEXAS 76501

CITY OF BELLMEAD, TEXAS
 WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS
 REHABILITATION
 REHABILITATION

SHEET NO. **P-01**
 OF **3**



WHEELER STREET

WHEELER STREET

LA CLEDE STREET

1 - BLUE REFLECTIVE
FIRE HYDRANT BUTTON

12 LF 24"
WHITE STOP BAR
15 LF 24"
WHITE STOP BAR

REMOVE EXISTING YIELD SIGN
INSTALL STOP SIGN ON
EXISTING ASSEMBLY

30 LF 4" WHITE
DASHED STRIPING

44 LF 4" WHITE
SOLID STRIPING

REMOVE EX. VEGETATION AND
REPAINT CURB YELLOW

6 EA ARROWS
AND TEXT

424 LF 4" YELLOW
SOLID STRIPING

91 LF 8" WHITE
SOLID STRIPING

20 LF 4" WHITE
DASHED STRIPING

205 LF 4" YELLOW
SOLID STRIPING

NOTES:
 1. ALL STRIPING SHALL BE TXDOT ITEM 666, TYPE I MARKING MATERIALS (THERMOPLASTIC), 100MILS
 2. ALL CURBS TO BE PAINTED SHALL BE PAINTED WITH TXDOT ITEM 666, TYPE II MARKING MATERIALS (TRAFFIC PAINT)

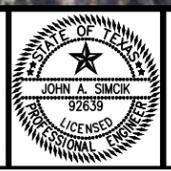
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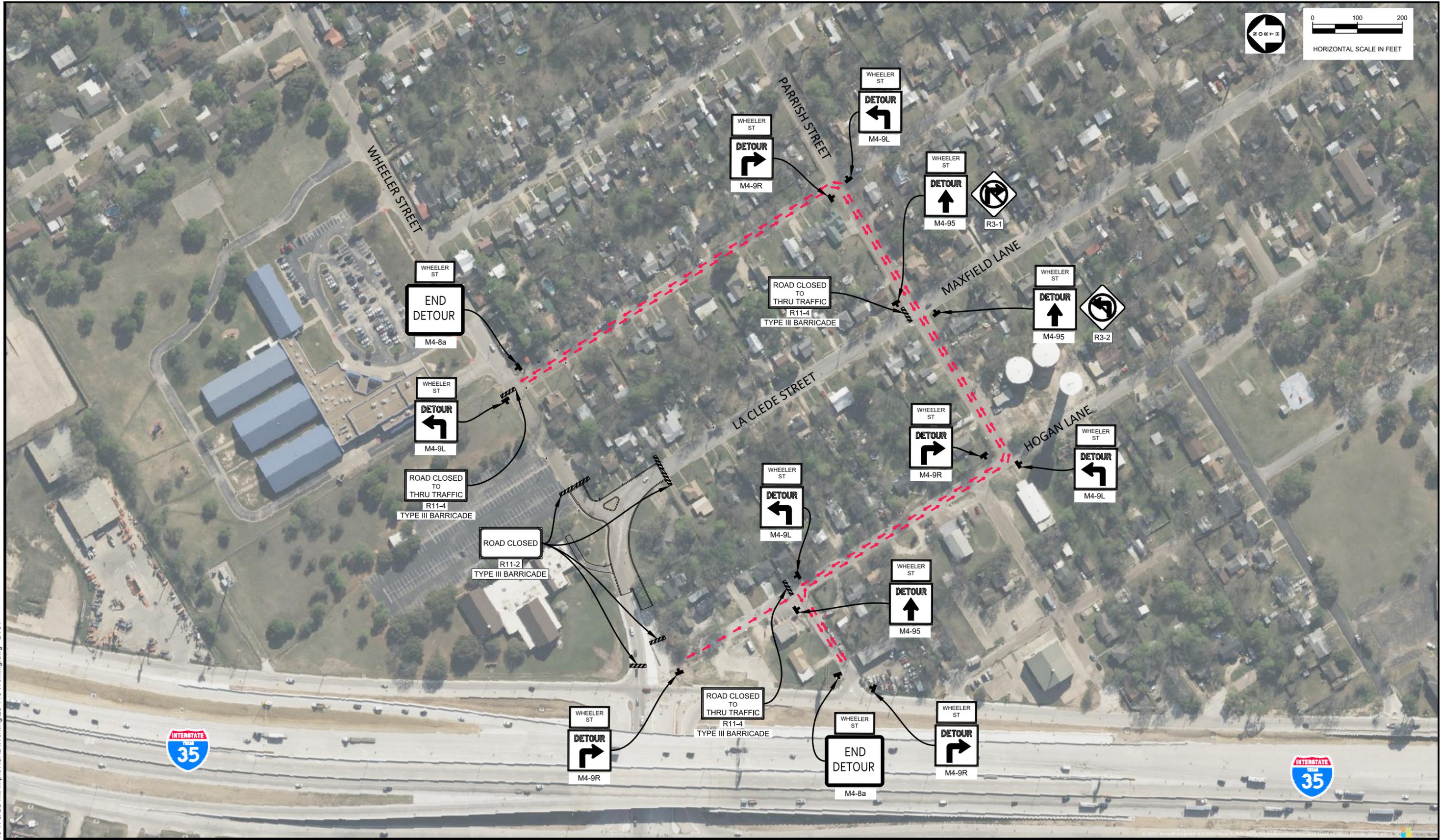
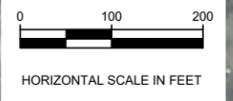
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 DESIGNED BY John A. Simcik, P.E.
 APPROVED BY *[Signature]*
 DATE 04-17-2025



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 CONSULTING ENGINEERS
 TEMPLE, TEXAS 76501

CITY OF BELLMEAD, TEXAS
 WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS
 REHABILITATION
 STRIPING & SIGNAGE

SHEET NO. **P-02**
 OF **3**



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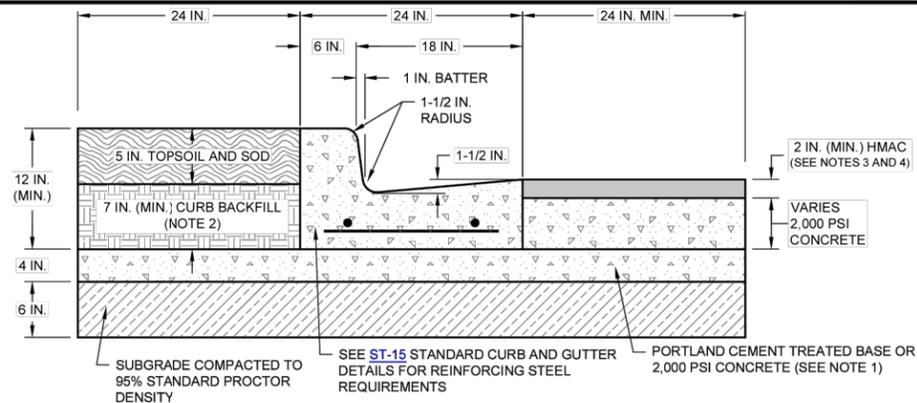
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 APPROVED BY *[Signature]*
 DATE 04-17-2025



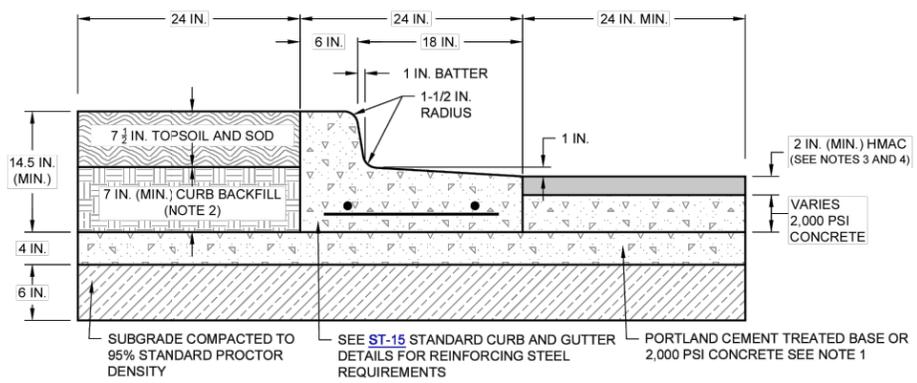
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 CONSULTING ENGINEERS
 TEMPLE, TEXAS 76501

CITY OF BELLMEAD, TEXAS
 WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS
 REHABILITATION
 DETOUR

SHEET NO. **P-03**
 OF **3**



DIRECT FLOW



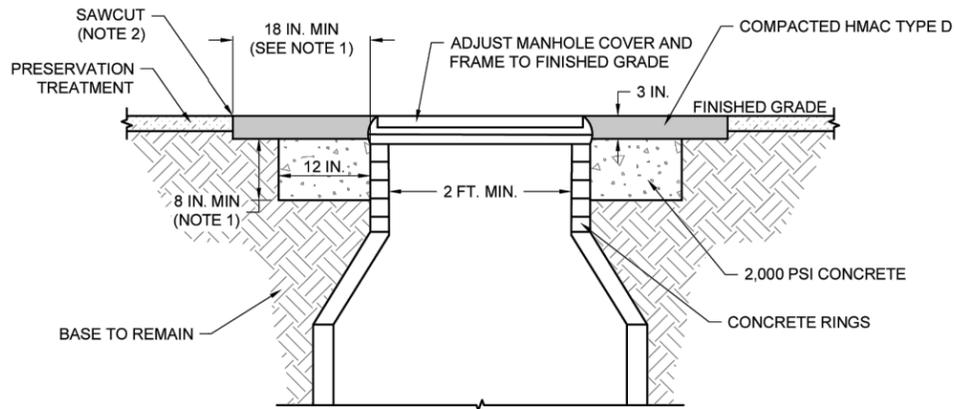
INDIRECT FLOW

NOTES:

- CURB AND GUTTER SHALL BE PLACED SEPARATELY AFTER BASE OR 2,000 PSI CONCRETE HAS CURED.
- TYPE "A" MATERIAL PER STANDARD SPECIFICATIONS FOR CONSTRUCTION SECTION 4.2 EXCAVATION AND BACKFILL PART 2: PRODUCT A, MATERIALS 3. TRENCH BACKFILL A, TYPE "A" MATERIAL MECHANICALLY COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY (TEX-113-E).
- HMAC SHALL BE TYPE D FOR STREET CLASSIFICATION LOCAL AND RESIDENTIAL COLLECTOR.
- HMAC SHALL BE TYPE C OR TYPE D FOR STREET CLASSIFICATION OF COMMERCIAL COLLECTOR AND INDUSTRIAL COLLECTOR. FOR INDUSTRIAL COLLECTOR DEPTH OF HMAC SHALL BE 3 INCHES.
- ORIGINAL PLACEMENT OF CURB & GUTTER AND REPLACEMENT OF CURB & GUTTER SHALL BE IN ACCORDANCE WITH THIS STANDARD DETAIL UNLESS SHOWN OTHERWISE IN PLANS APPROVED BY THE CITY.

STANDARD CURB & GUTTER PLACEMENT AND REPLACEMENT DETAILS

(USE FOR EXISTING STREETS ONLY)
(NO SCALE)

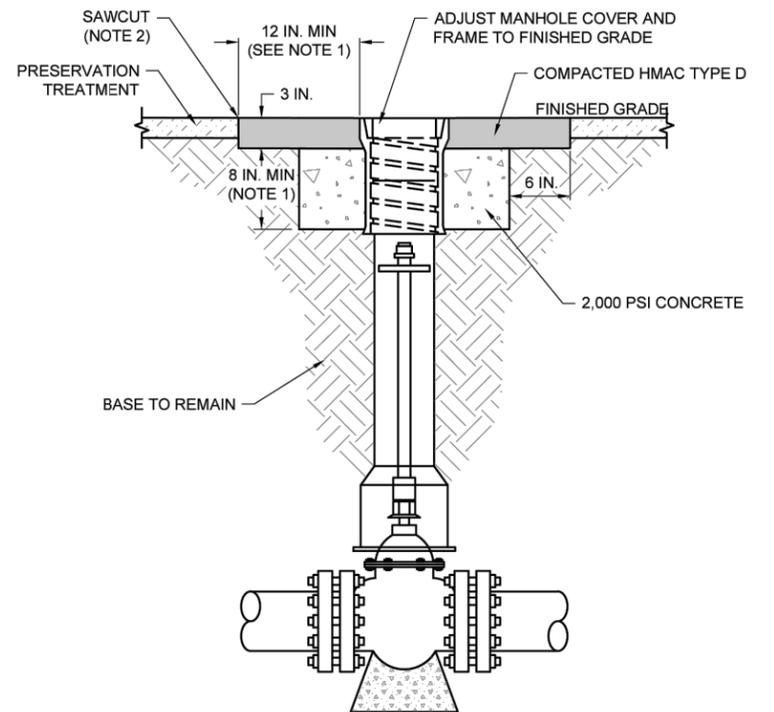


NOTES:

- MINIMUM DIMENSIONS PROVIDED. CONTRACTOR SHALL INCREASE AS NEEDED TO ADJUST OR REPLACE MANHOLE COVER, FRAME, OR CONCRETE RINGS.
- SAWCUT EDGE OF EXISTING PAVEMENT THE SAME DISTANCE AROUND EXISTING MANHOLE RING AND COVER TO PRODUCE A SMOOTH AND EVEN EDGE FOR SURFACE REPLACEMENT.
- CONTRACTOR SHALL PROTECT SEWER FROM CONSTRUCTION DEBRIS.
- ANY DEBRIS WHICH ENTERS THE MANHOLE OR THE SEWER MAIN SHALL BE IMMEDIATELY REMOVED BY CONTRACTOR.
- REUSE MANHOLE RING AND COVER EXCEPT PER NOTE 6.
- EXISTING MANHOLE RING AND COVER OR CONCRETE RINGS DAMAGED BY CONSTRUCTION SHALL BE REPLACED AT CONTRACTOR'S EXPENSE AS PER CITY OF WACO DETAILS. REFER TO S-6, S-7, S-8, S-9, S-10, SD-9 FOR APPLICABLE REQUIREMENTS.
- EXISTING MANHOLE RING AND COVER OR CONCRETE RINGS DESIGNATED FOR REPLACEMENT SHALL BE DONE SO BY THE CONTRACTOR PER NOTE 6.
- SEE CITY OF WACO DETAIL S-5 FOR ADDITIONAL REQUIREMENTS.
- MANHOLE LID SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MAX TOLERANCE +/- 1/8 INCH.

**MANHOLE LID HEIGHT ADJUSTMENT OR REPLACEMENT
(PRESERVATION WORK ONLY)**

(NO SCALE)



NOTES:

- MINIMUM DIMENSIONS PROVIDED. CONTRACTOR SHALL INCREASE AS NEEDED TO ADJUST OR REPLACE VALVE BOX.
- SAWCUT EDGE OF EXISTING PAVEMENT ON ALL SIDES OF VALVE BOX TO PRODUCE A SMOOTH AND EVEN EDGE FOR SURFACE REPLACEMENT.
- ANY OLD STYLE VALVE BOXES SHALL BE REPLACE WITH A NEW VALVE BOX AND LID PER CITY OF WACO DETAIL DETAILS W-6, W-7, AND W-8.
- ANY EXISTING VALVE BOXES DAMAGED BY CONSTRUCTION SHALL BE REPLACED AT CONTRACTOR'S EXPENSE WITH A BOX THAT MEETS THE CITY OF WACO DETAILS W-6, W-7, AND W-8.
- VALVE BOX LID SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MAX TOLERANCES +/- 1/8 INCH.

