CONTRACT DOCUMENTS
&
DRAWINGS
FOR
BID 24-14
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS – PHASE 3
FOR
CITY OF KINGSVILLE, TEXAS

Mayor
Sam Fugate

Commissioner(s)
Hector Hinojosa
Norma Nelda Alvarez
Edna Lopez
Ann Marie Torres

City Manager
Mark McLaughlin

City Engineer
Rutilio P Mora Jr, P.E., CFM

JULY 2024

Prepared by:

Engineering Department
400 W. King Avenue
Kingsville, Texas 78363
(361) 595-8007

Rutilio P. Mora, P.E.
7/1/2024

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CONTRACT DOCUMENTS

ADVERTISEMENT AND INVITATION FOR BIDS

The City of Kingsville, Texas will receive sealed bids for **BID 24-14 "2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS PHASE III"** until **2:00 p.m.** on **Tuesday, July 30, 2024**. Sealed proposals will be addressed to Rutilio P. Mora Jr., P.E., City Engineer in the Engineering Department of the City of Kingsville, 400 W. King Ave., Kingsville, TX 78363. The bids will be publicly opened and read aloud at **2:00 p.m.** at the Community Room on **Tuesday, July 30, 2024,** at Kingsville City Hall, 400 W. King Ave., Kingsville, TX 78363. A Pre-Bid Conference will be held on **Monday, July 22, 2024** at **10:00 a.m.** at the Kingsville City Hall Community Room, 400 W. King Ave., Kingsville, TX 78363 with an on-site visit being a portion of the proceedings.

Major items of work include the following:

This project consists of various concrete and drainage improvements that include but are not limited to curb, gutter, sidewalk, pavement, and other concrete & drainage improvements in accordance with the contract documents, technical specifications, and plans.

Bid/Contract Documents, including Drawings and Technical Specifications can be found on the City of Kingsville website at the following web address.

https://www.cityofkingsville.com/departments/purchasing/rfp-bid-openings-fy-2024/

A bid bond in the amount of 5 percent of the bid issued by an acceptable surety shall be submitted with each bid [for those contracts that exceed $100,000]. A certified check or bank draft payable to the City of Kingsville or negotiable U.S. Government Bonds (as par value) may be submitted in lieu of the Bid Bond.

Attention is called to the fact that not less than, the federally determined prevailing (Davis-Bacon and Related Acts) wage rate, as issued by the Texas Department of Agriculture Office of Rural Affairs and contained in the contract documents, must be paid on this project. In addition, the successful bidder must ensure that employees and applicants for employment are not discriminated against because of race, color, religion, sex, sexual identity, gender identity, or national origin.

The City of Kingsville is an Affirmative Action/Equal Opportunity Employer that reserves the right to reject any and all bids and/ or waive any formalities in the bidding.

Bids may be held by the City for a period not to exceed 30 days from the date of the bid opening for the purpose of reviewing the bids and investigating the bidder's qualifications prior to the contract award.

City of Kingsville, Texas
Mark Mclaughlin, City Manager

INSTRUCTION TO BIDDERS

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 are provided and are to be used for preparation of the bid.**

Interpretations or Addenda:

No oral interpretations will be made to any bidder. Each request for an interpretation shall be made in writing to the Engineer no less than four (4) days prior to the bid opening. 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 three (3) days 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 bidders.

Inspection of Site:

Each bidder should visit the site of the proposed work and should become acquainted with the existing conditions and facilities, the difficulties and restrictions pertaining to the performance of the contract. **A Pre-Bid conference will be held on Monday, July 22, 2024, at 10:00 a.m. at the City Hall Community Room, 400 W. King Ave., Kingsville, Texas 78363 with an on-site visit being a portion of the proceedings.** The bidder should thoroughly examine and become familiar 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 failure to receive or examine any form or legal document or to visit the site or the conditions existing at the site. The City will be justified in rejecting any claim based on lack of inspection of the site prior to the bid.

Alternate Bid Items:

Alternate bids will be accepted to reflect equipment proposed in lieu of Base Bid equipment when such equipment has been pre-approved by the Engineer.

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. Bid documents, including but not limited to the bid, the bid bond(s), the contractor's certifications, Certification of Bidder Regarding Civil Rights Laws and Regulations, Local Opportunity Plan, Non-collusion Affidavit of Prime Bidder, and Statement of Bidder's Qualifications, shall be sealed in an envelope and clearly labeled with the words "Bid Documents", the project number, name of bidder and the date and time of bid opening.

D. The City 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.

E. If a contract is awarded, it will be awarded to a responsible bidder on the basis of the lowest/best bid and the selected additive bid items, if any. The contract will require the completion of the work in accordance with the contract documents.

Bid Bond:

A. A bid bond in the amount of 5% of the amount bid, issued by an acceptable surety, shall be submitted with each bid. A certified check or bank draft payable to the City or negotiable U.S. Government Bonds (as par value) 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.

Statement of Bidder's Qualifications:

Each bidder shall submit on the form furnished for that purpose a statement of the bidder's qualifications. The City shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform his obligations under the contract, and the bidder shall furnish the City all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available data does not satisfy the City that the bidder is qualified to carry out properly the terms of the contract.

Unit Price:

When unit prices are requested on the bid form, 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.

Corrections:

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

Time for Receiving Bids:

Bids received prior to the advertised hour of opening shall 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 the satisfaction of the City 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.

Opening of Bids:

The City shall, at the time and place fixed for the opening of bids, open each bid and publicly read it aloud, irrespective of any irregularities therein. Bidders and other interested individuals may be present.

Withdrawal of Bids:

Bids may be withdrawn by written request dispatched for delivery in the normal course of business prior to the bid opening. The bid guaranty of any bidder withdrawing his bid will be returned promptly.

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 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.

B. The City reserves the right to consider as unqualified to do the work any bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the improvements embraced in this contract.

Execution of Agreement/Performance and Payment Bonds:

A. Performance and Payment Bonds are required of all Prime Contractors which enter into a formal contract in excess of $25,000 with the State, any department, board, agency, municipality, City, school district, or any division or subdivision thereof, the Prime Contractor is to obtain a Payment Bond in the amount of the contract before commencing with work and a Performance Bond for public works contracts in excess of $100,000.

B. The failure of the successful bidder to execute the agreement and supply the required bonds within then (10) days after the prescribed forms are presented for signature, or within such extended period as the City may grant, shall constitute a default and the City may, at its option either award the contract to the next lowest responsible bidder, or re-advertise for bids. In either case, the City 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 for a refund.

Wages and Salaries:

Attention is particularly called to the requirement of paying not less than the prevailing wage rates specified in the Contract Documents. These rates are minimums to be paid during the life of the contract.

Equal Employment Opportunity:

Attention is called to the requirements for ensuring that employees and applicants for employment are not discriminated against because of their race, color, creed, sex, or national origin.

BID PROPOSAL

Proposal of_____

a *_____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of Texas to **City of Kingsville, Texas** (hereinafter called "OWNER.)"

BIDDER hereby proposes to perform all WORK for the construction of the "**2023-2024 City-Wide Miscellaneous Concrete and Drainage Improvements Phase III**" in accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies as to its own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT within **120** consecutive calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of **$ 200.00** for each consecutive calendar day thereafter as provided in the General Conditions.