**GATE VALVE BOX ADJUSTMENT OR REPLACEMENT
(PRESERVATION WORK ONLY)**

(NO SCALE)

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				<p>ST-20A</p>								

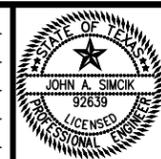
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				<p>ST-45</p>								

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				<p>ST-46</p>								

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PROJECT NO.	25-115
DRAWN BY	Kyle E. Holmes
DESIGNED BY	John A. Simcik, P.E.
APPROVED BY	
DATE	04-17-2025

NO.	DATE	REVISION	BY

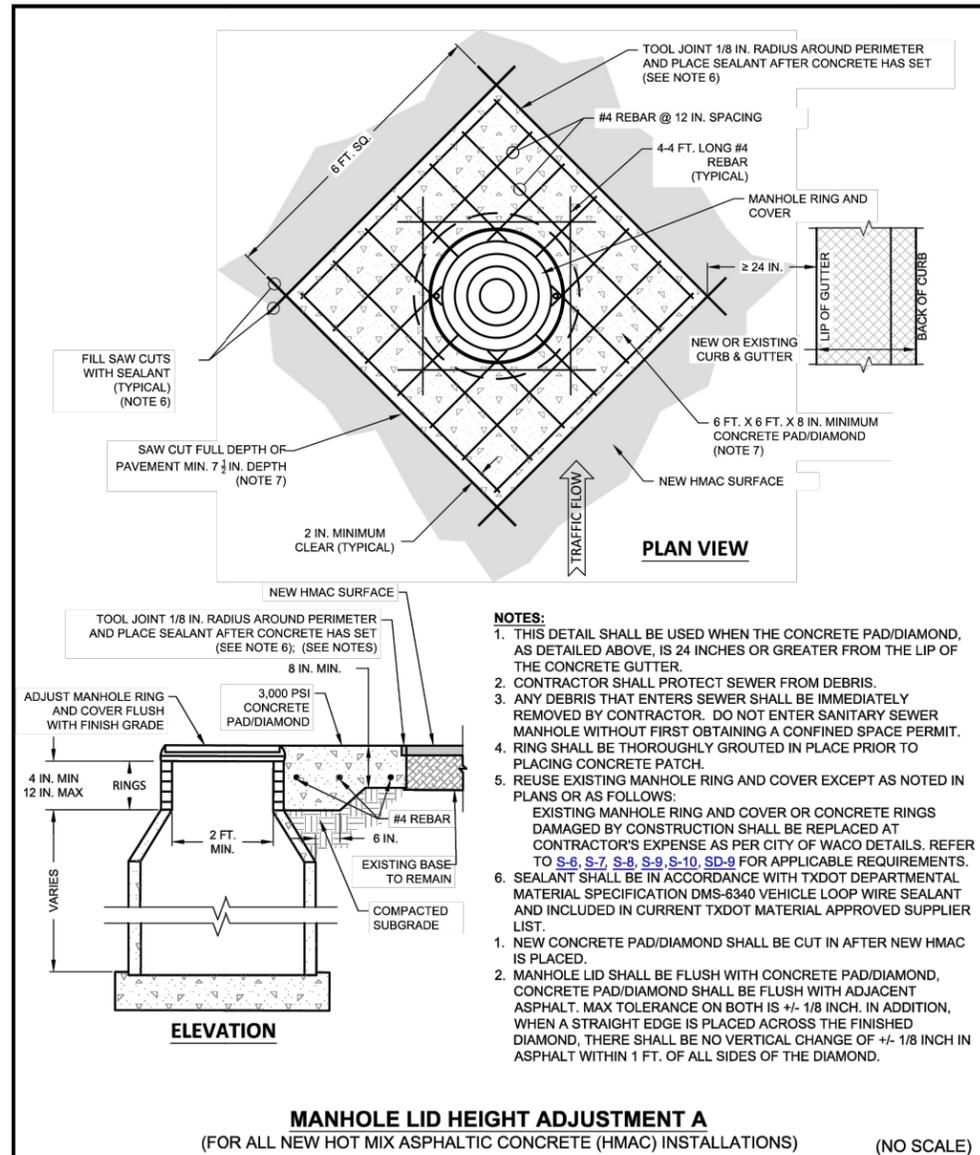


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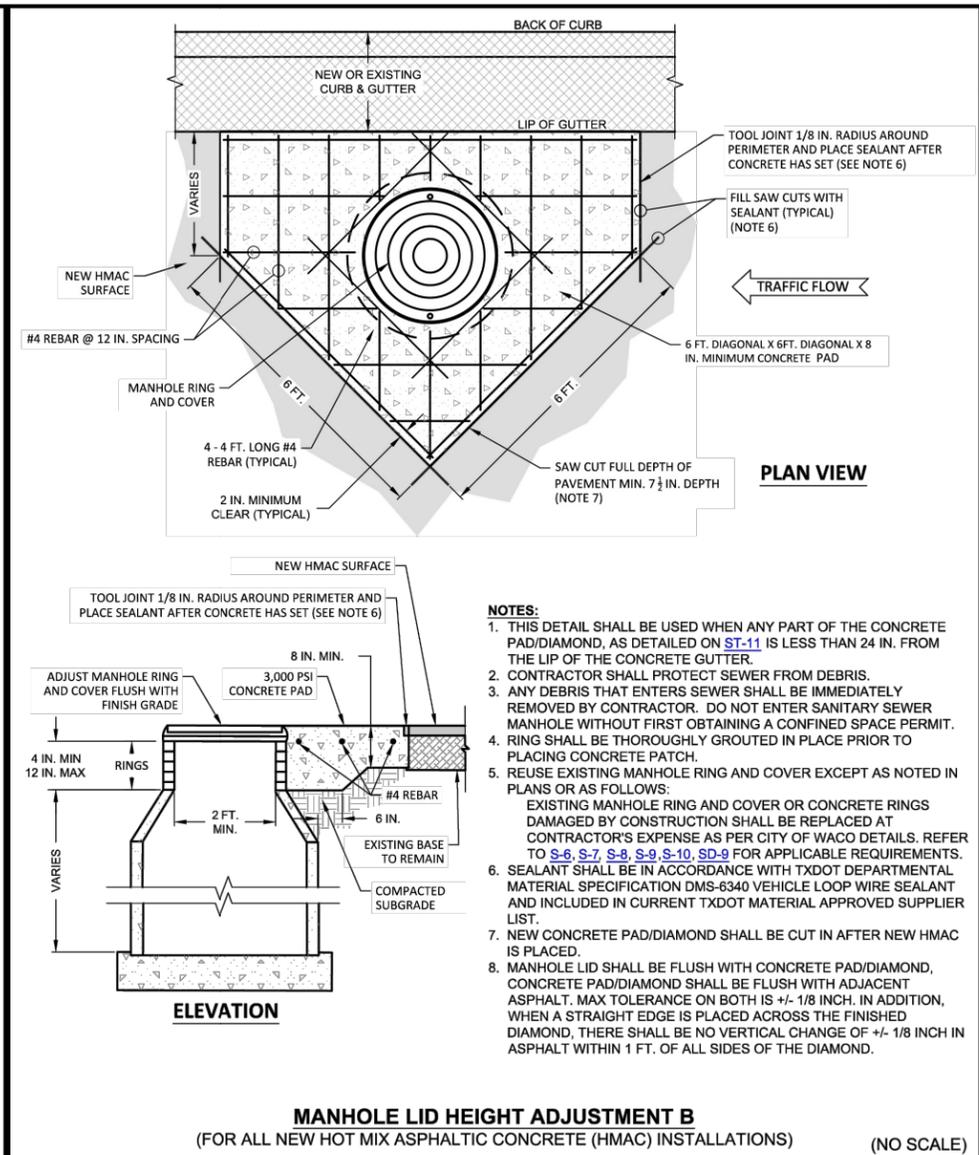
CITY OF BELLMEAD, TEXAS
WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS
REHABILITATION
GENERAL DETAILS 1 OF 3

SHEET NO. **D-01**
OF **20**

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	1 MODIFY NOTE 5 ## DESCRIPTION	MZ 11/15/2024 FL MM/DD/YYYY	ST-11		



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	1 MODIFY NOTE 5 ## DESCRIPTION	MZ 11/15/2024 FL MM/DD/YYYY	ST-12		

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Plotted By: KHOLMES

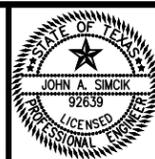
PROJECT NO. 25-115

DRAWN BY Kyle E. Holmes

DESIGNED BY John A. Simcik, P.E.

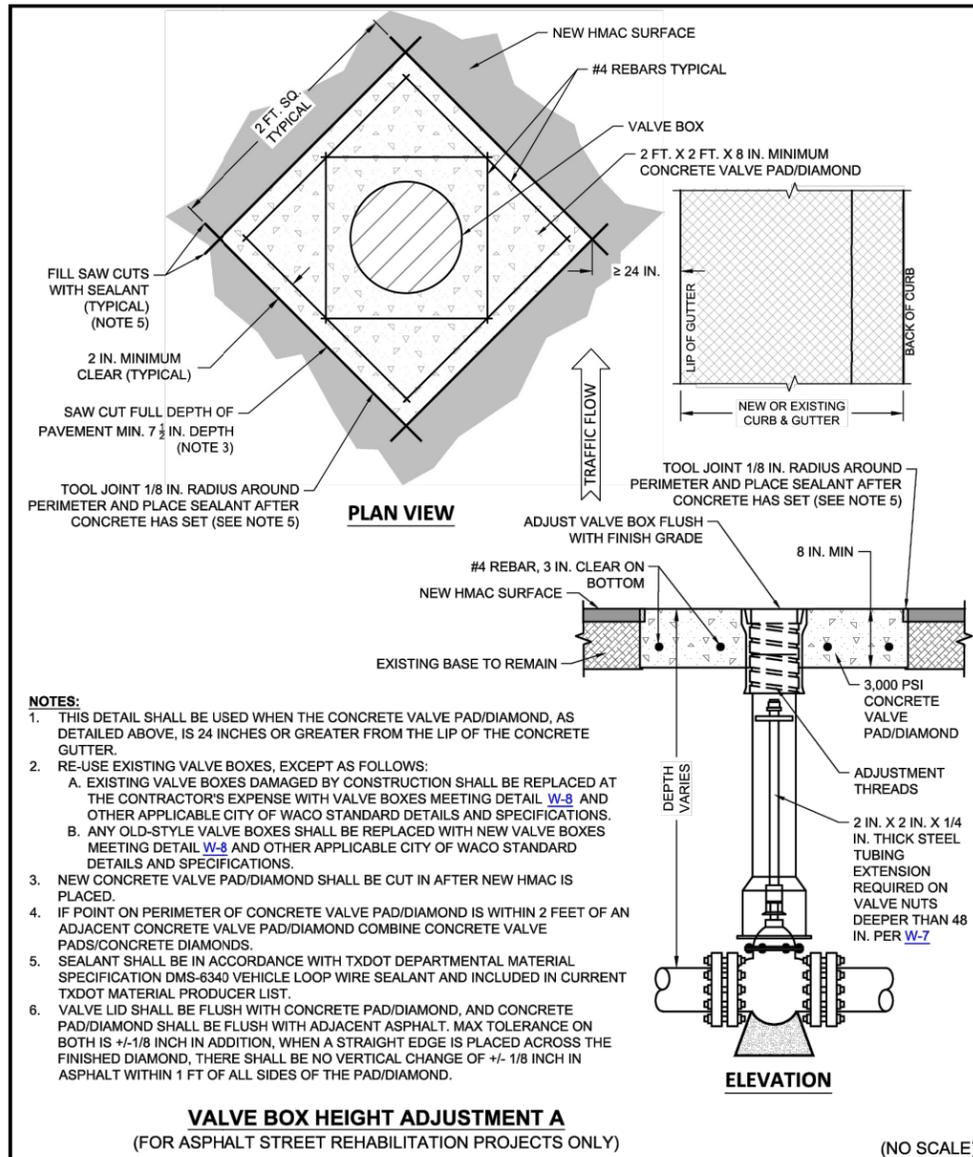
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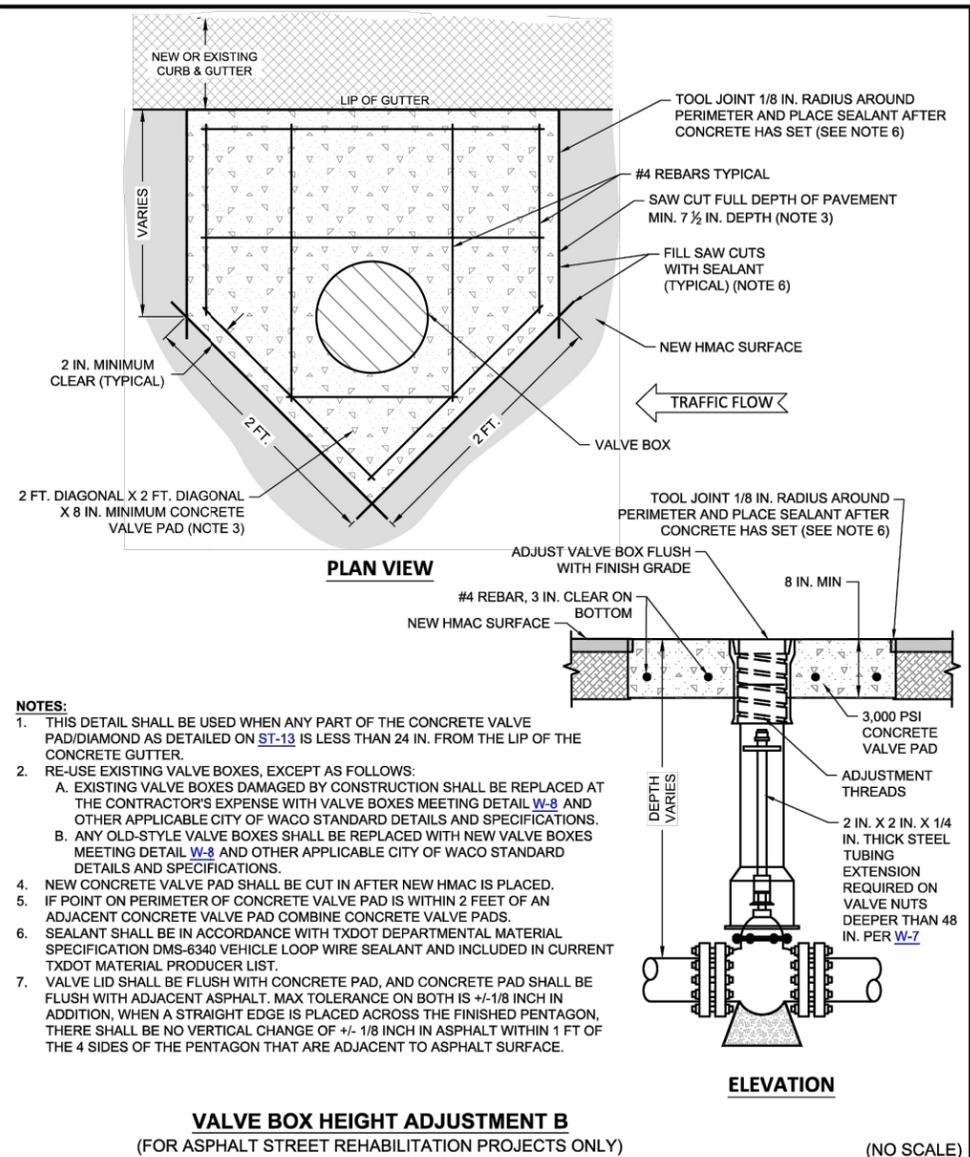


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CITY OF BELLMEAD, TEXAS
WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS
REHABILITATION
GENERAL DETAILS 2 OF 3



- NOTES:**
- THIS DETAIL SHALL BE USED WHEN THE CONCRETE VALVE PAD/DIAMOND, AS DETAILED ABOVE, IS 24 INCHES OR GREATER FROM THE LIP OF THE CONCRETE GUTTER.
 - RE-USE EXISTING VALVE BOXES, EXCEPT AS FOLLOWS:
 - EXISTING VALVE BOXES DAMAGED BY CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE WITH VALVE BOXES MEETING DETAIL W-8 AND OTHER APPLICABLE CITY OF WACO STANDARD DETAILS AND SPECIFICATIONS.
 - ANY OLD-STYLE VALVE BOXES SHALL BE REPLACED WITH NEW VALVE BOXES MEETING DETAIL W-8 AND OTHER APPLICABLE CITY OF WACO STANDARD DETAILS AND SPECIFICATIONS.
 - NEW CONCRETE VALVE PAD/DIAMOND SHALL BE CUT IN AFTER NEW HMAC IS PLACED.
 - IF POINT ON PERIMETER OF CONCRETE VALVE PAD/DIAMOND IS WITHIN 2 FEET OF AN ADJACENT CONCRETE VALVE PAD/DIAMOND COMBINE CONCRETE VALVE PADS/CONCRETE DIAMONDS.
 - SEALANT SHALL BE IN ACCORDANCE WITH TXDOT DEPARTMENTAL MATERIAL SPECIFICATION DMS-6340 VEHICLE LOOP WIRE SEALANT AND INCLUDED IN CURRENT TXDOT MATERIAL PRODUCER LIST.
 - VALVE LID SHALL BE FLUSH WITH CONCRETE PAD/DIAMOND, AND CONCRETE PAD/DIAMOND SHALL BE FLUSH WITH ADJACENT ASPHALT. MAX TOLERANCE ON BOTH IS +/- 1/8 INCH IN ADDITION, WHEN A STRAIGHT EDGE IS PLACED ACROSS THE FINISHED DIAMOND, THERE SHALL BE NO VERTICAL CHANGE OF +/- 1/8 INCH IN ASPHALT WITHIN 1 FT OF ALL SIDES OF THE PAD/DIAMOND.



- NOTES:**
- THIS DETAIL SHALL BE USED WHEN ANY PART OF THE CONCRETE VALVE PAD/DIAMOND AS DETAILED ON ST-13 IS LESS THAN 24 IN. FROM THE LIP OF THE CONCRETE GUTTER.
 - RE-USE EXISTING VALVE BOXES, EXCEPT AS FOLLOWS:
 - EXISTING VALVE BOXES DAMAGED BY CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE WITH VALVE BOXES MEETING DETAIL W-8 AND OTHER APPLICABLE CITY OF WACO STANDARD DETAILS AND SPECIFICATIONS.
 - ANY OLD-STYLE VALVE BOXES SHALL BE REPLACED WITH NEW VALVE BOXES MEETING DETAIL W-8 AND OTHER APPLICABLE CITY OF WACO STANDARD DETAILS AND SPECIFICATIONS.
 - NEW CONCRETE VALVE PAD SHALL BE CUT IN AFTER NEW HMAC IS PLACED.
 - IF POINT ON PERIMETER OF CONCRETE VALVE PAD IS WITHIN 2 FEET OF AN ADJACENT CONCRETE VALVE PAD COMBINE CONCRETE VALVE PADS.
 - SEALANT SHALL BE IN ACCORDANCE WITH TXDOT DEPARTMENTAL MATERIAL SPECIFICATION DMS-6340 VEHICLE LOOP WIRE SEALANT AND INCLUDED IN CURRENT TXDOT MATERIAL PRODUCER LIST.
 - VALVE LID SHALL BE FLUSH WITH CONCRETE PAD, AND CONCRETE PAD SHALL BE FLUSH WITH ADJACENT ASPHALT. MAX TOLERANCE ON BOTH IS +/- 1/8 INCH IN ADDITION, WHEN A STRAIGHT EDGE IS PLACED ACROSS THE FINISHED PENTAGON, THERE SHALL BE NO VERTICAL CHANGE OF +/- 1/8 INCH IN ASPHALT WITHIN 1 FT OF THE 4 SIDES OF THE PENTAGON THAT ARE ADJACENT TO ASPHALT SURFACE.