BIDDER acknowledges receipt of the following ADDENDUM:

_____

_____

_____

*Insert "a corporation", "a partnership", or "an Individual" as applicable.
BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for the following amount:

BID SCHEDULE

ITEM	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
BASE BID – 2023-2024 City-Wide Miscellaneous Concrete and Drainage Improvements Phase III					
B-1)	242	SY	**REMOVE/ DISPOSE OF CONCRETE DRIVEWAY** per plans and specifications, complete in place per square yard.	_____	_____
B-2)	312	LF	**REMOVE/ DISPOSE OF CONCRETE CURB & GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
B-3)	147	LF	**REMOVE/ DISPOSE OF CONCRETE VALLEY GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
B-4)	1024	SY	**REMOVE/ DISPOSE OF ASPHALT & BASE** per plans and specifications, complete in place per square yard.	_____	_____
B-5)	191	SY	**REMOVE/ DISPOSE OF CONCRETE SIDEWALK** per plans and specifications, complete in place per square yard.	_____	_____
B-6)	2202	SY	**REMOVE/ DISPOSE OF CONCRETE PAVEMENT** per plans and specifications, complete in place per square yard.	_____	_____
B-7)	5	EA	**REMOVE/ DISPOSE OF STORM JUNCTION BOX** per plans and specifications, complete in place per each.	_____	_____

B-8)	1541	LF	**REMOVE/ DISPOSE OF STORM PIPE** per plans and specifications, complete in place per linear foot.	_____	_____
B-9)	4	EA	**REMOVE/ DISPOSE OF CURB INLET** per plans and specifications, complete in place per each.	_____	_____
B-10)	9	EA	**REMOVE/ DISPOSE OF GRATE INLET** per plans and specifications, complete in place per each.	_____	_____
B-11)	2228	LF	**6" CONCRETE CURB & GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
B-12)	260	LF	**2' WIDE CONCRETE VALLEY GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
B-13)	104	LF	**3' WIDE CONCRETE VALLEY GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
B-14)	836	SY	**4" THICK CONCRETE SIDEWALK** per plans and specifications, complete in place per square yard.	_____	_____
B-15)	433	SY	**6" THICK CONCRETE DRIVEWAY** per plans and specifications, complete in place per square yard.	_____	_____

B-16)	732	SY	**2" HOT MIX ASPHALT REPAIR** per plans and specifications, complete in place per square yard.	_____	_____
B-17)	2180	SY	**6" THICK AVG LIMESTONE BASE COMPACTED** per plans and specifications, complete in place per square yard.	_____	_____
B-18)	118	SY	**BRICK PAVERS** per plans and specifications, complete in place per square yard.	_____	_____
B-19)	1458	SY	**6" THICK CONCRETE PAVEMENT** per plans and specifications, complete in place per square yard.	_____	_____
B-20)	744	SY	**6" THICK CONCRETE PAVEMENT REPAIR** per plans and specifications, complete in place per square yard.	_____	_____
B-21)	7	EA	**CONCRETE JUNCTION BOX** per plans and specifications, complete in place per each.	_____	_____
B-22)	1203	LF	**24" DIA REINFORCED CONCRETE PIPE** per plans and specifications, complete in place per linear foot.	_____	_____
B-23)	448	LF	**36" DIA REINFORCED CONCRETE PIPE** per plans and specifications, complete in place per linear foot.	_____	_____

B-24)	10	EA	**CURB INLET** per plans and specifications, complete in place per each.	_____	_____
B-25)	2	EA	**CURB INLET W/ EXTENSION** per plans and specifications, complete in place per each.	_____	_____
B-26)	10	EA	**PEDESTRIAN CURB RAMP TYPE 1** per plans and specifications, complete in place per each.	_____	_____
B-27)	4	EA	**PEDESTRIAN CURB RAMP TYPE 7** per plans and specifications, complete in place per each.	_____	_____
B-28)	2	EA	**PEDESTRIAN CURB RAMP TYPE 10** per plans and specifications, complete in place per each.	_____	_____

TOTAL BASE BID **$**_____

ALTERNATE BID 1 – LAWNDALE DR.

A1-1)	12	SY	**REMOVE/ DISPOSE OF CONCRETE DRIVEWAY** per plans and specifications, complete in place per square yard.	_____	_____
A1-2)	212	LF	**REMOVE/ DISPOSE OF CONCRETE CURB & GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
A1-3)	28	LF	**REMOVE/ DISPOSE OF CONCRETE VALLEY GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
A1-4)	313	SY	**REMOVE/ DISPOSE OF ASPHALT & BASE** per plans and specifications, complete in place per square yard.	_____	_____
A1-5)	836	LF	**REMOVE/ DISPOSE OF CONCRETE FLUME** per plans and specifications, complete in place per linear foot.	_____	_____
A1-6)	212	LF	**6" CONCRETE CURB & GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
A1-7)	6.5	LF	**2' WIDE CONCRETE VALLEY GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
A1-8)	28	LF	**3' WIDE CONCRETE VALLEY GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____

A1-9)	12	SY	**6" THICK CONCRETE DRIVEWAY** per plans and specifications, complete in place per square yard.	_____	_____
A1-10)	320	SY	**2" HOT MIX ASPHALT REPAIR** per plans and specifications, complete in place per square yard.	_____	_____
A1-11)	836	LF	**CONCRETE FLUME** per plans and specifications, complete in place per linear foot.	_____	_____

TOTAL ALTERNATE 1 BID $_____

ALTERNATE BID 2 – 19th STREET

A2-1)	30	SY	**REMOVE/ DISPOSE OF ASPHALT & BASE** per plans and specifications, complete in place per square yard.	_____	_____
A2-2)	6	SY	**REMOVE/ DISPOSE OF CONCRETE SIDEWALK** per plans and specifications, complete in place per square yard.	_____	_____
A2-3)	51	LF	**4" CONCRETE ROLL CURB & GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
A2-4)	1265	LF	**6" CONCRETE CURB & GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
A2-5)	60	LF	**2' WIDE CONCRETE VALLEY GUTTER** per plans and specifications, complete in place per linear foot.	_____	_____
A2-6)	60	SY	**6" THICK CONCRETE DRIVEWAY** per plans and specifications, complete in place per square yard.	_____	_____
A2-7)	241	SY	**6" THICK AVG LIMESTONE BASE COMPACTED** per plans and specifications, complete in place per square yard.	_____	_____

TOTAL ALTERNATE 2 BID $_____

TOTAL BASE BID $_____

TOTAL BASE BID + ALT NO.1 $_____

TOTAL BASE BID + ALT NO. 1 + ALT NO. 2 $_____

Respectfully submitted:

Signature	Address
Title	Date
License number (if applicable)	Date

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of Texas)

County of _____)

_____, being first duly sworn, deposes and says that:

(1) He/She is _____ of _____, the Bidder that has submitted the attached Bid;

(2) He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with another Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix an overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ _____ (Local Public Agency) or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

_____
Title

Subscribed and sworn to me this _____ day of _____.

By: _____
Notary Public

My commission expires _____

CONTRACTOR CERTIFICATIONS

U.S. Department of Housing and Urban Development

CERTIFICATION OF BIDDER REGARDING CIVIL RIGHTS LAWS AND REGULATIONS

INSTRUCTIONS

CERTIFICATION OF BIDDER REGARDING Executive Order 11246 and Federal Laws Requiring Federal Contractor to adopt and abide by equal employment opportunity and affirmative action in their hiring, firing, and promotion practices. This includes practices related to race, color, gender, religion, national origin, disability, and veterans' rights.

NAME AND ADDRESS OF BIDDER (include ZIP Code)

CERTIFICATION BY BIDDER

Bidder has participated in a previous contract or subcontract subject to Civil Rights Laws and Regulations.

☐ Yes ☐ No

The undersigned hereby certifies that:

☐ The Provision of Local Training, Employment, and Business Opportunities clause (Section 3 provision) is included in the Contract. A written Section 3 plan (Local Opportunity Plan) was prepared and submitted as part of the bid proceedings (if bid equals or exceeds $100,000).

☐ The Equal Opportunity clause is included in the Contract (if bid equals or exceeds $10,000).

Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

☐ Yes ☐ No

NAME AND TITLE OF SIGNER (Please type)

SIGNATURE DATE

STANDARD FORM OF AGREEMENT
BETWEEN CITY AND CONTRACTOR
ON THE BASIS OF A STIPULATED PRICE

THIS AGREEMENT is dated as of the _____ day of _____ in the year _____ by and between the **City of Kingsville, 400 W. King Avenue, Kingsville, Texas 78363** (hereinafter called CITY) and _____ (hereinafter called CONTRACTOR).

CITY and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK:

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

"City of Kingsville – BID 24-14 2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS – PHASE 3

Article 2. ENGINEER:

The Project has been designed by:

City of Kingsville - Engineering Department
400 W. King Avenue
Kingsville, Texas 78363
(361) 595-8007

Who is hereinafter called ENGINEER and who is to act as CITY'S representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME

3.1 The Work will be completed and ready for final payment in accordance with the General Conditions within **120** calendar days from the date when the Contract Time commences to run.

3.2 Liquidated Damages. CITY and CONTRACTOR recognize that time is of the essence of this Agreement and that CITY will suffer financial loss if the Work is not completed within the time specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with the General Conditions.

They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by CITY if the Work is not completed on time. Accordingly, instead of requiring any such proof, CITY and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay CITY two hundred & 00/100 dollars ($200.00) for each calendar day that expires after the time specified in Article 3.1 of this Agreement for Substantial Completion until the Work is substantially complete. After Substantial Completion if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by CITY, CONTRACTOR shall pay CITY two hundred dollars ($200.00) for each calendar day that expires after the time specified in Article 3.1 of this Agreement for completion and readiness for final payment.

Article 4. CONTRACT PRICE:

4.1 CITY shall pay CONTRACTOR for completion of Work in accordance with the Contract Documents in current funds as follows: Per Contractors Proposal dated _____ in the total base bid + total alternative No. 1 in the amount of $_____, as attached and a part of this contract document.

Article 5. PAYMENT PROCEDURES:

CONTRACTOR shall submit Applications for Payment in accordance with the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

Article 6. INTEREST:

All moneys not paid when due as provided in the General Conditions shall bear interest at the maximum rate allowed by law at the place of the Project.

Article 7. CONTRACTORS REPRESENTATIONS:

In order to induce CITY to enter into this Agreement CONTRACTOR makes the following representations:

7.1 CONTRACTOR 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.

7.2 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance of furnishing of the Work at the Contract Price, within the Contract Time and in accordance with other terms and conditions of the Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigation, explorations, tests reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.

7.3 CONTRACTOR 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 assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by CONTRACTOR 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 the General and Special Conditions.

7.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

7.5 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 8. CONTRACT DOCUMENTS:

The Contract Documents which comprise the entire agreement between CITY and CONTRACTOR concerning the Work consists of the following:

8.1 A bound set of executed documents and specifications titled:

CONTRACT DOCUMENTS
&
TECHNICAL SPECIFICATIONS
FOR

BID- 24-14
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS – PHASE 3
FOR
CITY OF KINGSVILLE, TEXAS

City Manager
Mark McLaughlin

Mayor
Sam Fugate

Commissioner(s)
Hector Hinojosa
Norma Nelda Alvarez
Edna Lopez
Ann Marie Torres

JULY 2024

Prepared by:

Engineering Department
400 W. King Avenue
Kingsville, Texas 78363
(361) 595-8007

together with all the items or sections listed in the Table of Contacts thereof.

8.2 A Notice of Award consisting of one page.

8.3 A Notice to Proceed with Construction consisting of one page which shall be executed at a later date.

8.4 A set of drawings consisting of FORTY-SIX (46) sheets titled:

Description

1. COVER SHEET
2. PROJECT LOCATION
3. GENERAL NOTES
4. SHEET INDEX
5. LEGEND – TESTING SCHEDULE & QUANTITIES
6. N. 2ND ST. FROM W. C. AVE TO W. B AVE. PLAN AND PROFILE - STA. 0+00 TO END
7. N. WELLS ST. FROM W. I. AVE. TO W. H. AVE. PLAN AND PROFILE - STA 0+00 TO END
8. DRAINAGE FLUME AND E. LAWNDALE DR. INTERSECTION
9. DRAINAGE FLUME FROM E. LAWNDALE DR. TO E. SEN. CARLOS TRUAN BLVD. PLAN AND PROFILE – STA. 0+00 TO 2+50
10. DRAINAGE FLUME FROM E. LAWNDALE DR. TO E. SEN. CARLOS TRUAN BLVD. PLAN AND PROFILE – STA. 2+50 TO 5+00
11. DRAINAGE FLUME FROM E. LAWNDALE DR. TO E. SEN. CARLOS TRUAN BLVD. PLAN AND PROFILE - STA. 5+00 TO 7+50
12. DRAINAGE FLUME FROM E. LAWNDALE DR. TO E. SEN. CARLOS TRUAN BLVD. PLAN AND PROFILE - STA. 7+50 TO END
13. N. 2ND ST. FROM W. YOAKUM AVE. TO W. KLEBERG AVE. PLAN AND PROFILE - STA. 0+00 TO 3+90
14. S. 2ND ST. FROM W. KLEBERG AVE. TO W. KING AVE. PLAN AND PROFILE - STA. 3+90 TO END
15. W. YOAKUM AVE./N. 2ND ST. AND W. KLEBERG AVE./S. 2ND ST. PLAN AND PROFILE.
16. S. 9TH ST. FROM E. LOTT AVE TO E. HUISACHE AVE. PLAND AND PROFILE – STA. 0+00 TO END.
17. S. 9TH ST. / E. HUISACHE AVE. PLAN AND PROFILE.
18. N. 19TH ST. FROM E. HENRIETTA AVE TO SCHOOL PLAN AND PROFILE – STA. 0-50 TO 4+50.
19. N. 19TH ST. FROM SCHOOL TO E. KLEBERG AVE. PLAN AND PROFILE - STA. 4.50 TO 9+50
20. N. 19TH ST. FROM E. KLEBERG TO E. KING AVE. PLAN AND PROFILE - STA. 9+50 TO END
~~21. W. JOHNSTON AVE. FROM WEST DEADEND TO COLLEGE PL. - STA. 0+00 TO 5+00~~
~~22. W. JOHNSTON AVE. FROM WEST DEADEND TO COLLEGE PL. - STA. 5+00 TO 10+00~~
~~23. W. JOHNSTON AVE. FROM WEST DEADEND TO COLLEGE PL. - STA. 10+00 TO 15+00~~
~~24. W. JOHNSTON AVE. FROM WEST DEADEND TO COLLEGE PL. - STA. 15+00 TO 20+00~~
~~25. W. JOHNSTON AVE. FROM WEST DEADEND TO COLLEGE PL. - STA. 20+00 TO 25+00~~
~~26. W. JOHNSTON AVE. FROM WEST DEADEND TO COLLEGE PL. – STA 25+00 TO END~~
27. E. YOAKUM AVE. STA. 0+00 TO END PLAN AND PROFILE VIEWS
28. N. 8TH ST. & YOAKUM AVE. PROPOSED (BULB OUTS)
29. MISCELLANEOUS DETAILS I
30. MISCELLANEOUS DETAILS II
31. MISCELLANEOUS DETAILS III
32. TRAFFIC CONTROL PLAN – CONVENTIONAL ROAD SHOULDER WORK – TCP (1-1) - 18
33. TEMPORARY EROSION, SEDIMENT AND WATEDR POLLUTION CONTROL MEASURES – EROSION CONTROL LOG – EC (9) – 16 – SHEET 1 OF 3
34. TEMPORARY EROSION, SEDIMENT AND WATEDR POLLUTION CONTROL MEASURES – EROSION CONTROL LOG – EC (9) – 16 – SHEET 2 OF 3
35. TEMPORARY EROSION, SEDIMENT AND WATEDR POLLUTION CONTROL MEASURES – EROSION CONTROL LOG – EC (9) – 16 – SHEET 3 OF 3
36. BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES – BC (4) – 14 – SHEET 4 OF 12
37. BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT – BC (5) – 14 – SHEET 5 OF 12
38. BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES – BC (10) – 14 – SHEET 10 OF 12
39. PEDESTRIAN FACILITIES CURB RAMPS – PED – 18 – SHEET 1 OF 4
40. PEDESTRIAN FACILITIES CURB RAMPS – PED – 18 – SHEET 2 OF 4

41. PEDESTRIAN FACILITIES CURB RAMPS – PED – 18 – SHEET 3 OF 4
42. PEDESTRIAN FACILITIES CURB RAMPS – PED – 18 – SHEET 4 OF 4
43. CURB INLET DETAIL – SHEET 1 OF 4
44. CURB INLET DETAIL – SHEET 2 OF 4
45. CURB INLET DETAIL – SHEET 3 OF 4
46. CURB INLET DETAIL – SHEET 4 OF 4

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in the General Conditions.

Article 9. MISCELLANEOUS

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

9.2 No assignment by a party hereto of any rights or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

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

Article 10. OTHER PROVISIONS

10.1 The successful bidder who is awarded this bid will be required to complete and return a Conflict of Interest Disclosure Form and a Form 1295 – Certificate of Interested Parties

10.2 This contract gives no rights or benefits to anyone other than the CITY and CONTRACTOR.

10.3 CONTRACTOR agrees to abide by all local, state, and federal nondiscrimination and fair wages, and all other laws applicable to this contract.