CITY OF WACO	ENGINEERING DIVISION	NO.	REVISIONS	BY	DATE	DATE
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		##	DESCRIPTION	FL	MM/DD/YYYY	

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KPA Firm Registration Number F-510		Plotted By: KHOLMES	

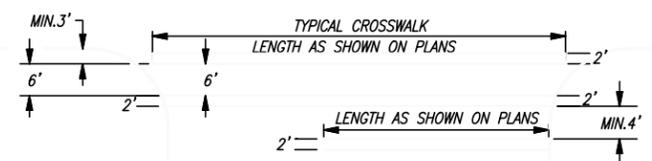
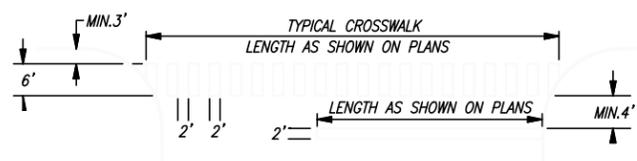
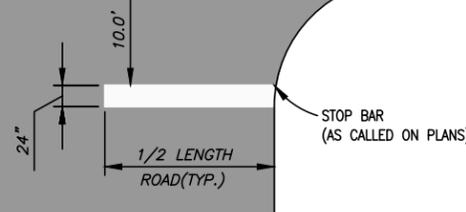
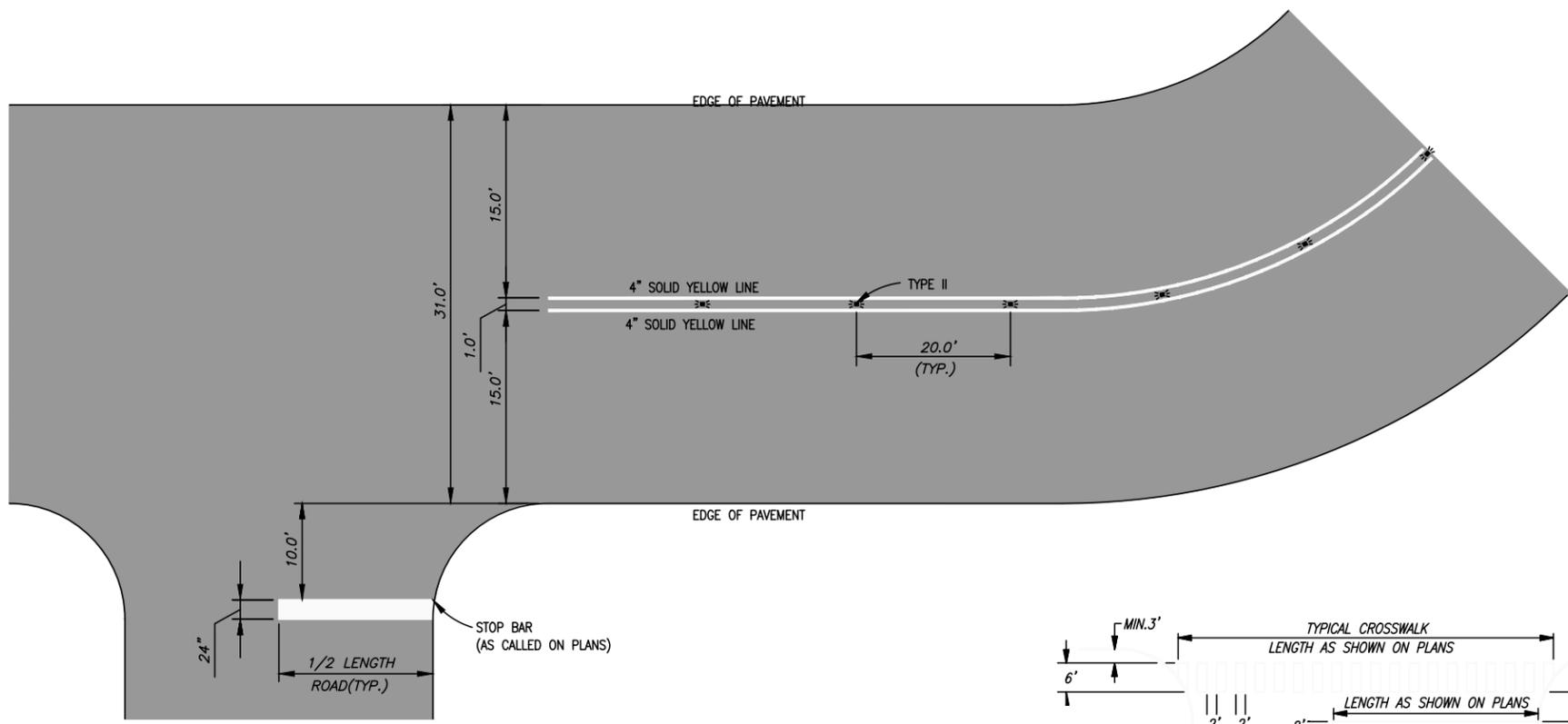
PROJECT NO.	25-115
DRAWN BY	Kyle E. Holmes
DESIGNED BY	John A. Simcik, P.E.
APPROVED BY	<i>[Signature]</i>
DATE	04-17-2025



KPA

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TEMPLE, TEXAS 76501

CITY OF BELLMEAD, TEXAS
WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS
REHABILITATION
GENERAL DETAILS 3 OF 3



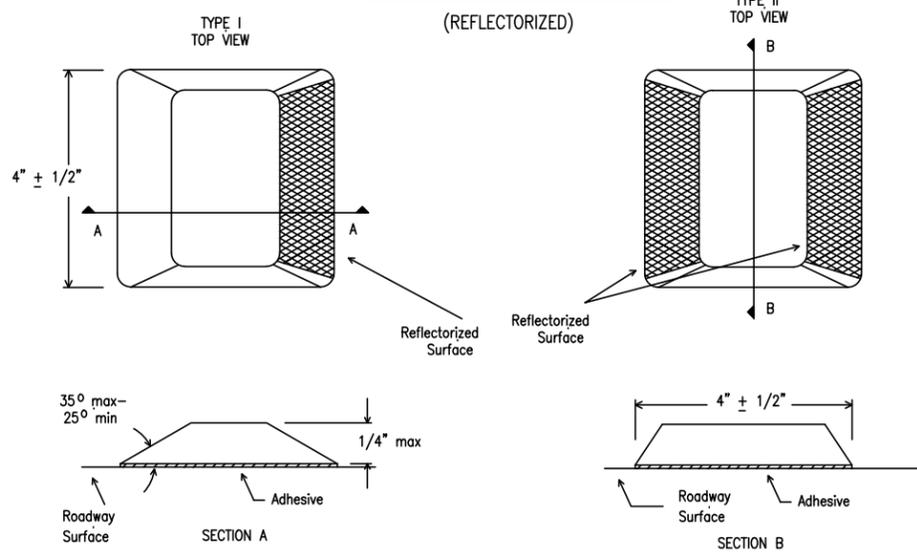
MISC. STRIPING DIMENSIONS

ALL STRIPING SHALL BE THERMOPLASTIC TYPE MATERIAL CONFORMING TO TxDOT DEPARTMENT MATERIALS SPECIFICATION -9-8220.

- CROSSWALKS**
- 6' WIDTH WHITE STRIPE
 - 2' STRIPE SECTIONS (STRIPE LENGTH)
 - 2' SPACES BETWEEN SECTIONS
 - 3' MINIMUM SET BACK FROM BACK OF CURB OR EDGE OF PAVEMENT

- STOP BARS**
- 24" WIDTH WHITE STRIPE
 - 4' ADVANCE OF CROSSWALKS
 - 10' FROM EDGE OF INTERSECTING ROADWAY IF NO CROSSWALK

RAISED PAVEMENT MARKERS



GENERAL NOTES:

ALL RAISED PAVEMENT MARKERS PLACED IN BROKEN LINES SHALL BE PLACED IN LINE WITH AND MIDWAY BETWEEN THE STRIPES.

ON CONCRETE PAVEMENTS THE RAISED PAVEMENT MARKERS SHOULD BE PLACED TO ONE SIDE OF THE LONGITUDINAL JOINTS.

ALL PAVEMENT MARKING MATERIALS SHALL MEET THE REQUIRED DEPARTMENTAL MATERIAL SPECIFICATIONS AS SPECIFIED BY THE PLANS.

SPECIFICATION REFERENCE TABLE

MATERIAL SPECIFICATIONS	DMS-4200
PAVEMENT MARKERS (REFLECT.)	DMS-6100
EPOXY	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130

TYPICAL CROSSWALK DETAILS

NOT TO SCALE

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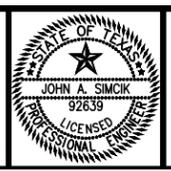
PROJECT NO. 25-115

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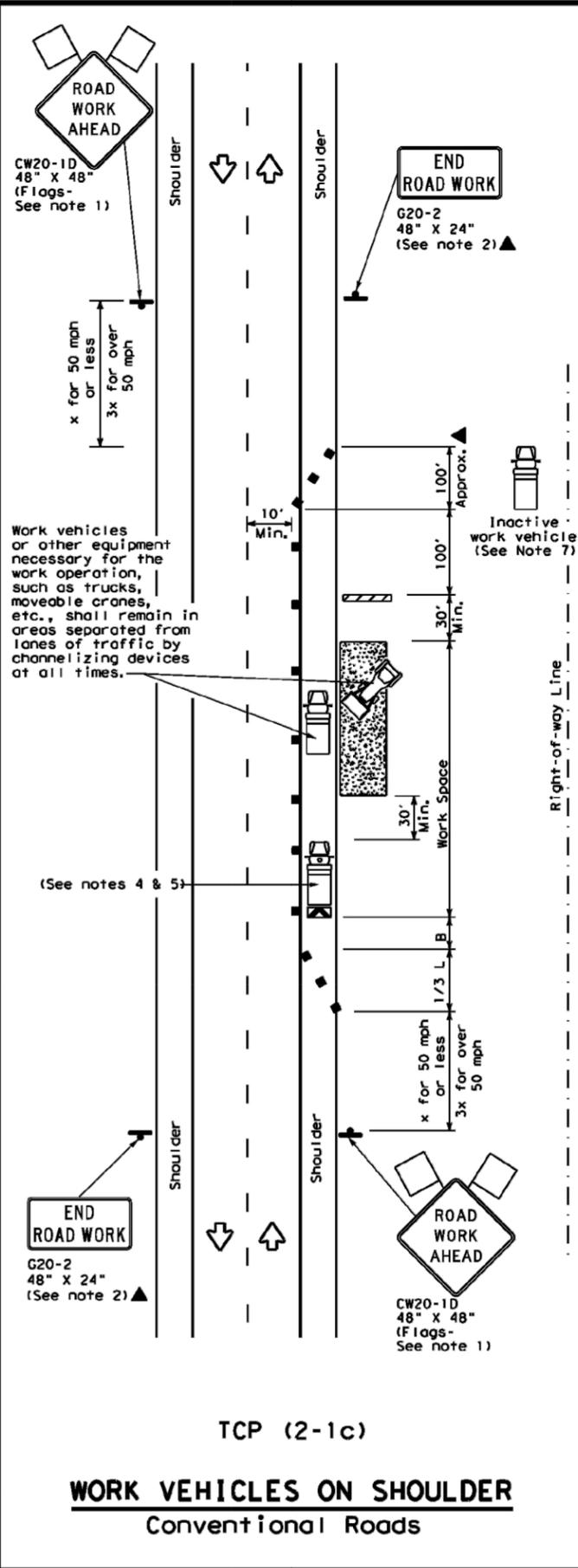
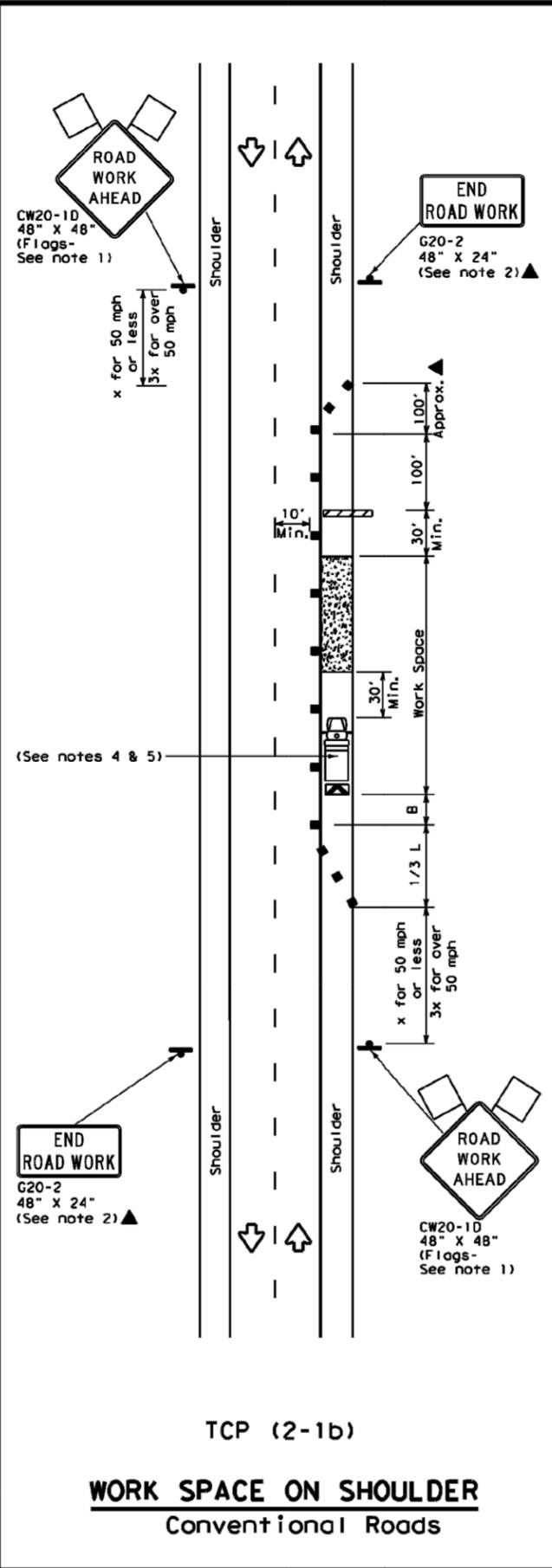
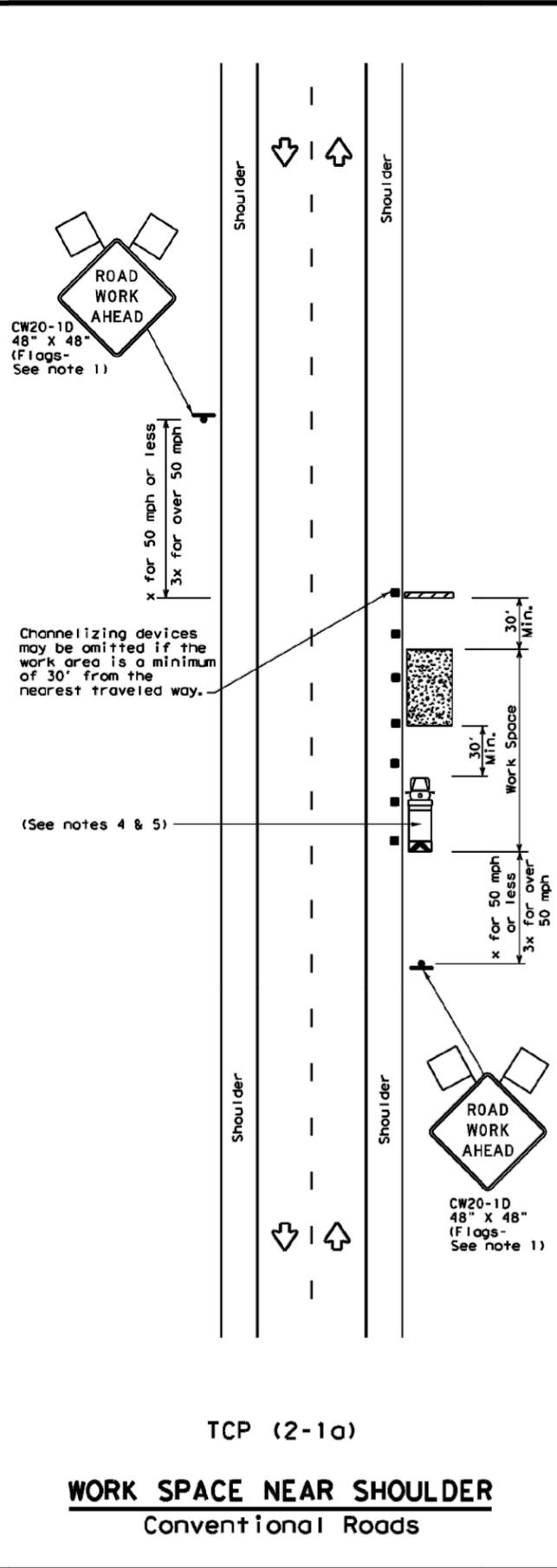
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TEMPLE, TEXAS 76501

CITY OF BELLMEAD, TEXAS
WHEELER & LA CLEDE INTERSECTION IMPROVEMENTS
REHABILITATION
STRIPING DETAILS

SHEET NO. **D-04**
OF **20**

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DATE: FILE:



LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70	700'	770'	840'	70'	140'	800'	475'	
75	750'	825'	900'	75'	150'	900'	540'	