IN WITNESS WHEREOF, CITY and CONTRACTOR have signed this Agreement in five counterparts. Two counterparts each have been delivered to CITY and CONTRACTOR and one counterpart to ENGINEER. All portions of the Contract Documents have been signed or identified by CITY and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____, 20____

CITY:
City of Kingsville, Texas

By:_____
Mark McLaughlin, City Manager

Attest: _____

Address for giving notices:

City of Kingsville
400 W. King Avenue
Kingsville, Texas, 78363

CONTRACTOR:
_____

By:_____

Attest: _____

Address for giving notices:

CHANGE ORDER NO. ()

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

CHANGE ORDER NO. () AMOUNT

	WORK ACTIVITIES	QUANTITIES	UNIT	UNIT PRICE	AMOUNT
					$ -
					$ -
					$ -
				TOTAL	$ -

PHASE 3 BASE BID TOTAL	$ -
CHANGE ORDER NO. () TOTAL	$ -
PHASE 3 BASE BID + CO NO. () TOTAL	$ -
ORIG. CONTRACT + CO NO. ()	$ -
ORIGINAL CONTRACT + CO NO. ()	$ -
CHANGE ORDER NO. ()	**$ -**

ORIGINAL CONTRACT TIME (CALENDAR DAYS)	() DAYS
CHANGE ORDER NO. # (CALENDAR DAYS)	() DAYS
ORIG. CONTRACT TIME + CO NO. ()	**() DAYS**

Contractor's Authorization

Contractor's Signature _____ Date _____

Engineer's Recommendation

Engineer's Signature _____ Date _____

City Commission Approval

Mayor's Signature _____ Date _____

Certificate of Construction Completion (COCC)

(Submit one for each Prime Construction Contract)

This is to certify that a Pre-final inspection of the project described below was conducted on the ____ day of _____. Contract was entered into on the ____ day of _____ between the **City of Kingsville** and _____ for the construction of **2023-2024 City-Wide Miscellaneous Concrete and Drainage Improvements – Phase 3 Project.**

This is to further certify that:

1, The work has been completed in accordance with the plans and specifications and all amendments, change orders and supplemental agreements thereto.

2. The sum of **$**_____ has been deducted from the final payment to the Contractor in accordance with any contract liquidated damages requirements, separate from any liquidated damages resulting from Davis-Bacon compliance.

3. All programmatic requirements have been met, all claims and disputes have been settled all warranties have been received, and all liens have been released.

4. The Contractor has presented on behalf of itself and its sureties, satisfactory evidence that he or she will repair, replace and rectify any faulty workmanship and/or materials discovered in the work within a period of 12 months from this date, as provided in the Contract.

5. All bills for materials, apparatus, fixtures, machinery, labor, and equipment used in connection with the construction of this project have been fully paid.

6.

Amount of Original Contract	$_____
Cumulative Change Orders	$_____
Final Amount of Contract	$_____
Less Previous Payments	$_____
Less Deductions (from #2 above)	$_____
FINAL PAYMENT (Balance)	$_____

7. The Final Payment above is now due and payable.

Certified by the following Engineer and Contractor:

Engineer	**Contractor**
_____	_____
Title	Title
_____	_____
Firm	Firm

EQUAL OPPORTUNITY CLAUSE

(b) *Federally assisted construction contracts. Except as otherwise provided, each administering agency shall require the inclusion of the following language as a condition of any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of the equal opportunity clause:*

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

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

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, 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 and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discourage or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will 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.

(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

(c) Subcontracts. Each nonexempt prime contractor or subcontractor shall include the equal opportunity clause in each of its nonexempt subcontracts.

(d) Incorporation by reference. The equal opportunity clause may be incorporated by reference in all Government contracts and subcontracts, including Government bills of lading, transportation requests, contracts for deposit of Government funds, and contracts for issuing and paying U.S. savings bonds and notes, and such other contracts and subcontracts as the Deputy Assistant Secretary may designate.

(e) Incorporation by operation of the order. By operation of the order, the equal opportunity clause shall be considered to be a part of every contract and subcontract required by the order and the regulations in this part to include such a clause whether or not it is physically incorporated in such contracts and whether or not the contract between the agency and the contractor is written.

(f) Adaptation of language. Such necessary changes in language may be made in the equal opportunity clause as shall be appropriate to identify properly the parties and their undertakings.

[43 FR 49240, Oct. 20, 1978, as amended at 62 FR 66971, Dec. 22, 1997; 79 FR 72993, Dec. 9, 2014; 80 FR 54934, September 11, 2015]

Equal Opportunity Guidelines for Construction Contractors

Note: To be included in bid packet and distributed at the preconstruction conference (optional)

1. **What are the responsibilities of the offeror or bidder to ensure equal employment opportunity?**
   For contracts over $ 10,000, the offeror or bidder must comply with the "Equal Opportunity Clause" and the "Standard Federal Equal Opportunity Construction Contract Specifications."
2. **Are construction contractors required to ensure a legal working environment for all employees?**
   Yes, it is the construction contractor's responsibility to provide an environment free of harassment, intimidation, and coercion to all employees and to notify all foremen and supervisors to carry out this obligation, with specific attention to minority or female individuals.
3. **To alleviate developing separate facilities for men and women on all sites, can a construction contractor place all women employees on one site?**
   No, two or more women should be assigned to each site when possible.
4. **Are construction contractors required to make special outreach efforts to Section 3 or minority and female recruitment sources?**
   Yes, construction contractors must establish a current list of Section 3, minority and female recruitment sources. Notification of employment opportunities, including the availability of on-the-job training and apprenticeship programs, should be given to these sources. The efforts of the construction contractors should be kept in file.
5. **Should records be maintained on the number of Section 3 residents, minority and females applying for positions with construction contractors?**
   Yes, records must be maintained to include a current list of names, addresses and telephone numbers of all Section 3, minority and female applicants. The documentation should also include the results of the applications submitted.
6. **What happens if a woman or minority is sent to the union by the Contractor and is not referred to the Contractor for employment?**
   If the unions impede the construction contractor's responsibility to provide equal employment opportunity, a written notice should be submitted to TDA.
7. **What efforts are made by construction contractors to create entry-level positions for Section 3 residents, women and minorities?**
   Construction contractors are required to develop on-the-job training programs, or participate in training programs, especially those funded by the Department of Labor, to create positions for Section 3 residents, women and minorities and to meet employment needs.
8. **Are any efforts made by the Contractor to publicize their Equal Employment Opportunity (EEO) policy?**
   Yes, the construction contractor is responsible for notifying unions and sources of training programs of their equal employment opportunity policy. Unions should be requested to cooperate in the effort of equal opportunity. The policy should be included in any appropriate manuals, or collective bargaining agreements. The construction contractor is encouraged to publicize the equal employment opportunity policy in the company newspaper and annual report. The Contractor is also responsible to include the EEO policy in all media advertisement.

9. **Are any in-service training programs provided for staff to update the EEO policy?**
   At least annually a review of the EEO policy and the affirmative action obligations are required of all personnel employees of a decision-making status. A record of the meeting including date, time, location, persons present, subject matter discussed, and disposition of the subject matter should be maintained.

10. **What recruitment efforts are made for Section 3 residents, minorities and women?**
    The construction contractor must notify both orally and in writing, Section 3, minority and female recruitment sources one month prior to the date of acceptance for apprenticeship or other training programs.

11. **Are any measures taken to encourage promotions for minorities and women?**
    Yes, an annual evaluation should be conducted for all minority and female personnel to encourage these employees to seek higher positions.

12. **What efforts are taken to ensure that personnel policies are in accordance with the EEO policy?**
    Personnel policies regarding job practices, work assignments, etc. should be continually monitored to ensure that the EEO policy is carried out.

13. **Can women be excluded from utilizing any facilities available to men?**
    No, all facilities and company activities are non-segregated except for bathrooms or changing facilities to ensure privacy.

14. **What efforts should be utilized to include minority and female contractors and suppliers?**
    Take affirmative steps to ensure that small, minority, and women owned businesses are included on all lists for contractors/service providers. Solicit these businesses when issuing RFPs and RFQs and soliciting construction bids. Divide project activities into small tasks to allow participation. Keep records of all offers to minority and female construction contractors.

15. **If a construction contractor participates in a business-related association that does not comply with equal opportunity affirmative action standards, does that show his/her failure to comply?**
    No, the construction contractor is responsible for its own compliance.