* Conventional Roads Only
** Taper lengths have been rounded off.
L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
 - Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
 - Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
 - See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (2-1) - 18

FILE: tcp2-1-18.dgn	DATE: December 1985	CON: CONT	SECT: SECT	JOB: JOB	HIGHWAY: HIGHWAY
REVISIONS		DIST: COUNTY		SHEET NO. D-05	
2-94	4-98				
8-95	2-12				
1-97	2-18				

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.
12. The Engineer has the final decision on the location of all traffic control devices.
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.
2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

<p>THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov</p>
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

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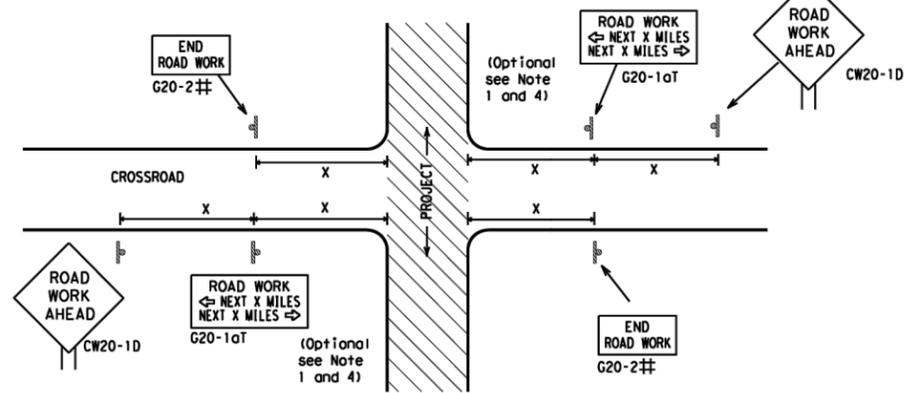
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SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard		
<p>BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS</p> <p>BC(1)-21</p>				
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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5-10	5-21			
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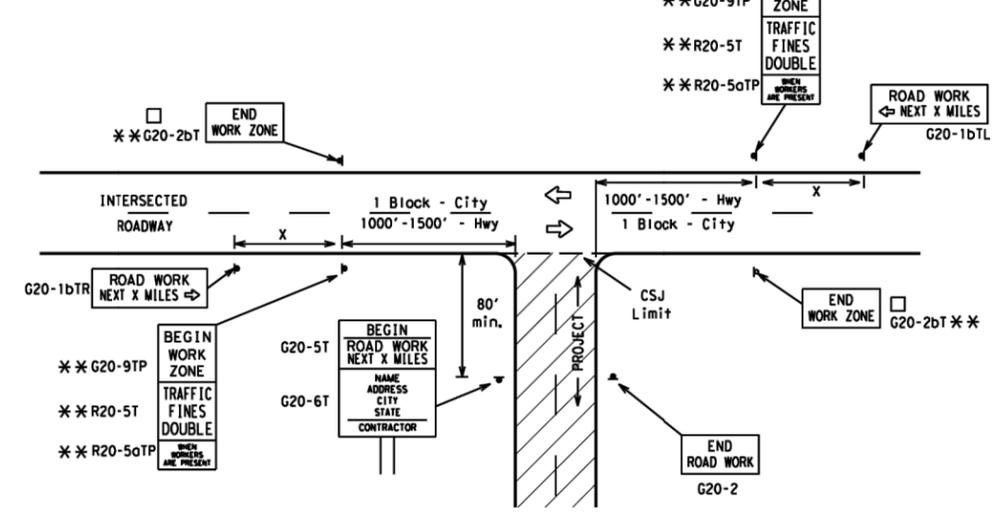
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TYPICAL LOCATION OF CROSSROAD SIGNS



- ## May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)
- The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D) sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
 - The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK" (G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
 - Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
 - The "ROAD WORK NEXT X MILES" (G20-1aT) sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
 - Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
 - When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

- The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
- If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME" (G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow (G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR) signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING^{1,5,6}

Sign Number or Series	SIZE		SPACING	
	Conventional Road	Expressway/Freeway	Posted Speed MPH	Sign Spacing "X" Feet (Approx.)
CW20 ⁴ CW21 CW22 CW23 CW25	48" x 48"	48" x 48"	30 35 40 45	120 160 240 320
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	50 55 60 65	400 500 ² 600 ² 700 ²
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	70 75 80	800 ² 900 ² 1000 ²
			*	* ³

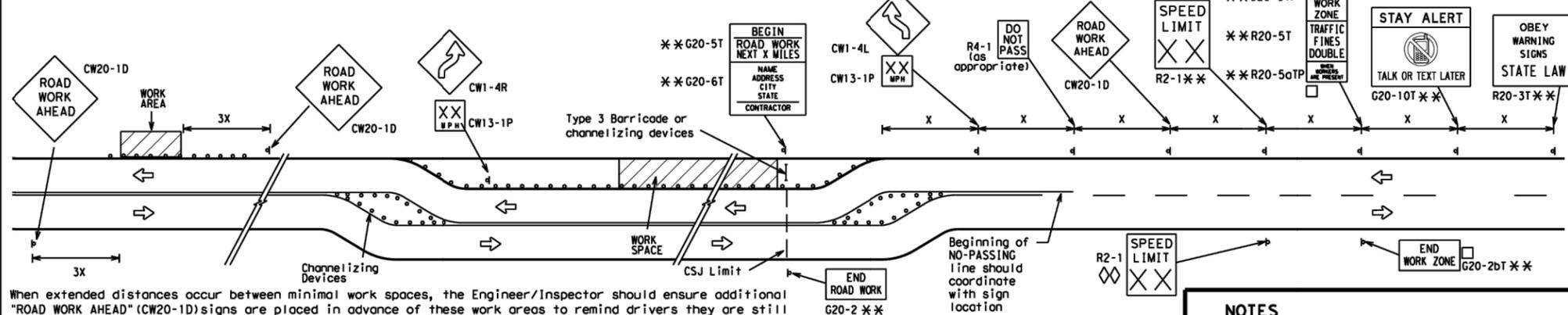
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

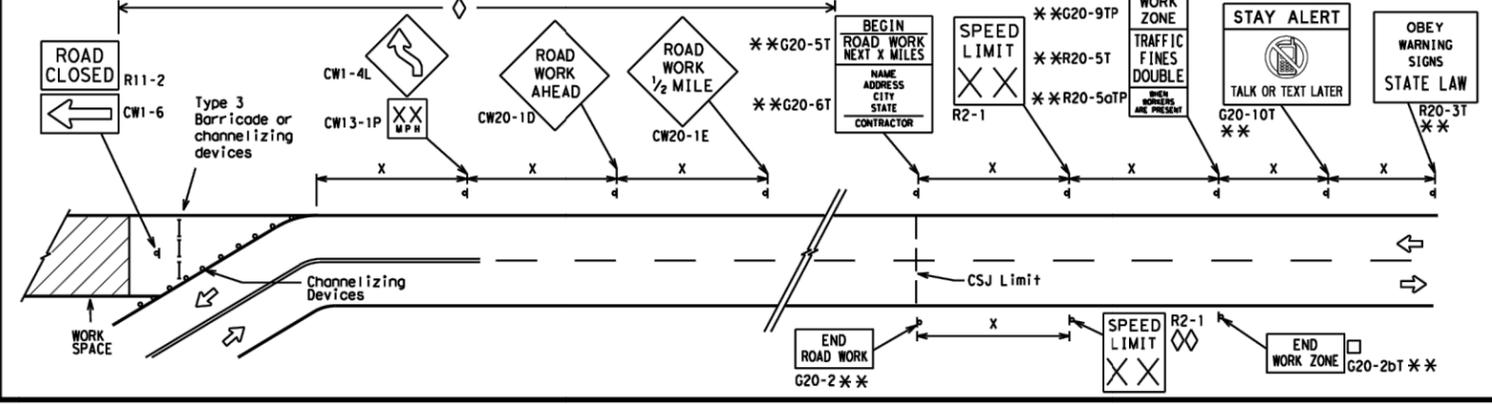
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
- Only diamond shaped warning sign sizes are indicated.
- See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

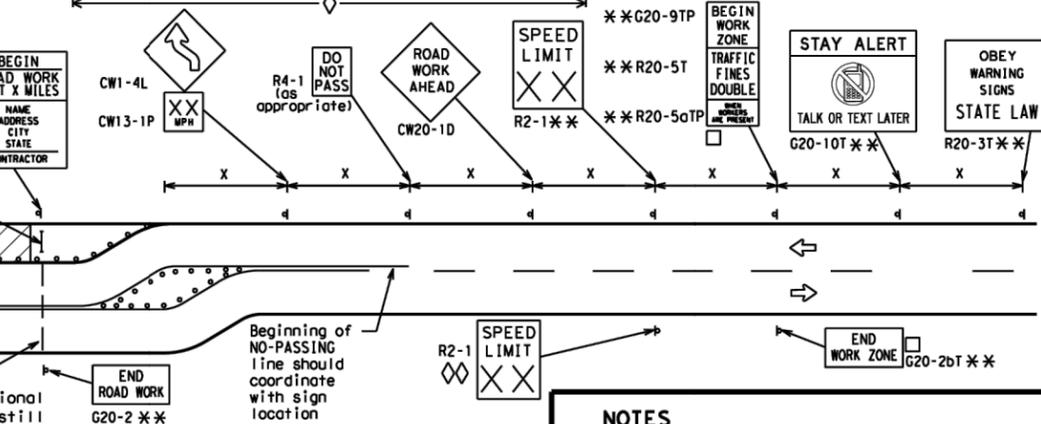


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



NOTES

- The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.
- The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.
 - CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.
 - Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.
 - Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND	
—	Type 3 Barricade
○ ○ ○	Channelizing Devices
■	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

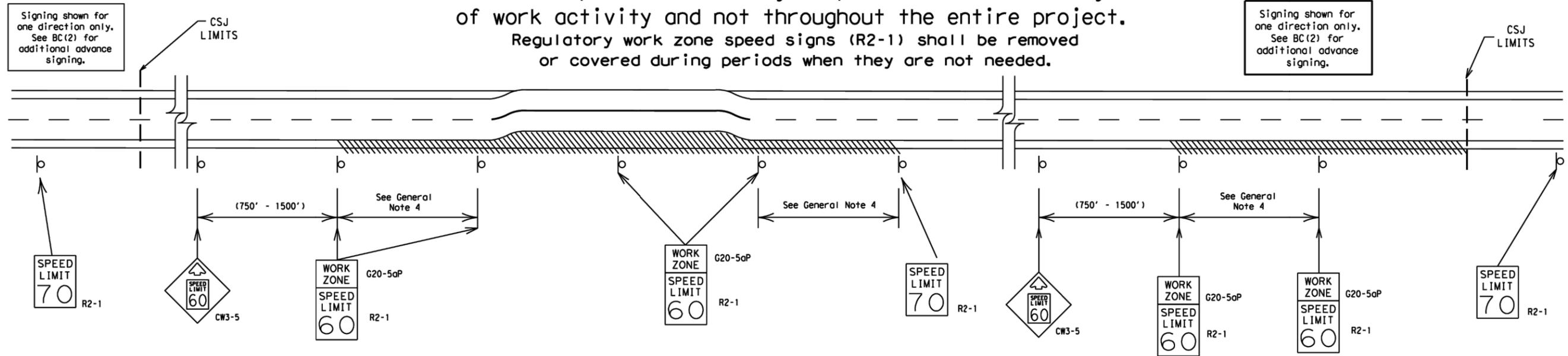
BC (2) - 21

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7-13 5-21				
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project. Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered. (See Removing or Covering on BC(4)).

GENERAL NOTES

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- Frequency of work zone speed limit signs should be:
 - 40 mph and greater 0.2 to 2 miles
 - 35 mph and less 0.2 to 1 mile
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- Fabrication, erection and maintenance of the "ADVANCE SPEED LIMIT" (CW3-5) sign, "WORK ZONE" (G20-5aP) plaque and the "SPEED LIMIT" (R2-1) signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
- Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
- Techniques that may help reduce traffic speeds include but are not limited to:
 - Law enforcement.
 - Flagger stationed next to sign.
 - Portable changeable message sign (PCMS).
 - Low-power (drone) radar transmitter.
 - Speed monitor trailers or signs.
- Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
- For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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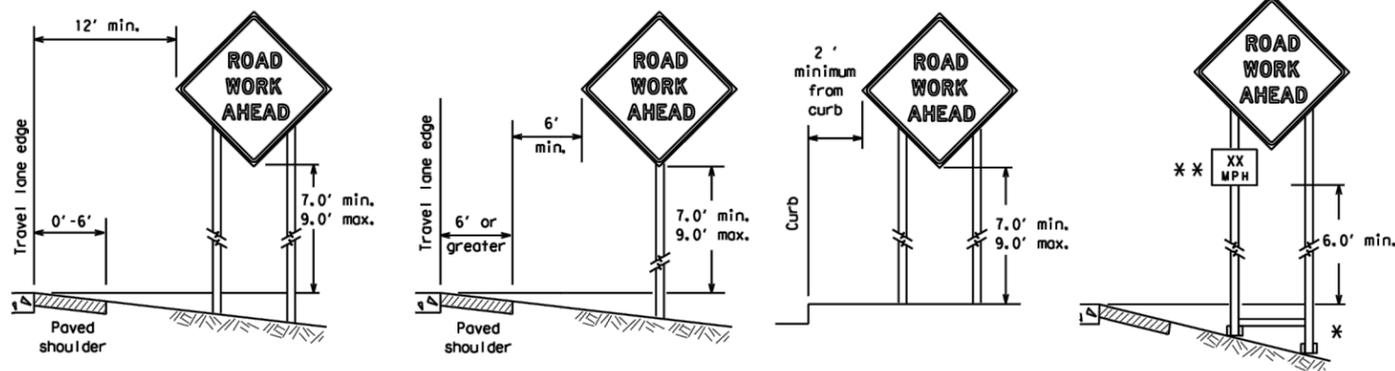
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SHEET 3 OF 12

<h2>BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT</h2>			
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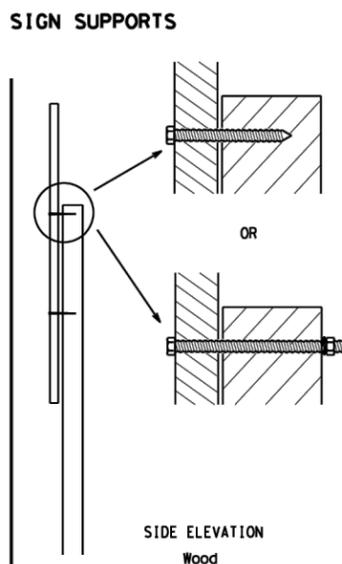
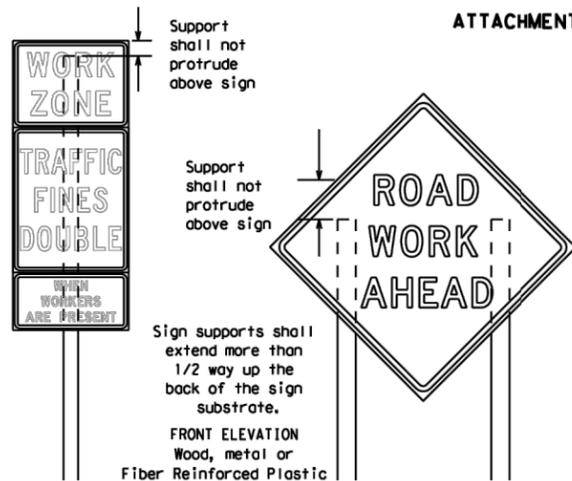
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the splice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

GENERAL NOTES FOR WORK ZONE SIGNS

- Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
- Wooden sign posts shall be painted white.
- Barricades shall NOT be used as sign supports.
- All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
- The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
- The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
- The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
- Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
- The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

- The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
 - Long-term stationary - work that occupies a location more than 3 days.
 - Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
 - Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
 - Short, duration - work that occupies a location up to 1 hour.
 - Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes).