16. **Can a construction contractor hire a subcontractor who has been debarred from government contracts pursuant to EEO?**
    No. The construction contractor must suspend, terminate or cancel its contract with any Subcontractor who is in violation of the EEO policy.

17. **What effort has been taken by the construction contractor to monitor all employment to ensure the company EEO policy is being carried out?**
    The construction contractor must designate a responsible individual to keep accurate records of all employees that includes specific information required by the government.

Federal Labor Standards Provisions

U.S. Department of Housing and Urban Development
Office of Labor Relations

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section l(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part

of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section l(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section l(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR 5.5 (a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the

journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 of this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable only where the amount of the prime contract exceeds $100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subpara-

graph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable only where the amount of the prime contract exceeds $100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, 40 USC 3701 et seq.

(3) The Contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Title 29 — LABOR

Subtitle A — Office of the Secretary of Labor

PART 3 — CONTRACTORS AND SUBCONTRACTORS ON PUBLIC BUILDING OR PUBLIC WORK FINANCED IN WHOLE OR IN PART BY LOANS OR GRANTS FROM THE UNITED STATES

Sec.

AUTHORITY: The provisions of this Part 3 issued under R.S. 161, sec. 2, 48 Stat. §48; Reorg. Plan No. 14 of 1950, 64 Stat. 1267, 5 U.S.C. Appendix; 5 U.S.C. 301; 40 U.S.C. 276c.

SOURCE: The provisions of this Part 3 appear at 29 F.R. 97, Jan. 4, 1964, unless otherwise noted.

Section 3.1 Purpose and Scope.

This part prescribes "anti-kickback" regulations under section 2 of the Act of June 13, 1934, as amended (40 U.S.C. 276c), popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is for the construction, prosecution, completion, or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States. The part is intended to aid in the enforcement of the minimum wage provisions of the Davis-Bacon Act and the various statutes dealing with Federally-assisted construction that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No. 14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. The part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid on work covered thereby; sets forth the circumstances and procedures governing the making of payroll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.

Section 3.2 Definitions.

As used in the regulations in this part:

(a) The terms "building" or "work" generally include construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work. The terms include, without limitation, buildings, structures, and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, powerlines, pumping stations, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals; dredging, shoring, scaffolding, drilling, blasting, excavating, clearing, and landscaping. Unless conducted in connection with and at the site of such a building or work as is described in the foregoing sentence, the manufacture or furnishing of materials, articles, supplies, or equipment (whether or not a Federal or State agency acquires title to such materials, articles, supplies, or equipment during the course of the manufacture or furnishing, or owns the materials from which they are manufactured or furnished) is not a "building" or "work" within the meaning of the regulations in this part.

(b) The terms "construction," "prosecution," "completion," or "repair" mean all types of work done on a particular building or work at the site thereof, including, without limitation, altering, remodeling, painting and decorating, the transporting of materials and supplies to or from the building or work by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the building or work, by persons employed at the site by the contractor or subcontractor.

(c) The terms "public building" or "public work" include building or work for whose construction, prosecution, completion, or repair, as defined above, a Federal agency is a contracting party, regardless of whether title thereof is in a Federal agency.

(d) The term "building or work financed in whole or in part by loans or grants from the Unites States" includes building or work for whose construction, prosecution, completion, or repair, as defined above, payment or part payment is made directly or indirectly from funds provided by loans or grants by a Federal agency. The term includes building or work for which the Federal assistance granted is in the form of loan guarantees or insurance.

(e) Every person paid by a contractor or subcontractor in any manner for his labor in the construction, prosecution, completion, or repair of a public building or public work or building or work financed in whole or in part by loans or grants from the United States is "employed" and receiving "wages," regardless of any contractual relationship alleged to exist between him and the real employer.

(f) The term "any affiliated person" includes a spouse, child, parent, or other close relative of the contractor or subcontractor; a partner or officer of the contractor or subcontractor; a corporation closely connected with the contractor or subcontractor as parent, subsidiary or otherwise, and an officer or agent of such corporation.

(g) The term "Federal agency" means the United States, the District of Columbia, and all executive departments, independent establishments, administrative agencies, and instrumentality's of the United States and of the District of Columbia, including corporations, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or any of the foregoing departments, establishments, agencies, and instrumentality's.

{29 FR 97, Jan. 4, 1964, as amended at 33 FR 32575, Nov. 27, 1973}

Section 3.3 Weekly statement with respect to payment of wages.

(a) As used in this section, the term "employee" shall not apply to persons in classifications higher than that of laborer or mechanic and those who are the immediate supervisors of such employees.

(b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States, shall furnish each week a statement with respect to the wages paid each of its employees engaged on work covered by 29 CFR Parts 3 and 5 during the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer of employee of the contractor or subcontractor who supervises the payment of wages, and shall be on form WH 348, "Statement of Compliance," or on an identical form on the back of WH 347, "Payroll (For Contractors Optional Use)" or on any form with identical wording. Sample copies of WH 347 and WH 348 may be obtained from the Government contracting or sponsoring agency, and copies of these forms may be purchased at the Government Printing Office.

(c) The requirements of this section shall not apply to any contract of $2,000 or less.

(d) Upon a written finding by the head of a Federal agency, the Secretary of Labor may provide reasonable limitations, variations, tolerances, and exemptions from the requirements of this section subject to such conditions as the Secretary of Labor may specify.
{29 F.R. 95, Jan. 4, 1964, as amended at 33 F.R. 10186, July 17, 1968}

Section 3.4 Submission of weekly statements and the preservation and inspection of weekly payroll records.

(a) Each weekly statement required under §3.3 shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work, or if there is no representative of a Federal or State agency at the site of the building or work, the statement shall be mailed by the contractor or subcontractor, within such time, to a Federal or State agency contracting for or financing the building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the United States Department of Labor.

(b) Each contractor or subcontractor shall preserve his weekly payroll records for a period of three years from date of completion of the contract. The payroll records shall set out accurately and completely the name and address of each laborer and mechanic, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the contracting officer or his authorized representative, and by authorized representatives of the Department of Labor.

Section 3.5 Payroll deductions permissible without application to or approval of the Secretary of Labor.

Deductions made under the circumstances or in the situations described in the paragraphs of this section may be made without application to and approval of the Secretary of Labor:

(a) Any deduction made in compliance with the requirements of Federal, State, or local law, such as Federal or State withholding income taxes and Federal social security taxes.

(b) Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. A "bona fide prepayment of wages" is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.

(c) Any deduction of amounts required by court process to be paid to another, unless, the deduction is in favor of the contractor, subcontractor or any affiliated person, or when collusion or collaboration exists.

(d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representatives of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions, or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents: Provided, however, That the following standards are met: (1) The deduction is not otherwise prohibited by law; (2) it is either: (i) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or (ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; (3) no profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise; and (4) the deductions shall serve the convenience and interest of the employee.

(e) Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.

(f) Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.

(g) Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasi-governmental agencies, such as the American Red Cross.

(h) Any deduction voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

(i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments:

Provided, however, that a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.
(j) Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standards Act of 1938, as amended, and Part 531 of this title. When such a deduction is made the additional records required under §516.27(a) of this title shall be kept.

(k) Any deduction for the cost of safety equipment of nominal value purchased by the employee as his own property for his personal protection in his work, such as safety shoes, safety glasses, safety gloves, and hard hats, if such equipment is not required by law to be furnished by the employer, if such deduction is not violative of the Fair Labor Standards Act or prohibited by other law, if the cost on which the deduction is based does not exceed the actual cost to the employer where the equipment is purchased from him and does not include any direct or indirect monetary return to the employer where the equipment is purchased from a third person, and if the deduction is either (1) voluntarily consented to be the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance; or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees.
{36 F.R. 9770, May 28, 1971.}

Section 3.6 Payroll deductions permissible with the approval of the Secretary of Labor.

Any contractor or subcontractor may apply to the Secretary of Labor for permission to make any deduction not permitted under §3.5. The Secretary may grant permission whenever he finds that:

(a) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly from the deduction either in the form of a commission, dividend, or otherwise;

(b) The deduction is not otherwise prohibited by law;

(c) The deduction is either (1) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance, or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; and
(d) The deduction serves the convenience and interest of the employee.

Section 3.7 Applications for the approval of the Secretary of Labor.

Any application for the making of payroll deductions under §3.6 shall comply with the requirements prescribed in the following paragraphs of this section:

(a) The application shall be in writing and shall be addressed to the Secretary of Labor.

(b) The application need not identify the contract or contracts under which the work in question is to be performed. Permission will be given for deductions on all current and future contracts of the applicant for a period of 1 year. A renewal of permission to make such payroll deduction will be granted

upon the submission of an application which makes reference to the original application, recites the date of the Secretary of Labor's approval of such deductions, states affirmatively that there is continued compliance with the standards set forth in the provisions of §3.6, and specifies any conditions which have changed in regard to the payroll deductions.
{36 F.R. 9770, May 28, 1971.}

(c) The application shall state affirmatively that there is compliance with the standards set forth in the provisions of §3.6. The affirmation shall be accompanied by a full statement of the facts indicating such compliance.

(d) The application shall include a description of the proposed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages the proposed deduction would be made.

(e) The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

Section 3.8 Action by the Secretary of Labor upon applications.

The Secretary of Labor shall decide whether or not the requested deduction is permissible under provisions of §3.6; and shall notify the applicant in writing of his decision.

Section 3.9 Prohibited payroll deductions.

Deductions not elsewhere provided for by this part and which are not found to be permissible under §3.6 are prohibited.

Section 3.10 Methods of payment of wages.

The payment of wages shall be by cash, negotiable instruments payable on demand, or the additional forms of compensation for which deductions are permissible under this part. No other methods of payment shall be recognized on work subject to the Copeland Act.

Section 3.11 Regulations part of contract.

All contracts made with respect to the construction, prosecution, completion, or repair of any public building or public work or building or work financed in whole or in part by loans or grants from the United States covered by the regulations in this part shall expressly bind the contractor or subcontractor to comply with such of the regulations in this part as may be applicable. In this regard, see §5.5(a) of this subtitle.

SECTION 504 CERTIFICATION

POLICY OF NONDISCRIMINATION ON THE BASIS OF DISABILITY

The _____ does not discriminate on the basis of disability in the admission or access to, or treatment or employment in, its federally assisted programs or activities.

(Name) _____

(Address) _____

_____

City State Zip

Telephone Number ( ) _____ - _____ Voice

( ) _____ - _____ TDD

has been designated to coordinate compliance with the nondiscrimination requirements contained in the Department of Housing and Urban Development's (HUD) regulations implementing Section 504 (24 CFR Part 8. dated June 2, 1988).

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM
CONTRACTOR'S CERTIFICATION

CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS

TO (appropriate recipient)	DATE
	PROJECT NUMBER (if any)
C/O	PROJECT NAME

1. The undersigned, having executed a contract with _____ _____ for the construction of the above-identified project, acknowledges that:

   (a) The Labor Standards provisions are included in the aforesaid contract,

   (b) Correction of any infractions of the aforesaid conditions, including infractions by any subcontractors and any lower tier subcontractors, is Contractor's responsibility.

2. Certifies that:

   (a) Neither Contractor nor any firm, partnership or association in which it has substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR, Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act, as amended.

   (b) No part of the aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership or association in which such subcontractor has a substantial interest is designated as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.

3. Contractor agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by subcontractors and any lower tier subcontractors, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements executed by the subcontractors.

4. Certifies that:

   (a) The legal name and the business address of the undersigned are:

   (b) The undersigned is (choose one):

(1) A SINGLE PROPRIETORSHIP	(3) A CORPORATION ORGANIZED IN THE STATE OF
(2) A PARTNERSHIP	(4) OTHER ORGANIZATION (Describe)

   (c) The name, title and address of the owner, partners or officers of the undersigned are:

NAME	TITLE	ADDRESS

(d) The names and addresses of all other persons having a substantial interest in the undersigned, and the nature of the interest are:

NAME	ADDRESS	NATURE OF INTEREST

(e) The names, addresses and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are:

NAME	ADDRESS	TRADE CLASSIFICATION

_____
(Contractor)

Date _____

By _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, _____ as PRINCIPAL, and _____, as SURETY are held and firmly bound unto _____ hereinafter called the "Owner", in the penal sum of _____ Dollars, ($_____), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the Accompanying Bid, dated _____, for _____

_____

NOW, THEREFOR, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this _____ day of _____, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

(SEAL)

_____

(SEAL)

Attest: By: _____

Affix
Corporate
Seal

Attest: By: _____

Affix
Corporate
Seal

Attest: By: _____

Countersigned

By _____

* Attorney-in-Fact, State of _____

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____, _____, Secretary of the Corporation named as Principal in the within bond; that _____, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to, for and in behalf of said corporation by authority of this governing body.

Corporate Seal

Title: _____

* Power-of-attorney for person signing for surety company must be attached to bond.

INSERT CERTIFICATE OF LIABILITY INSURANCE

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that:

_____
(Name of Contractor or Company)

_____
(Address)

a _____, hereinafter called Principal,
(Corporation / Partnership)

and _____
(Name of Surety Company)

_____
(Address)

hereinafter called Surety, are held and firmly bound unto

The City of Kingsville, Texas
(Name of Recipient)

400 West King Ave., Kingsville, Texas 78363
(Recipient's Address)

hereinafter called OWNER, in the penal sum of $ _____

Dollars, $ _____ in lawful money of the United States, for this payment of
which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONFIDENTIALITY OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the ___ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

Bid 24-14, 2023-2024 City-Wide Miscellaneous Concrete and Drainage Improvements – Phase 3
(Project Name)

_____

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUB-CONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUB-CONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed

thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counter-parts, each on of (Number)
which shall be deemed an original, this the _____ day of _____.

ATTEST: _____
(Principal)

_____ By _____ (s)
(Principal Secretary)

(SEAL)

_____
(Witness as to Principal) (Address)

_____ _____
(Address)

ATTEST: _____
(Surety)

_____ By _____
(Witness as to Surety (Attorney in Fact)

_____ _____
(Address) (Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that:

_____

(Name of Contractor or Company)

_____

(Address)

a _____ hereinafter called Principal, and

_____

(Name of Surety Company)

_____

(Address)

hereinafter called Surety, are held and firmly bound unto

CITY OF KINGSVILLE, TEXAS

(Name of Recipient)

400 WEST KING AVENUE, KINGSVILLE, TEXAS 78363

(Grant Recipient's Address)

hereinafter called OWNER, in the penal sum of $ _____

Dollars ($ _____) in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the _____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

Bid 24-14 2023-2024 City- Wide Miscellaneous Concrete and Drainage Improvements – Phase 3

_____

_____

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties in all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term

thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

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

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____

counterparts, each one of which shall be deemed an original, this the _____

day of _____.

ATTEST: _____
(Principal)

_____ By _____(s)
(Principal Secretary)

(SEAL)

_____ _____
(Witness as to Principal) (Address)

_____ _____
(Address)

_____

ATTEST: _____
(Surety)

_____ By _____
(Witness as to Surety) (Attorney in Fact)

_____ _____
(Address) (Address)

NOTE: Date of BOND must not be prior to date of Contract. If PRINCIPAL/CONTRACTOR is Partnership, all partners should execute BOND.

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

_____ as PRINCIPAL, and _____, as SURETY

are held and firmly bound unto (City of Kingsville, Texas) hereinafter called the "Local Public Agency", in the penal sum of _____ Dollars, ($_____), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the Accompanying Bid, dated _____, for _____

_____

NOW, THEREFORE, the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefor, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Local Public Agency in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Local Public Agency the difference between the amount specified in said Bid and the amount for which the local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above parties have executed this instrument this _____ day of _____, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

(SEAL)

_____

(SEAL)

Attest: By: _____

Affix
Corporate
Seal

Attest: By: _____

Affix
Corporate
Seal

Attest: By: _____

Countersigned

By _____

* Attorney-in-Fact, State of Texas

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the Corporation named as Principal in the bid bond; that _____, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said bond was duly signed, sealed, and attested to, on behalf of said corporation by authority of its governing body.

Corporate
Seal

Title: _____

* Power-of-attorney for person signing for Surety Company must be attached to bond.

GENERAL CONDITIONS

GENERAL CONDITIONS
FOR CONSTRUCTION

1. Contract and Contract Documents

(a) The Plans, Specifications and Addenda shall form part of this contract and the provisions thereof shall be binding upon the parties as if they were herein fully set forth.