SIGN MOUNTING HEIGHT

- The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
- The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
- Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
- Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
- Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

- The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

- The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
- "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
- All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

- All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
- White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
- Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

- All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

- When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
- Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
- Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
- When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
- Burlap shall NOT be used to cover signs.
- Duct tape or other adhesive material shall NOT be affixed to a sign face.
- Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

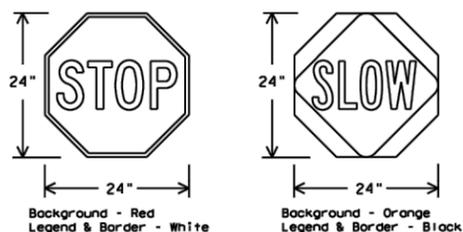
- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
- Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
- Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
- Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
- Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
- Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

- Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

STOP/SLOW PADDLES

- STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
- STOP/SLOW paddles shall be retroreflective when used at night.
- STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
- Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



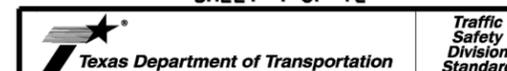
CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

- Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
- When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
- When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
- If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
- If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
- Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

SHEETING REQUIREMENTS (WHEN USED AT NIGHT)

USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B _{FL} OR C _{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

SHEET 4 OF 12

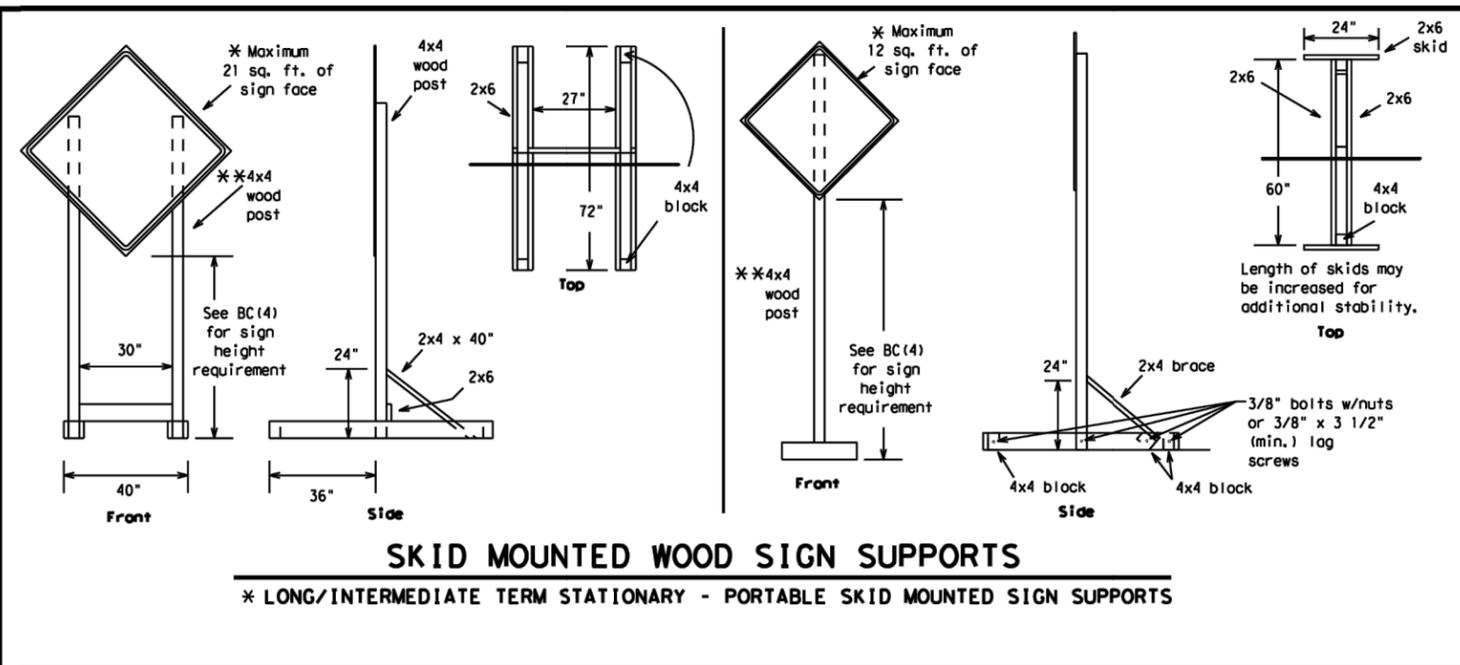


BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC (4) - 21

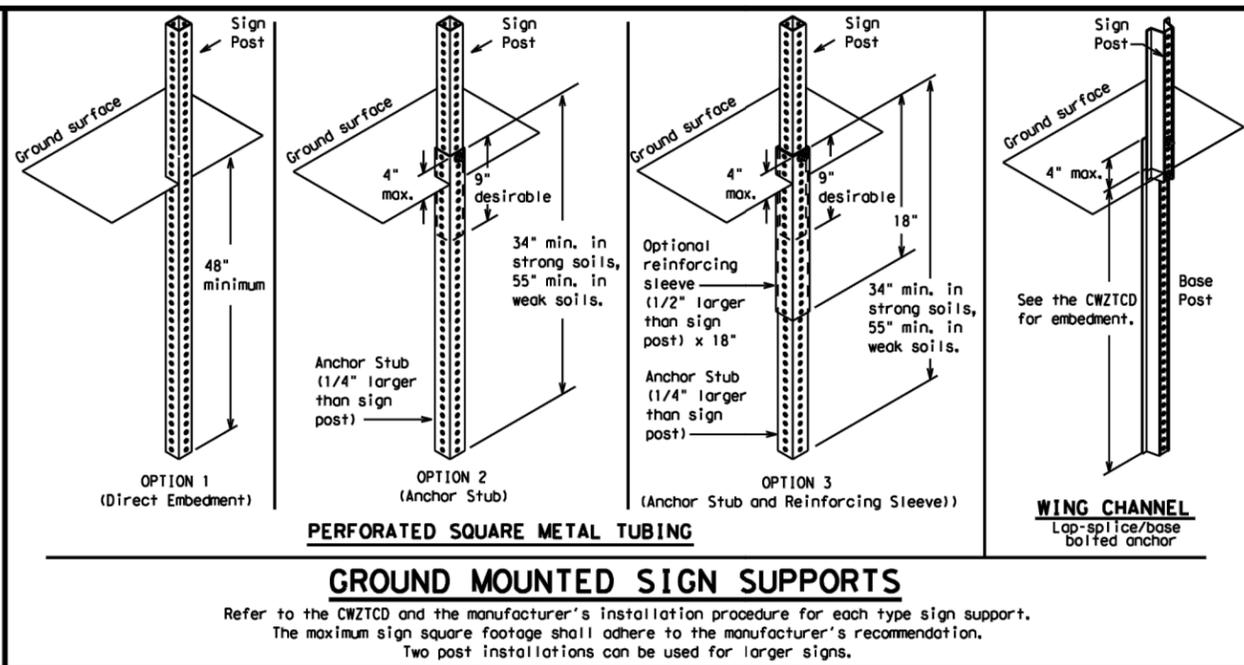
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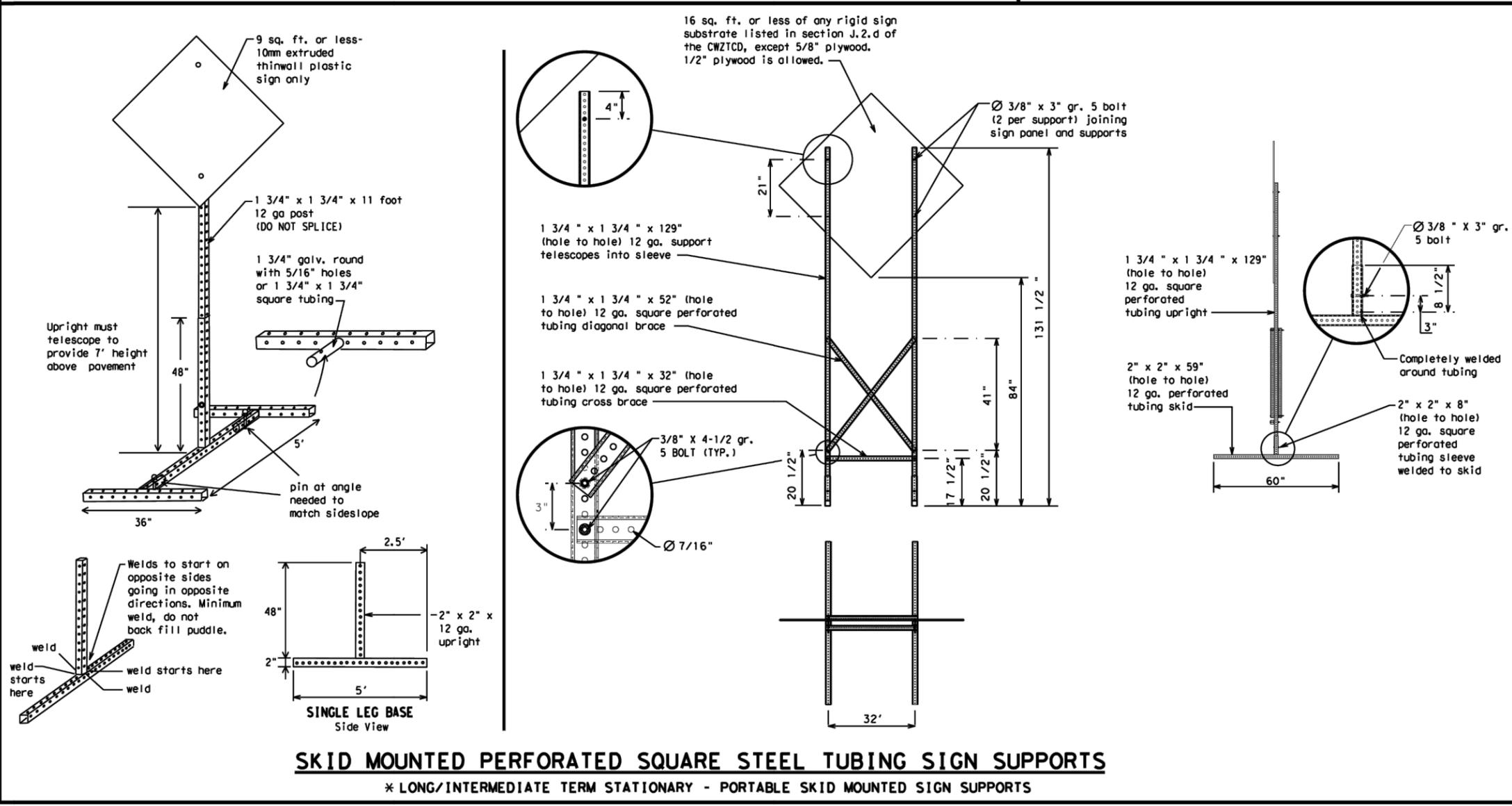
SKID MOUNTED WOOD SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support. The maximum sign square footage shall adhere to the manufacturer's recommendation. Two post installations can be used for larger signs.



SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

WEDGE ANCHORS
Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS
MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

- GENERAL NOTES**
1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
 2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
 3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.
- * See BC(4) for definition of "Work Duration."
 - ** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
 - See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC (5) - 21

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REVISIONS				
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7-13	5-21			
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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
- Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
- The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
- PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
- Each line of text should be centered on the message board rather than left or right justified.
- If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION	WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD	Major	MAJ
Alternate	ALT	Miles	MI
Avenue	AVE	Miles Per Hour	MPH
Best Route	BEST RTE	Minor	MNR
Boulevard	BLVD	Monday	MON
Bridge	BRDG	Normal	NORM
Canal	CANT	North	N
Center	CTR	Northbound	(route) N
Construction Ahead	CONST AHD	Parking	PKING
CROSSING	XING	Road	RD
Detour Route	DETOUR RTE	Right Lane	RT LN
Do Not	DONT	Saturday	SAT
East	E	Service Road	SERV RD
Eastbound	(route) E	Shoulder	SHLDR
Emergency	EMER	Slippery	SLIP
Emergency Vehicle	EMER VEH	South	S
Entrance, Enter	ENT	Southbound	(route) S
Express Lane	EXP LN	Speed	SPD
Expressway	EXPWY	Street	ST
XXXX Feet	XXXX FT	Sunday	SUN
Fog Ahead	FOG AHD	Telephone	PHONE
Freeway	FRWY, FWY	Temporary	TEMP
Freeway Blocked	FWY BLKD	Thursday	THURS
Friday	FRI	To Downtown	TO DOWNTN
Hazardous Driving	HAZ DRIVING	Traffic	TRAF
Hazardous Material	HAZMAT	Travelers	TRVLRS
High-Occupancy	HOV	Tuesday	TUES
Vehicle	VEH	Time Minutes	TIME MIN
Highway	HWY	Upper Level	UPR LEVEL
Hour(s)	HR, HRS	Vehicles (s)	VEH, VEHs
Information	INFO	Warning	WARN
It is	ITS	Wednesday	WED
Junction	JCT	Weight Limit	WT LIMIT
Left	LFT	West	W
Left Lane	LFT LN	Westbound	(route) W
Lane Closed	LN CLOSED	Wet Pavement	WET PYMT
Lower Level	LWR LEVEL	Will Not	WONT
Maintenance	MAINT		

Roadway designation = IH-number, US-number, SH-number, FM-number

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT
RIGHT X LANES CLOSED	RIGHT X LANES OPEN
CENTER LANE CLOSED	DAYTIME LANE CLOSURES
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE
EXIT CLOSED	RIGHT LN TO BE CLOSED
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI
XXXXXXXXX BLVD CLOSED	

Other Condition List

ROADWORK XXX FT	ROAD REPAIRS XXXX FT
FLAGGER XXXX FT	LANE NARROWS XXXX FT
RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
DETOUR X MILE	ROUGH ROAD XXXX FT
ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
BUMP XXXX FT	US XXX EXIT X MILES
TRAFFIC SIGNAL XXXX FT	LANES SHIFT

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

MERGE RIGHT	FORM X LINES RIGHT
DETOUR NEXT X EXITS	USE XXXX RD EXIT
USE EXIT XXX	USE EXIT I-XX NORTH
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N
TRUCKS USE US XXX N	WATCH FOR TRUCKS
WATCH FOR TRUCKS	EXPECT DELAYS
EXPECT DELAYS	PREPARE TO STOP
REDUCE SPEED XXX FT	END SHOULDER USE
USE OTHER ROUTES	WATCH FOR WORKERS
STAY IN LANE	

Location List

AT FM XXXX	BEFORE RAILROAD CROSSING	NEXT X MILES	PAST US XXX EXIT	XXXXXXXXX TO XXXXXXXX	US XXX TO FM XXXX
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Warning List

SPEED LIMIT XX MPH	MAXIMUM SPEED XX MPH	MINIMUM SPEED XX MPH	ADVISORY SPEED XX MPH	RIGHT LANE EXIT	USE CAUTION	DRIVE SAFELY	DRIVE WITH CARE
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**** Advance Notice List**

TUE-FRI XX AM-X PM	APR XX-XX X PM-X AM	BEGINS MONDAY	BEGINS MAY XX	MAY X-X XX PM - XX AM	NEXT FRI-SUN	XX AM TO XX PM	NEXT TUE AUG XX	TONIGHT XX PM-XX AM
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** See Application Guidelines Note 6.

APPLICATION GUIDELINES

- Only 1 or 2 phases are to be used on a PCMS.
- The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
- A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
- For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

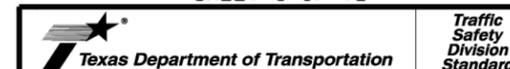
WORDING ALTERNATIVES

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distances if necessary.
- FT and MI, MILE and MILES interchanged as appropriate.
- AT, BEFORE and PAST interchanged as needed.
- Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

- When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
- When symbol signs, such as the "Flagger Symbol" (CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
- When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
- A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.



BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC (6) - 21

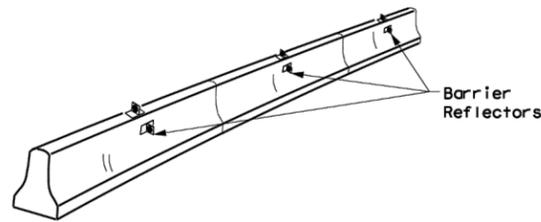
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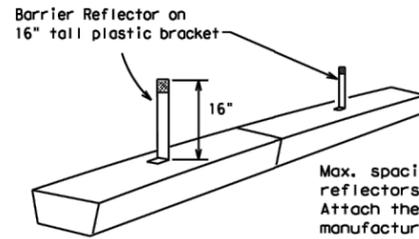
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)



LOW PROFILE CONCRETE BARRIER (LPCB)

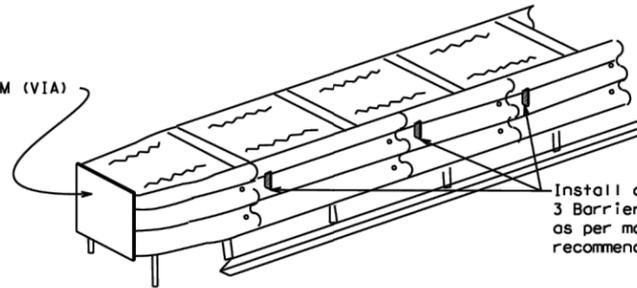
LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

- Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
- Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional) while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.

See D & OM (VIA)



DELINEATION OF END TREATMENTS

END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

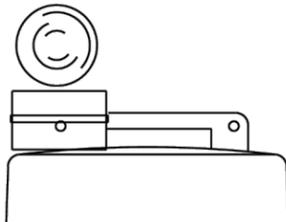
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
- When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

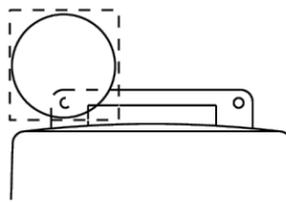
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
- Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

- A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
- The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
- The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.



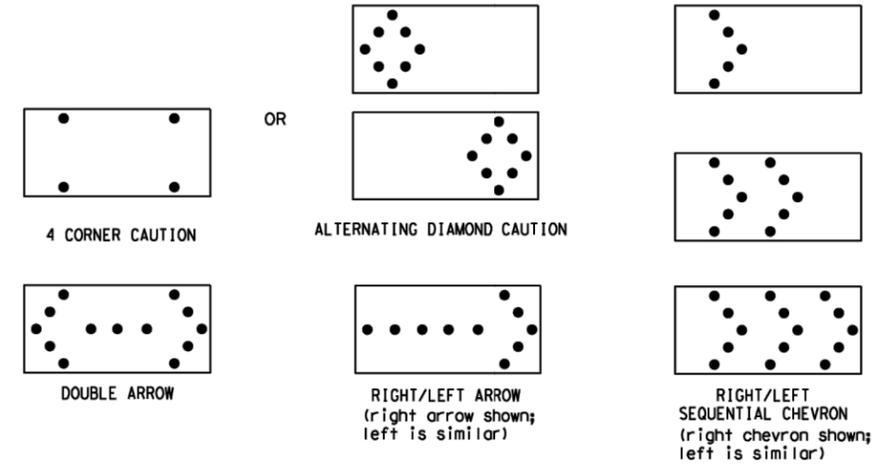
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

- The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
- Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
- The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
- Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION
Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
- The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.



BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC (7) - 21

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GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
- For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
- Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
- The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

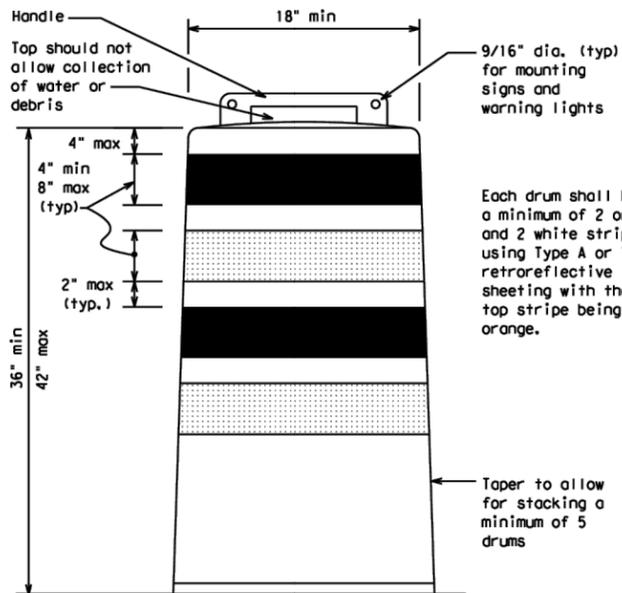
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
- Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
- The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
- The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectORIZED space between any two adjacent stripes shall not exceed 2 inches in width.
- Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

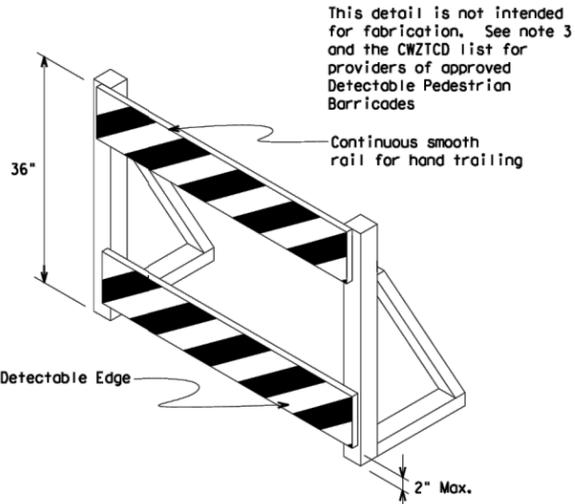
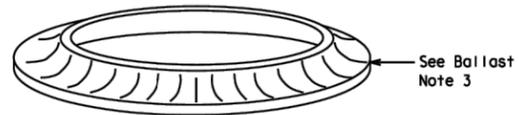
- The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

- Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
- Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
- When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.



Each drum shall have a minimum of 2 orange and 2 white stripes using Type A or Type B retroreflective sheeting with the top stripe being orange.



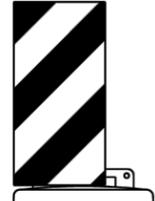
This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades

DETECTABLE PEDESTRIAN BARRICADES

- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
- Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
- Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
- Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
- Warning lights shall not be attached to detectable pedestrian barricades.
- Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane
Divider, Driveway sign D70a, Keep Right
R4 series or other signs as approved
by Engineer



12" x 24"
Vertical Panel
mount with diagonals
sloping down towards
travel way

Plywood, Aluminum or Metal sign
substrates shall NOT be used on
plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

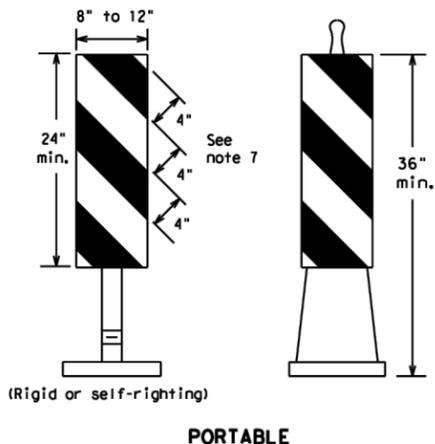
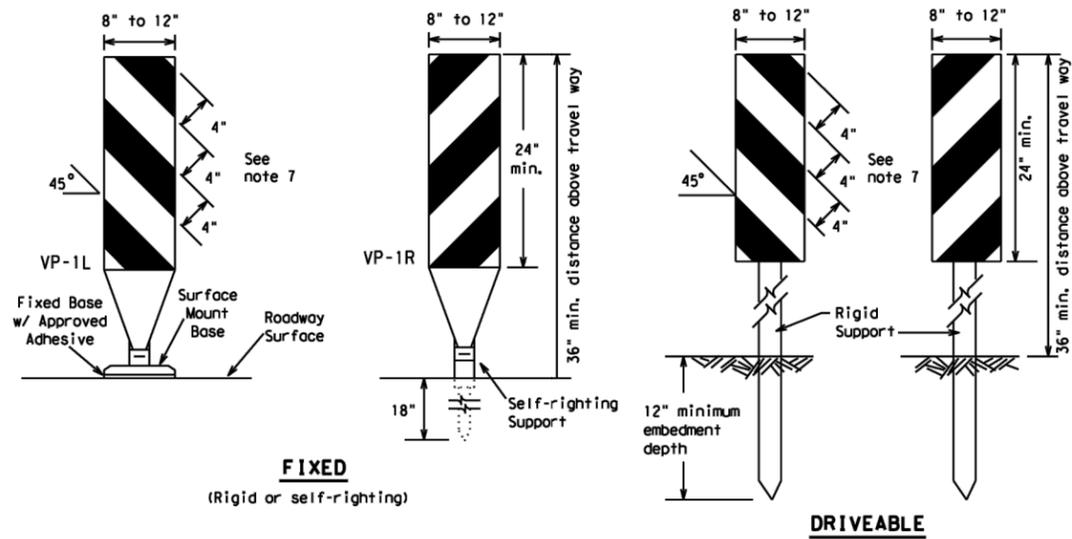
- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
- Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
- R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12

<p>BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES</p> <p>BC (8) - 21</p>			
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
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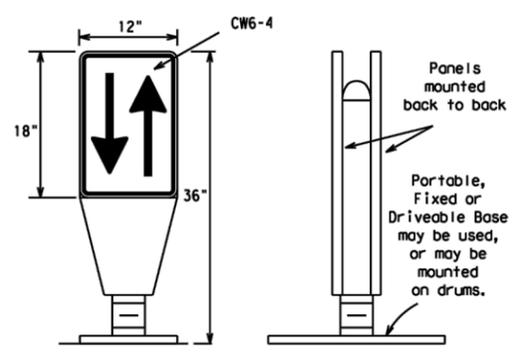
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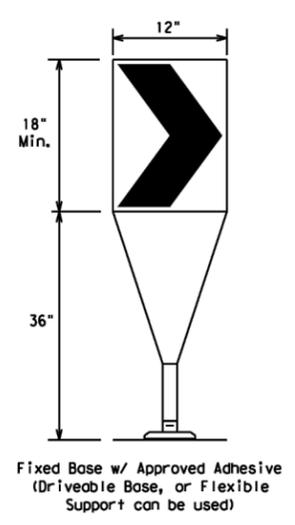
- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
- VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)



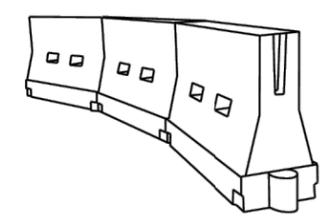
- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
- Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
- For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

- LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
- LCDs may be used instead of a line of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
- LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

- Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
- Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
- Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
- When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long cones and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

GENERAL NOTES

- Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
- Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
- Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
- Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
- The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.

Posted Speed	Formula	Minimum Desirable Taper Lengths			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	L = WS ² / 60	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

**Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 21

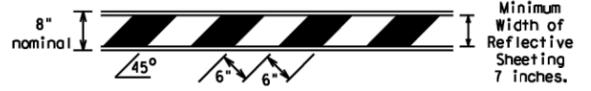
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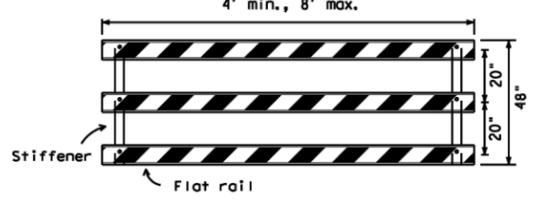
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



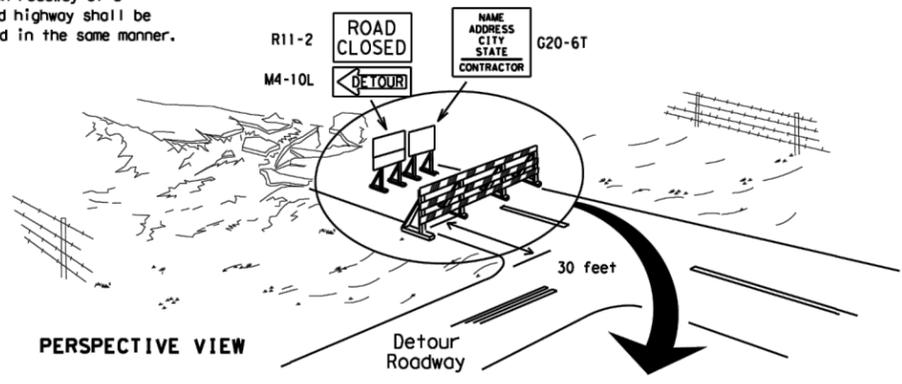
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

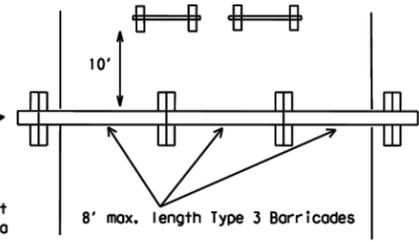
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

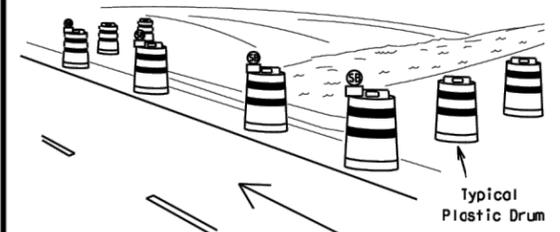
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



PLAN VIEW

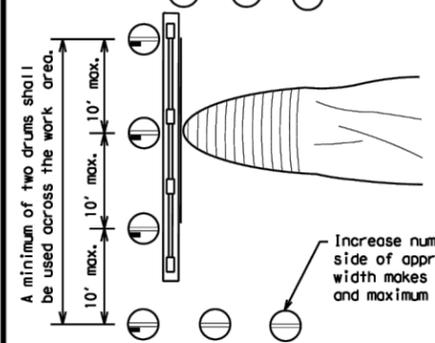
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

These drums are not required on one-way roadway

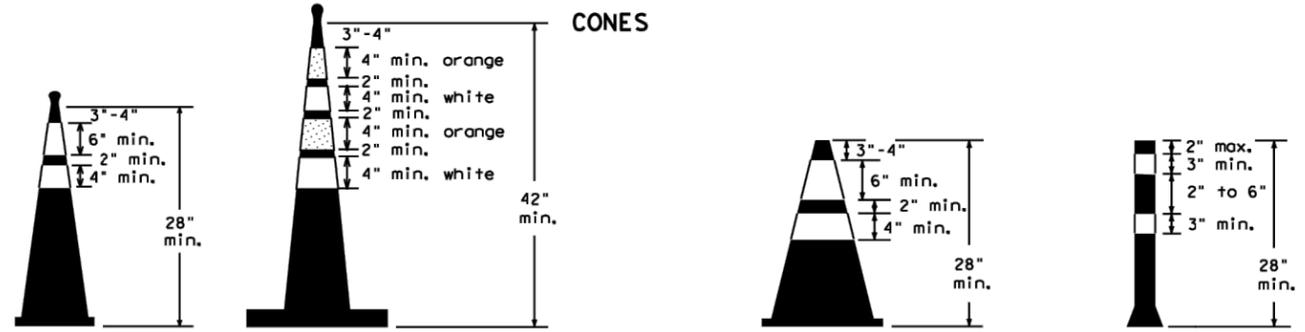


PLAN VIEW

Increase number of plastic drums on the side of approaching traffic if the crown width makes it necessary. (minimum of 2 and maximum of 4 drums)

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
	Steady burn warning light or yellow warning reflector

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

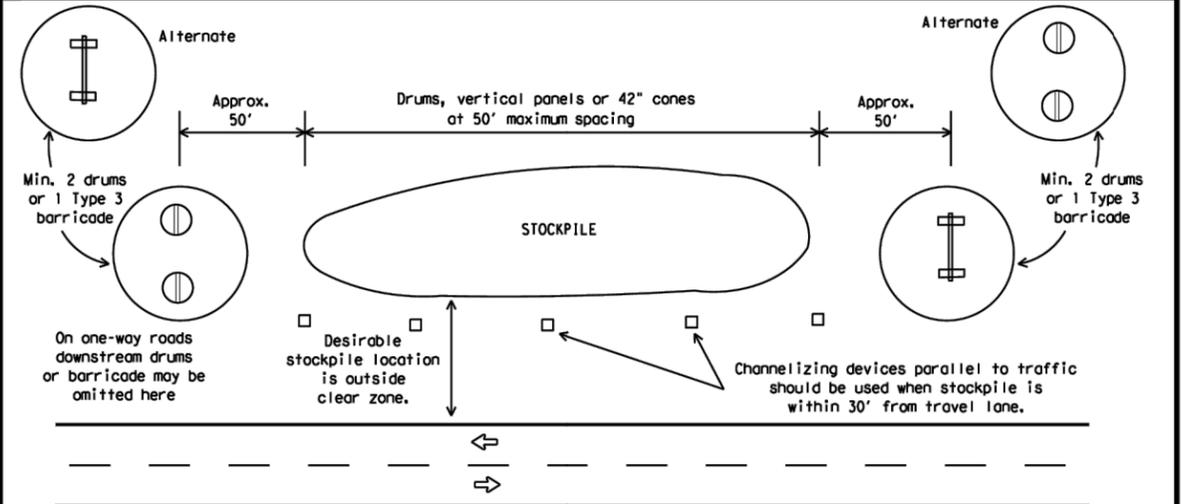


Two-Piece cones

One-Piece cones

Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined in BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.

SHEET 10 OF 12

Texas Department of Transportation
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

- The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
- Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
- When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
- When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

- Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
- Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

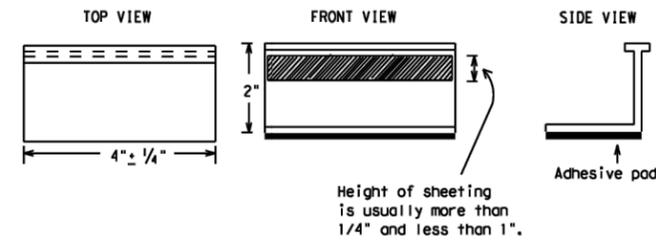
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
- The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
- Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

- Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
- The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
- Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
- Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



**STAPLES OR NAILS SHALL NOT BE USED TO SECURE
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER
TABS TO THE PAVEMENT SURFACE**

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
 - Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
 - Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
- Small design variances may be noted between tab manufacturers.
- See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
- All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:

- YELLOW - (two amber reflective surfaces with yellow body).
- WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS

PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

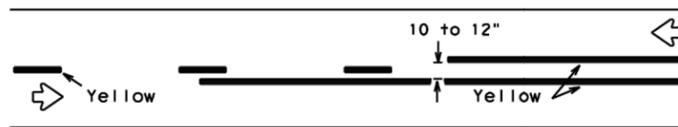
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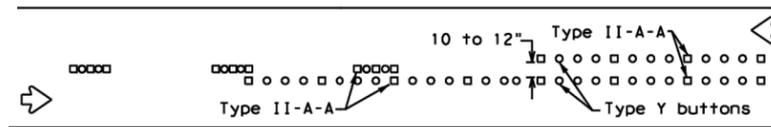
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DATE:
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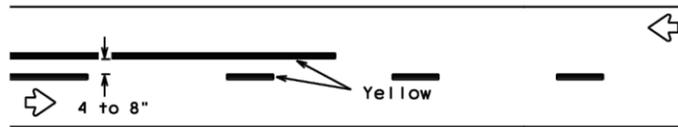
PAVEMENT MARKING PATTERNS



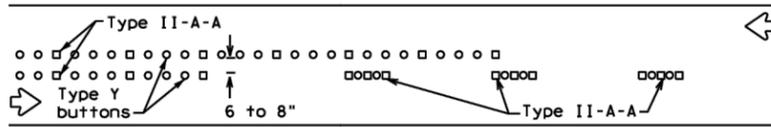
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



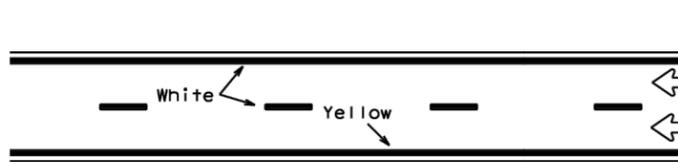
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



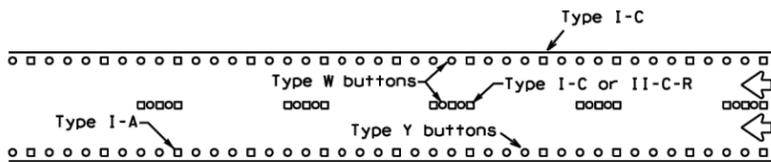
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectORIZED pavement markings.