2. Definitions

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms here in defined:

(a) The term "Contract" means the Contract executed between the City of Kingsville, hereinafter called the "City" or "Owner" and (_____), hereinafter called "Contractor", of which these GENERAL CONDITIONS, form a part.

(b) The term "Project Area" means the area within the specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this contract.

(c) The term "Engineer" means the City of Kingsville Engineer, Engineer in charge, serving the City with architectural or engineering services, his successor, or any other person or persons, employed by the City for the purpose of directing or having in charge the work embraced in this Contract.

(d) The term "Contract Documents" means and shall include the following: Executed Contract, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings).

3. Supervision by Contractor

(a) Except where the Contractor is an individual and personally supervises the work, the Contractor shall provide a competent superintendent, satisfactory to the Engineer, on the work at all times during working hours with full authority to act as Contractor's agent. The Contractor shall also provide adequate staff for the proper coordination and expediting of his work.

(b) The Contractor shall be responsible for all work executed under the Contract. Contractor shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

4. Subcontracts

(a) No proposed subcontractor shall be disapproved by the City except for cause.

(b) The Contractor shall be as fully responsible to the City for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them.

(c) Nothing contained in the Contract shall create any contractual relation between any subcontractor and the City.

5. Fitting and Coordination of Work

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or material suppliers engaged upon this Contract.

6. Payments to Contractor

(a) Partial Payments

1) The Contractor shall prepare the requisition for partial payment as of the last day of the month and submit it, with the required number of copies, to the Engineer for approval. 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) ten percent (10%) of the total amount, to be retained until final payment, 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, prices contained in the agreement. 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 available for inspection of the Engineer.

2) Monthly or partial payments made by the City to the Contractor are advanced for the purpose of assisting the contractor to expedite the work of construction. 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 City. Such payments shall not constitute a waiver of the right of the City 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 City in all details.

(b) Final Payment

1) After final inspection and the acceptance by the City of all work under the Contract, the Contractor shall prepare the requisition for final payment which shall be based upon the careful inspection of each item of work at the applicable unit prices stipulated in the Contract. The total amount of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments.

2) Before paying the final estimate, City shall 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. The City may make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

3) Any amount due the City under Liquidated Damages shall be deducted from the final payment due the contractor.

(c) Payments Subject to Submission of Certificates

Each payment to the Contractor by the City shall be made subject to submission by the Contractor of all written certifications required of it and its subcontractors.

(d) Withholding Payments

The City may withhold any payment due the Contractor as deemed necessary to protect the City, and if so elects, may also withhold any 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 City and will not require the City to determine or adjust any claims or disputes between the Contractor and its subcontractors or material dealers, or to withhold any moneys for their protection unless the City elects to do so. The failure or refusal of the City 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.

7. Changes in the Work

(a) The City may make changes in the scope of work required to be performed by the Contractor under the Contract without relieving or releasing the Contractor from any obligations under the Contract or any guarantee given pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

(b) Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the City authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.

(c) If applicable unit prices are contained in the Contract, the City may order the Contractor to proceed with desired unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase the original total amount of the agreement by more than twenty-five percent (25%) or decrease the original the total amount by twenty-five percent (25%).

(d) Each change order shall include in its final form:

1) A detailed description of the change in the work.

2) The Contractor's proposal (if any) or a confirmed copy thereof.

3) A definite statement as to the resulting change in the contract price and/or time.

4) The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.

5) The procedures as outlined in this Section for a unit price contract also apply in any lump sum contract.

8. Claims for Extra Cost

(a) If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the City, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

(b) Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.

(c) Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall be reported at once to the City and work shall not proceed except at the Contractor's risk, until written instructions have been received from the City.

(d) If, on the basis of the available evidence, the City determines that an adjustment of the Contract Price and/or time is justifiable, a change order shall be executed.

9. Termination, Delays, and Liquidated Damages

(a) Right of the City to Terminate Contract for Convenience

City may at any time and for any reasons terminate Contractor's services and work at City's convenience upon providing written notice to the Contractor specifying the extent of termination and the effective date. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as are permitted by the prime contract and approved by City; (3) plus ten percent (10%) of the cost of the work referred to in subparagraph (1) above for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against City for any additional compensation or damages in the event of such termination and payment.

(b) Right of the City to Terminate Contract for Cause

In the event that any of the provisions of this contract are violated by the Contractor, or by any subcontractors, the City may serve written notice upon the Contractor and the Surety of its intention to terminate the contract. The notices shall contain the reasons for such intention to terminate the contract, and unless such violation or delay shall cease and satisfactory arrangement of correction be made within ten days, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the City shall immediately serve notice thereof upon the Surety and the Contractor. The Surety shall have the right to take over and perform the contract. Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the City may take over the work and complete the project by bid/contract or by force account at the expense of the Contractor and his Surety shall be liable to the City for any excess cost incurred. In such event the City may take possession of and utilize in completing the work, such materials, appliances, and facility as may be on the site of the work and necessary therefore.

(c) Liquidated Damages for Delays.

If the work is not completed within the time stipulated in the applicable bid for Lump Sum or Unit Price Contract provided, the Contractor shall pay to the City as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) the amount of **$200.00** for each calendar day of delay, until the work is completed. The Contractor and Contractor's sureties shall be liable to the City for the amount thereof.

(d) Excusable Delays.

1) The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due to:

2) Any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency;

3) Any acts of the City;

4) Causes not reasonably foreseeable by the parties to this Contract at the time of execution which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, terrorism, war, acts of another Contractor in the performance of some other contract with the City, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions.

5) Provided, however, that the Contractor promptly notifies the City within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the City shall ascertain the facts and the cause and extent of delay. If, on the basis of the facts and the terms of this contract, the delay is properly excusable, the City shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

10. Assignment or Novation

The Contractor shall not assign nor transfer, whether by assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the City. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, Contractors, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

11. Technical Specifications and Drawings

Anything mentioned in the Technical Specifications and not shown on the Drawings or vice versa shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the City for review. Contractor shall be liable for any issues or expenses in the event the discrepancy is not submitted to the City.

12. Shop Drawings

(a) All required shop drawings, machinery details, layout drawings, etc. shall be submitted to the Engineer in hard copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at Contractor's own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the Contractor, for extension of the contract time shall be granted by reason of his failure in this respect.

(b) Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.

(c) If a shop drawing is in accordance with the contract or involves only minor adjustment in the interest of the City not involving a change in contract price or time, the engineer may approve the drawing. The approval shall not relieve the Contractor from responsibility to adhere to the contract or for any error in the drawing.

13. Requests for Supplementary Information

It shall be the responsibility of the Contractor to make timely requests of the City for any additional information which should be furnished by the City under the terms of this Contract, and which is required in the planning and execution of the work. Such requests may be submitted from time to time as the need approaches, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provision of this section.

14. Materials and Workmanship

(a) Unless otherwise specifically provided for in the technical specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the technical specifications as "equal to" any standard, the Engineer shall decide the question of equality.

(b) The Contractor shall furnish to the City for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval full information concerning all other materials or articles which he proposes to incorporate.

(c) Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.

(d) Materials specified by reference to the number or symbol of a specific standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in the technical specifications shall have full force and effect as though printed therein.

(e) The City may require the Contractor to dismiss from the work such employee or employees as the City or the Engineer may deem unqualified.

15. Samples, Certificates and Tests

(a) The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the contract documents or required by the Engineer, promptly after award of the contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.

(b) Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Engineer in making a prompt decision regarding the acceptability of the sample. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.

(c) Approval of any materials shall be general only and shall not constitute a waiver of the City's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.

(d) Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;

2) The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;

3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient;

4) The City will pay all other expenses.

16. Permits and Codes

(a) The Contractor shall give all notices required by and comply with all applicable federal and state laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the drawings and technical specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the City. Where the requirements of the drawings and technical specifications fail to comply with such applicable ordinances or codes, the City will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.

(b) Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is following the drawings and technical specifications), the Contractor shall remove such work without cost to the City.

(c) The Contractor shall at his own expense, secure and pay for all permits for street pavement, sidewalks, shed, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.

(d) The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements contained in this Contract.

(e) The Contractor will be required to plan for and pay the water, electrical power, or any other utilities required during construction.