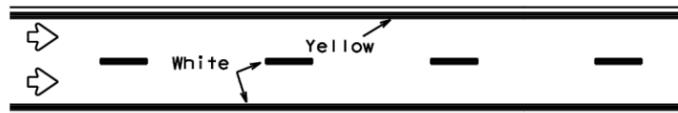
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



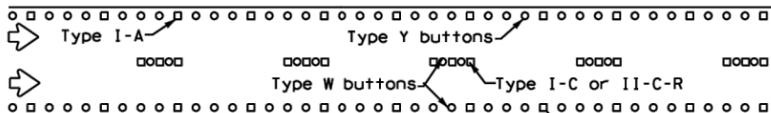
REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS



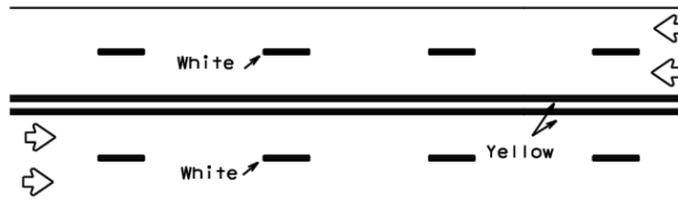
REFLECTORIZED PAVEMENT MARKINGS



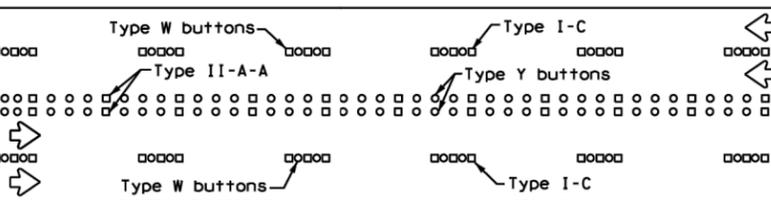
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectORIZED pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



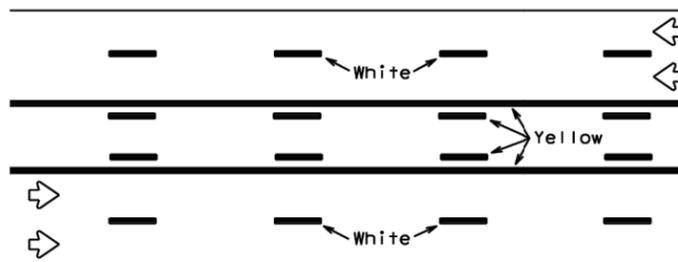
REFLECTORIZED PAVEMENT MARKINGS



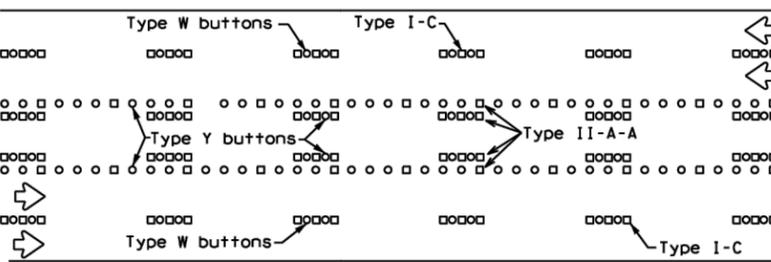
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectORIZED pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

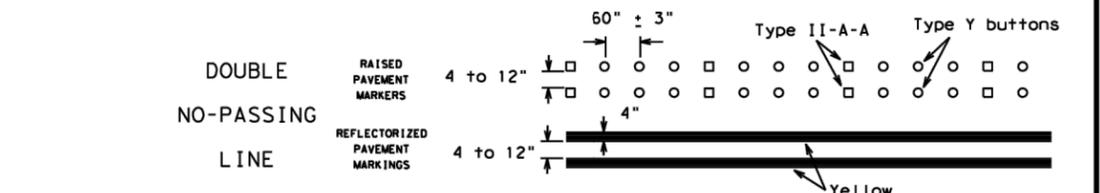


RAISED PAVEMENT MARKERS

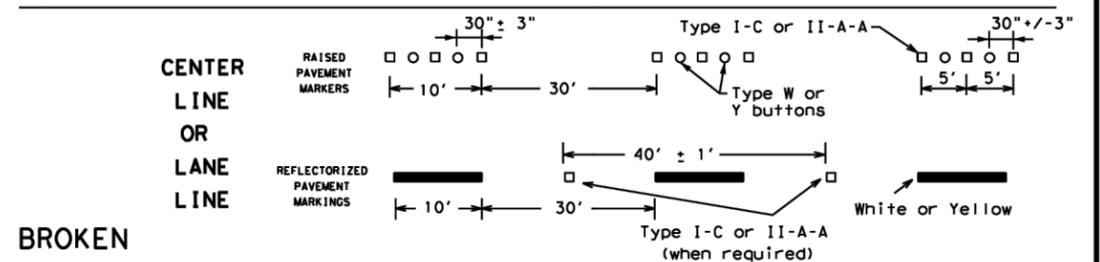
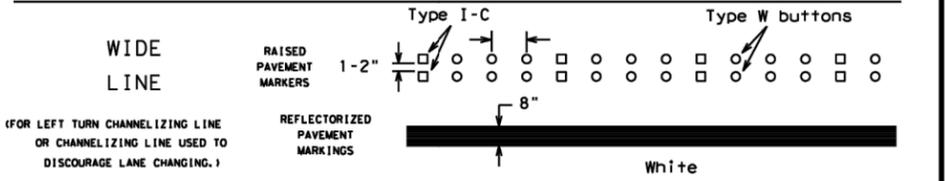
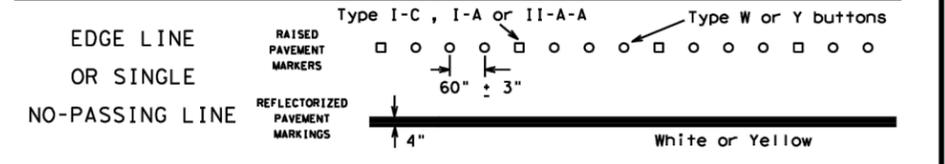
Prefabricated markings may be substituted for reflectORIZED pavement markings.

TWO-WAY LEFT TURN LANE

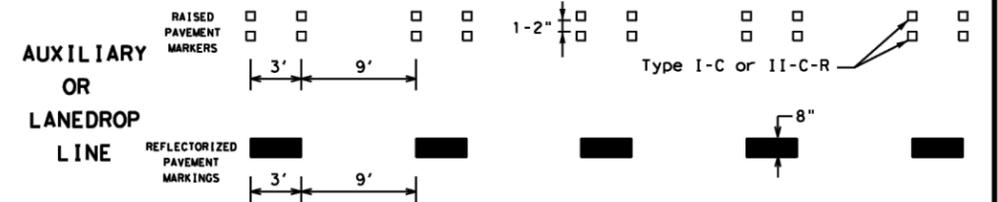
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



SOLID LINES

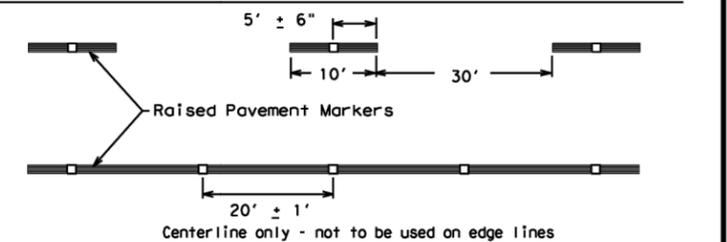


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

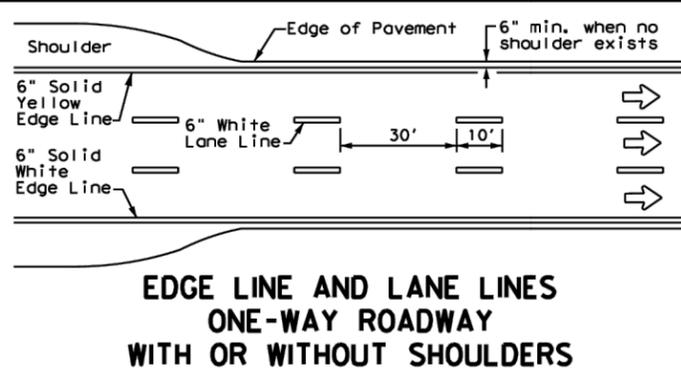
BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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2-98 7-13	DIST	COUNTY	SHEET NO.	
11-02 8-14			D-17	

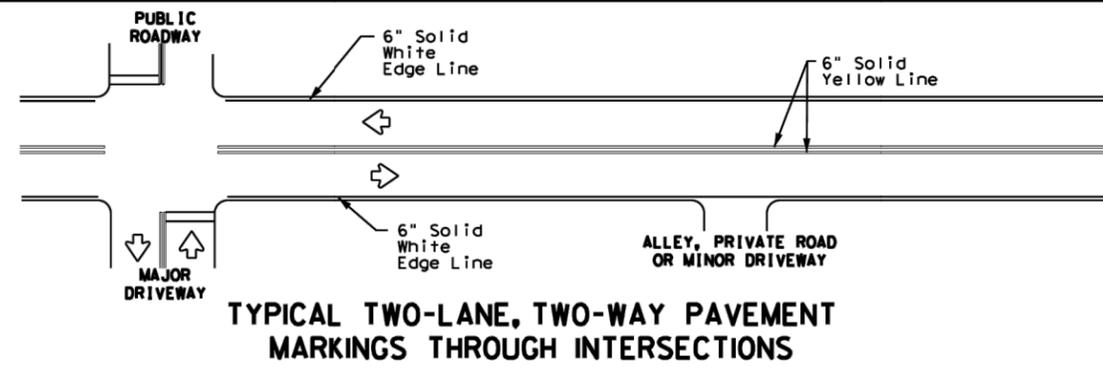
DISCLAIMER: This standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TXDOT for any purpose whatsoever. TXDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

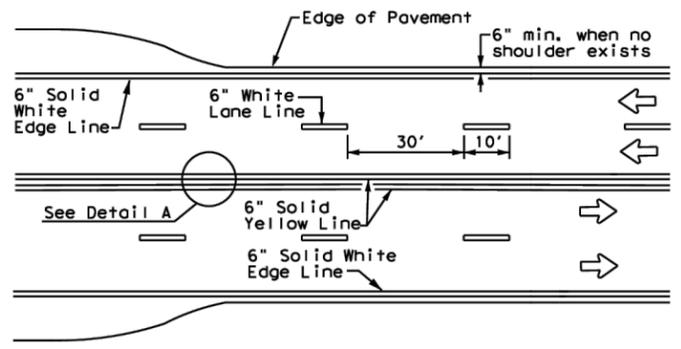
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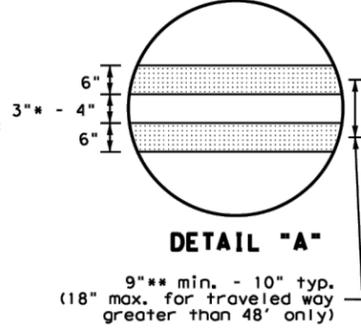
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**

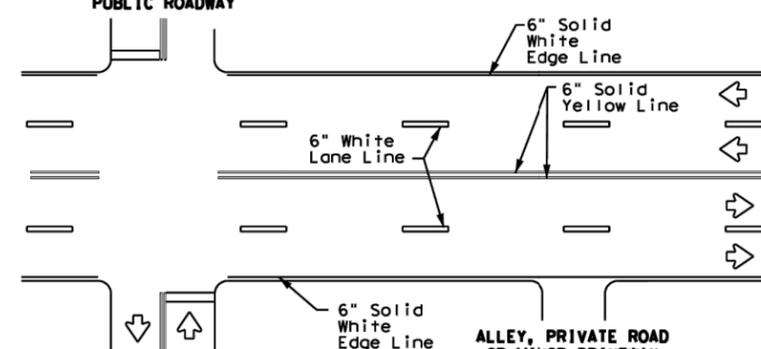


**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

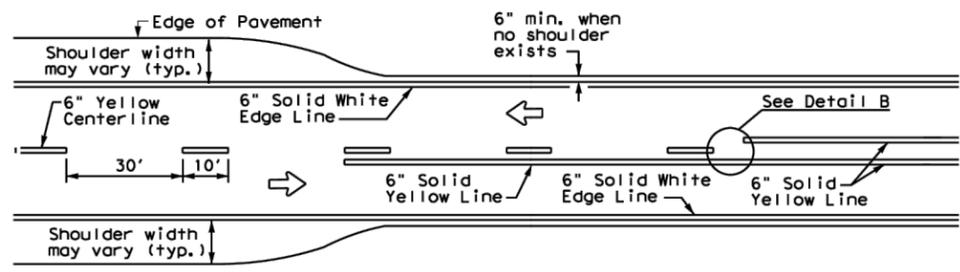


DETAIL "A"
9" min. - 10" typ.
(18" max. for traveled way
greater than 48' only)

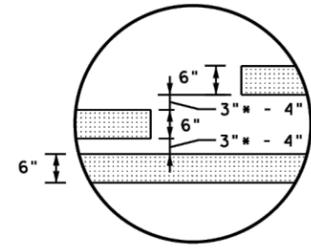
* 2" minimum for restripe projects when approved by the Engineer.
** 8" minimum for restripe projects when approved by the Engineer.



**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**

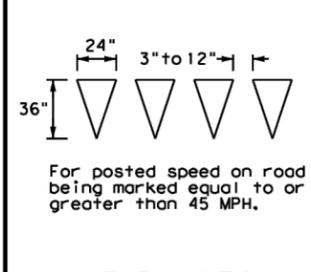


**TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

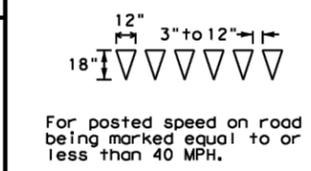


DETAIL "B"
18" min. - 20" max.
(16" minimum for
restripe projects
when approved by
the Engineer.)

* 2" minimum for restripe projects when approved by the Engineer.



YIELD LINES

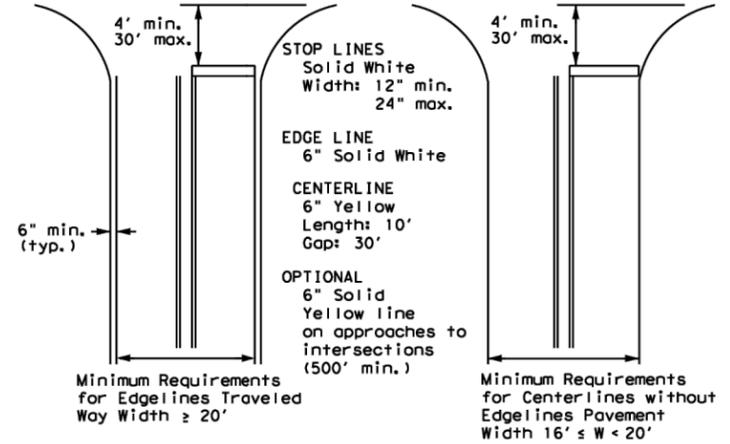


YIELD LINES

- GENERAL NOTES**
- Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
 - The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

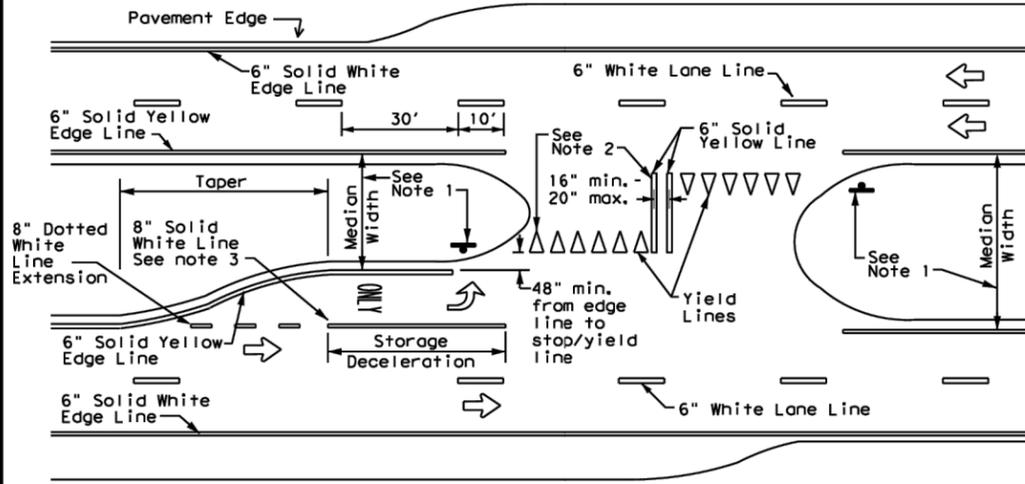


NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

**GUIDE FOR PLACEMENT OF STOP LINES,
EDGE LINE & CENTERLINE**
Based on Traveled Way and Pavement Widths
for Undivided Roadways

NOTES

- Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
- Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.



FOUR LANE DIVIDED ROADWAY CROSSOVERS

Texas Department of Transportation
Traffic Safety Division Standard

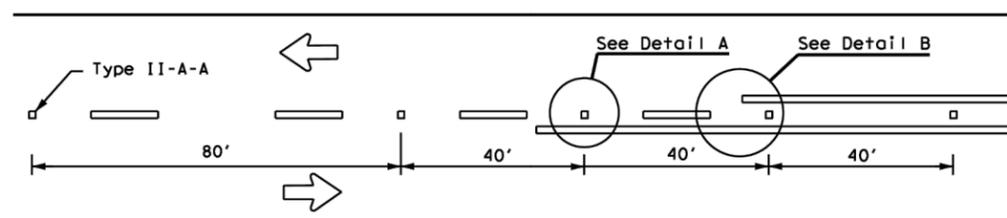
**TYPICAL STANDARD
PAVEMENT MARKINGS**

PM(1)-22

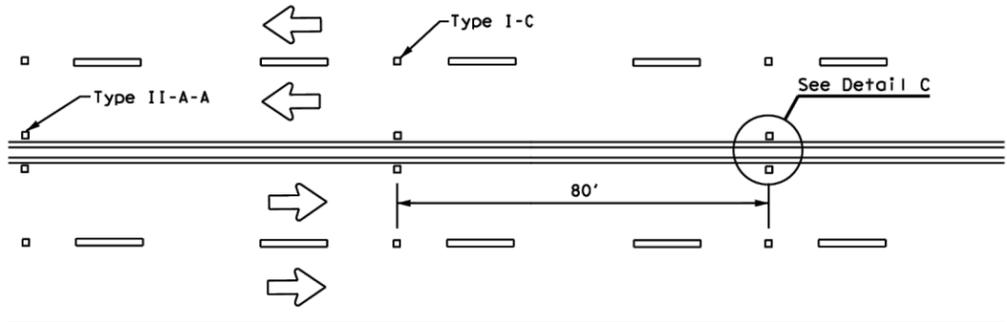
FILE: pm1-22.dgn	DWG: CK1	DWG: DW1	CK1
© TxDOT December 2022	CONT	SECT	JOB
11-78 8-00 6-20	DIST	COUNTY	SHEET NO.
8-95 3-03 12-22			D-18
5-00 2-12			

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

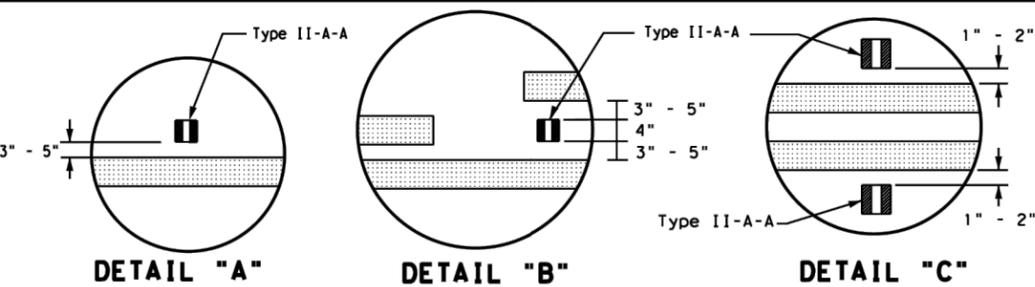
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CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



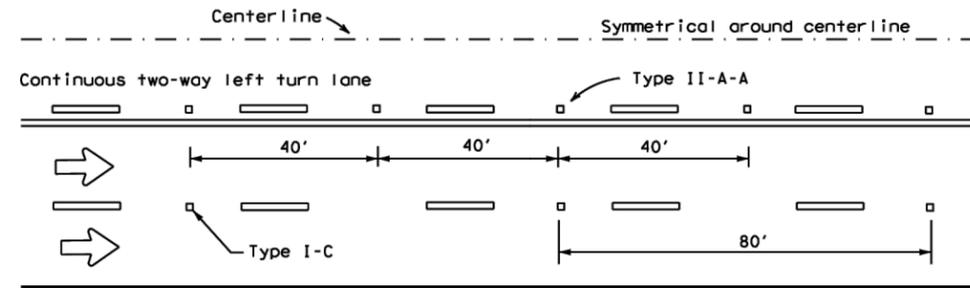
**CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY ROADWAYS**



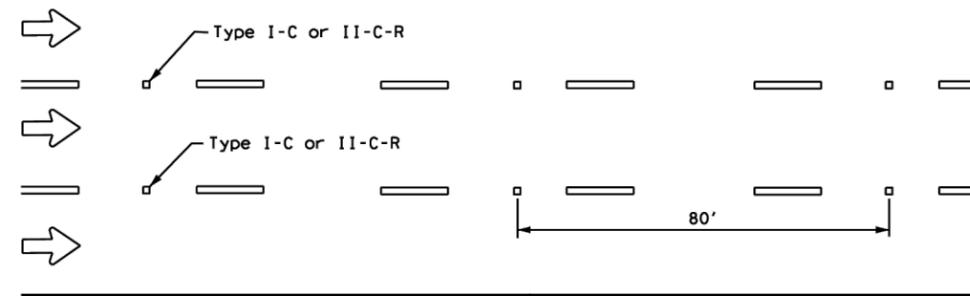
DETAIL "A"

DETAIL "B"

DETAIL "C"



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

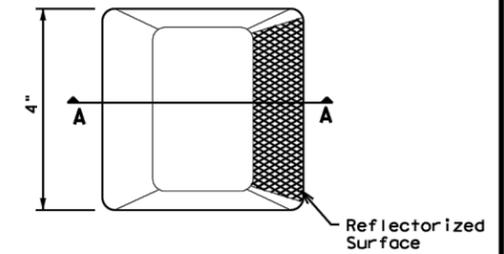


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

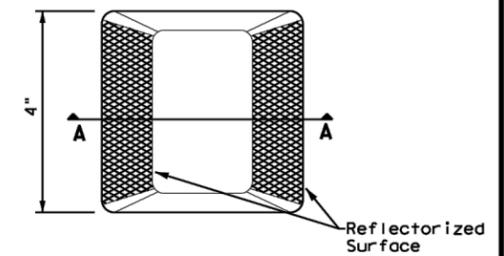
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.
See Note 3.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

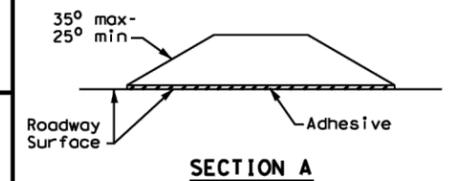
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)

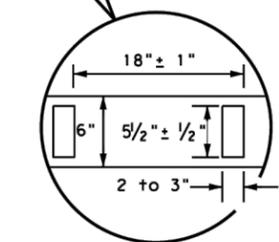
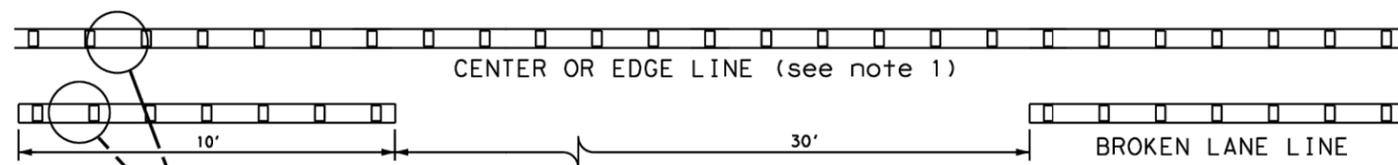


SECTION A

RAISED PAVEMENT MARKERS

GENERAL NOTES

- All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
- On concrete pavements, the raised pavement markers should be placed to one side of the longitudinal joints.
- Use raised pavement marker Type I-C with undivided roadways, flush medians, and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.



6" EDGE LINE, 6" CENTERLINE
OR 6" LANE LINE

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

- Edge lines should typically be 6" wide and the materials shall be specified in the plans.
- Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

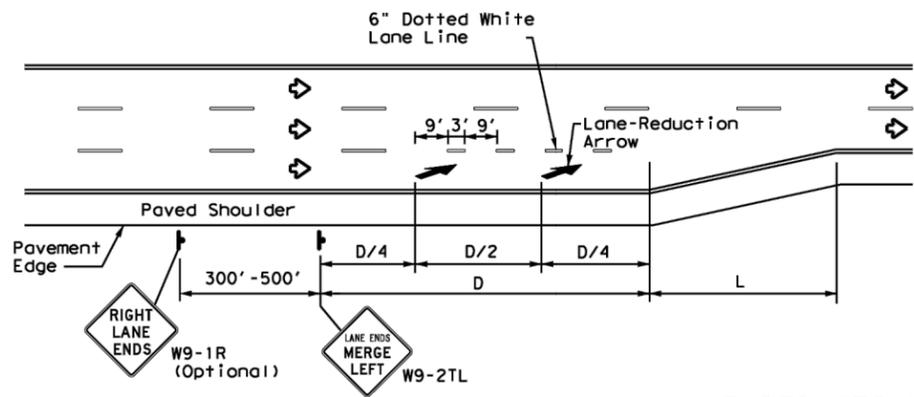


POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2)-22

FILE: pm2-22.dgn	DWG: _____	CK: _____	DW: _____	CK: _____
© TxDOT December 2022	CONT: _____	SECT: _____	JOB: _____	HIGHWAY: _____
4-77 8-00 6-20	REVISIONS			
4-92 2-10 12-22	DIST: _____	COUNTY: _____	SHEET NO. _____	
5-00 2-12			D-19	

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DATE: FILE:



LANE REDUCTION

NOTES

- Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
- On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
- Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
- For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

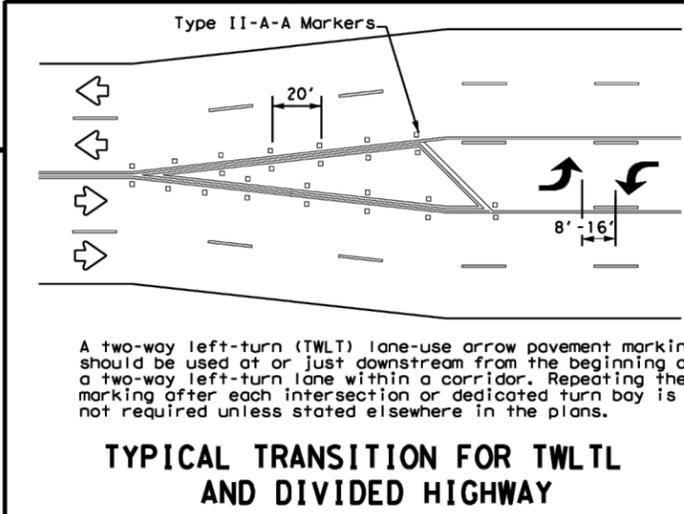
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	L = $\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L = WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

GENERAL NOTES

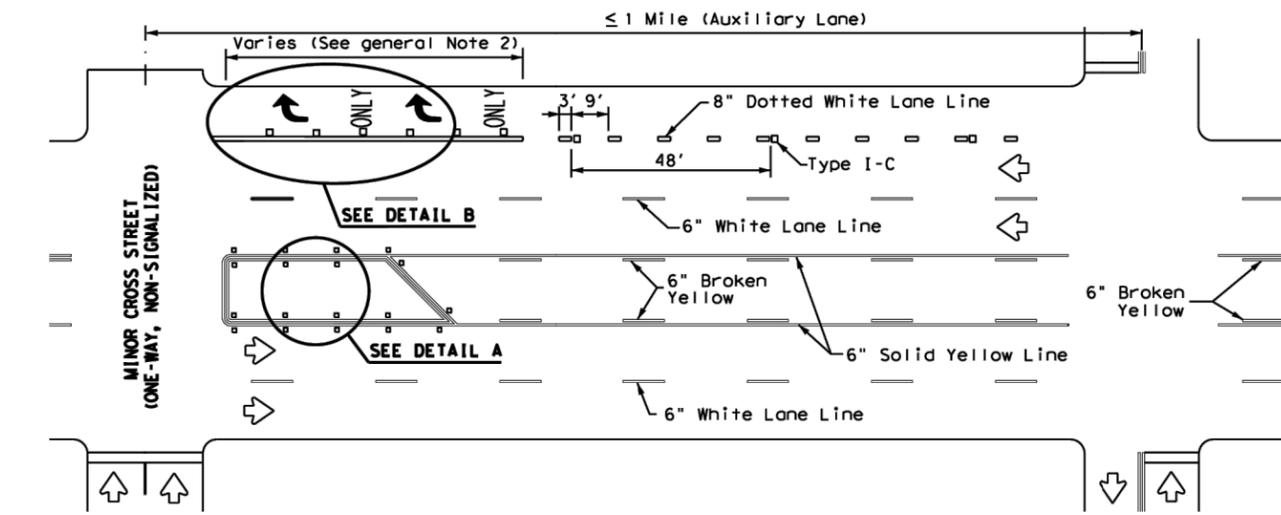
- Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
- When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
- Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

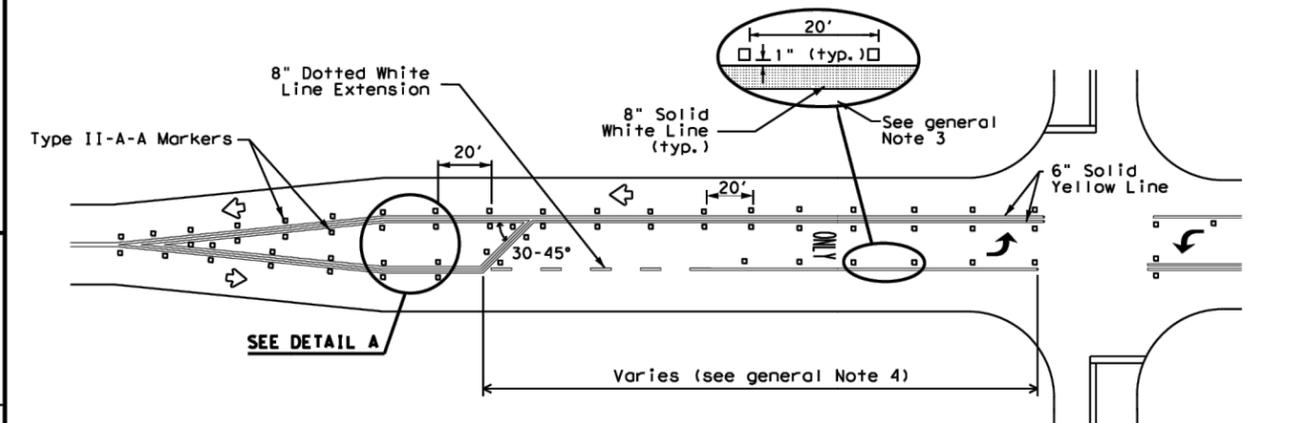
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



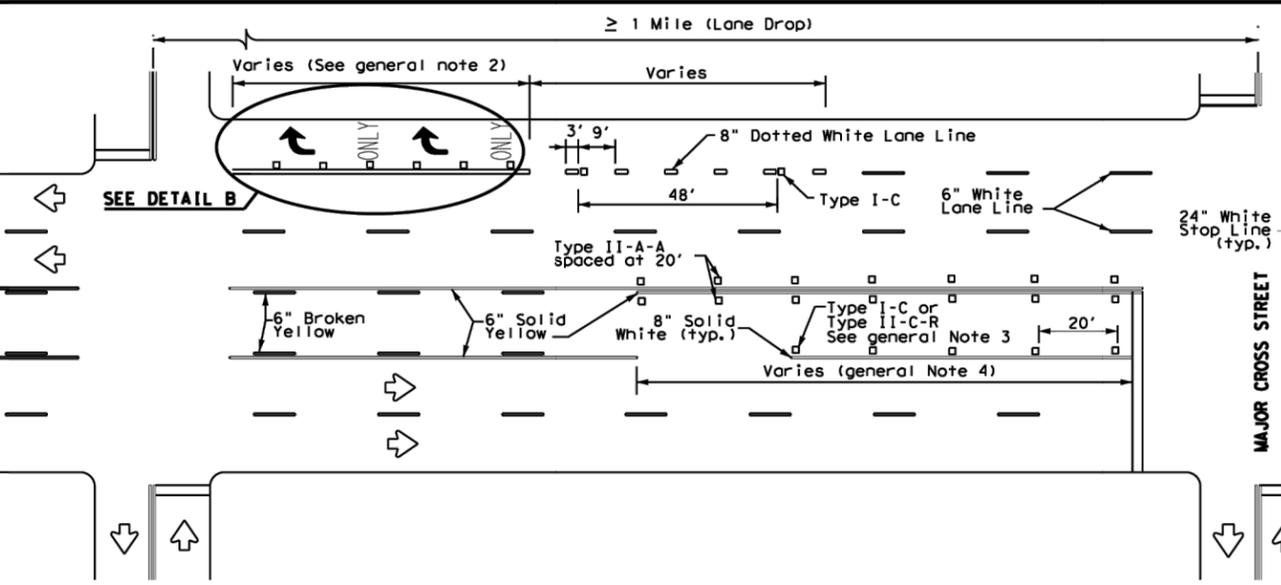
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



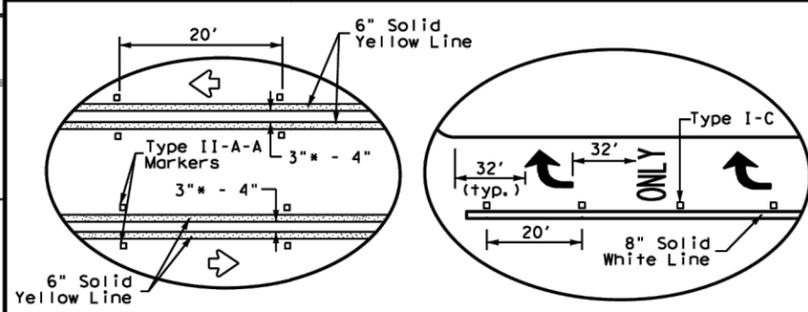
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



DETAIL A

DETAIL B

* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation
Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-22

FILE: pm3-22.dgn	DWG: CK1	DWG: CK1	CK1
© TxDOT December 2022	CONT	SECT	JOB
REVISIONS	HIGHWAY		
4-98 3-03 6-20	DIST	COUNTY	SHEET NO.
5-00 2-10 12-22			D-20
8-00 2-12			

22C