(f) During construction of this project, the Contractor shall use every means possible to control the amount of dust created by construction. Prior to the close of a day's work, the Contractor, if directed by the City, shall moisten the surrounding area to prevent a dusty condition.

17. Care of Work

(a) The Contractor shall be responsible for all damages to person or property that occur as a result of its fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance.

(b) In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the City is authorized to act to prevent such threatened loss or injury. Contractor shall follow all instructions of City.

(c) The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and shall be responsible for completely repairing any damage thereto caused by the operations.

(d) The Contractor shall shore up, brace, underpin, secure, and protect as maybe necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements included in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the City from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the City may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

18. Accident Prevention

(a) No laborer or mechanic employed in the performance of this Contract shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety as determined under construction safety and health standards promulgated by the Department of Labor.

(b) The Contractor shall always exercise proper precaution for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work.

(c) The Contractor shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the City with reports concerning these matters.

(d) The Contractor shall indemnify and hold harmless the City from any claims for damages resulting from property damage, personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.

(e) The Contractor shall provide trench safety for all excavations more than five feet deep prior to excavation. All OSHA Standards for trench safety must be adhered to by the Contractor.

(f) The contractor shall at all time conduct work in such a manner as to ensure the least possible inconvenience to vehicular and pedestrian traffic. At the close of work each day, all streets where possible in the opinion of the City, shall be opened to the public in order that persons living in the area may have access to their homes or businesses by the use of the streets. Barricades, warning signs, and necessary lighting shall be provided to the satisfaction of the City at the expense of the Contractor.

19. Sanitary Facilities

The Contractor shall furnish, install and maintain ample sanitary facilities for laborers. As the needs arise, enough enclosed temporary toilets shall be conveniently placed as required. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

20. Use of Premises

(a) The Contractor shall confine equipment, storage of materials, and construction operations to the contract limits as shown on the drawings and as prescribed by ordinances or permits, or as may be

desired by the City, and shall not unreasonably encumber the site or public rights of way with materials and construction equipment.

(b) The Contractor shall comply with all reasonable instructions of the City and all existing federal, state and local regulations regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

21. Removal of Debris, Cleaning, Etc.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for work, and put the whole site of the work and public rights of way in a neat and clean condition.

22. Inspection

(a) All materials and workmanship shall be subject to inspection, examination, or test by the City and Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction occurs. The City shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the City may by contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any Monies which may be due the Contractor, without prejudice to any other rights or remedies of the City.

(b) The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests by the City will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the technical specifications.

(c) The Contractor shall notify the City sufficiently in advance of back filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the City, the Contractor shall uncover for inspection and recover such facilities at Contractor's expense, when so requested by the City.

(d) Should it be considered necessary or advisable by the City at any time before final acceptance of the entire work to make an examination of work already completed, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, shall be reimbursable and if completion of the work of the entire Contract has been delayed, a suitable extension of time will be approved.

(e) Inspection of materials and appurtenances to be incorporated in the improvements included in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the technical specifications,

shall be final, except as regards to: (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.

(f) Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the City or its agents shall relieve the Contractor or its sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

23. Review by City

The City and its authorized representatives and agents shall have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however that all instructions and approval with respect to the work will be given to the Contractor only by the City through its authorized representatives or agents.

24. Final Inspection

When the Improvements included in this Contract are substantially completed, the Contractor shall notify the City in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The City will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable.

25. Deduction for Uncorrected Work

If the City deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the City and subject to settlement, in case of dispute, as herein provided.

26. Insurance

The Contractor shall not commence work under this contract until all required insurance under this paragraph has been secured and approved by the City.

(a) Worker's Compensation Insurance: The Contractor shall procure and shall maintain during the life of this contract Worker's Compensation Insurance as required by the State of Texas for all of his employees to be engaged in work at the site of the project under this contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Worker's Compensation Insurance.

(b) Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance: Please see the following Exhibit for the City of Kingsville's Insurance Requirements:

EXHIBIT

INSURANCE REQUIREMENTS

I. CONTRACTOR'S LIABILITY INSURANCE

A. Contractor must not commence work under this contract until all insurance required has been obtained and such insurance has been approved by the City. Contractor must not allow any subcontractor to commence work until all similar insurance required of any subcontractor has been obtained.

B. Contractor must furnish to the City's Risk Manager and Public Works Director, 1 copy of Certificates of Insurance (COI) with applicable policy endorsements showing the following minimum coverage by an insurance company(s) acceptable to the City's Risk Manager. The City of Kingsville must be listed as an additional insured on the General Liability and Auto Liability policies **by endorsement**, and a waiver of subrogation is required on all applicable policies including Workers' Compensation. **Endorsements** must be provided with COI. Project name and or number must be listed in Description Box of COI.

TYPE OF INSURANCE	**MINIMUM INSURANCE COVERAGE**
30-written day notice of cancellation, required on all certificates or by applicable policy endorsements	**Bodily Injury and Property Damage** Per occurrence - aggregate
Commercial General Liability including: 1. Commercial Broad Form 2. Premises – Operations 3. Products/ Completed Operations 4. Contractual Liability 5. Independent Contractors	$1,000,000 Per Occurrence $2,000,000 Aggregate
AUTO LIABILITY (including) 1. Owned 2. Hired and Non-Owned 3. Rented/Leased	$1,000,000 Combined Single Limit
WORKERS' COMPENSATION EMPLOYER'S LIABILITY	Statutory $500,000 /$500,000 /$500,000

C. In the event of accidents of any kind related to this agreement, Contractor must furnish the Risk Manager with copies of all reports of any accidents within 10 days of the accident.

II. ADDITIONAL REQUIREMENTS

A. Applicable for paid employees, Contractor must obtain workers' compensation coverage through a licensed insurance company. The coverage must be written on a policy and endorsements

approved by the Texas Department of Insurance. The workers' compensation coverage provided must be in an amount sufficient to assure that all workers' compensation obligations incurred by the Contractor will be promptly met.

B. Contractor shall obtain and maintain in full force and effect for the duration of this Contract, and any extension hereof, at Contractor's sole expense, insurance coverage written on an occurrence basis, by companies authorized and admitted doing business in the State of Texas and with an A.M. Best's rating of no less than A- VII.

C. Contractor shall be required to submit a copy of the replacement certificate of insurance to City at the address provided below within 10 days of the requested change. Contractor shall pay any costs incurred resulting from said changes. All notices required by this exhibit shall be given to City at the following address:

City of Kingsville
Attn: Risk Manager
P.O. Box 1458
Kingsville, TX 78364

D. Contractor agrees that with respect to the above required insurance, all insurance policies are to contain or be endorsed to contain the following required provisions:

- List the City of Kingsville and its officers, officials, employees, volunteers, and elected representatives as additional insured by endorsement, as respects operations, completed operation and activities of, or on behalf of, the named insured performed under contract with the City, with the exception of the workers' compensation policy;

- Provide for an endorsement that the "other insurance" clause shall not apply to the City of Kingsville where the City is an additional insured shown on the policy;

- Workers' compensation and employers' liability policies will provide a waiver of subrogation in favor of the City. An All States Endorsement will be required for companies not domiciled in Texas; and

- Provide thirty (30) calendar days advance written notice directly to City of any suspension, cancellation, non-renewal or material change in coverage, and not less than ten (10) calendar days advance written notice for nonpayment of premium.

E. Within five (5) calendar days of a suspension, cancellation, or non-renewal of coverage, Contractor shall provide a replacement Certificate of Insurance and applicable endorsements to City. City shall have the option to suspend Contractor's work should there be a lapse in coverage at any time during this contract. Failure to provide and to maintain the required insurance shall constitute a material breach of this contract.

F. In addition to any other remedies the City may have upon Contractor's failure to provide and maintain any insurance or policy endorsements to the extent and within the time herein required, the City shall have the right to order Contractor to stop work hereunder, and/or withhold any

payment(s) if any, which become due to Contractor hereunder until Contractor demonstrates compliance with the requirements hereof.

G. Nothing herein contained shall be construed as limiting in any way the extent to which Contractor may be held responsible for payments of damages to persons or property resulting from Contractor's or its subcontractor's performance of the work covered under this contract.

H. It is agreed that Contractor's insurance shall be deemed primary and non-contributory with respect to any insurance or self-insurance carried by the City of Kingsville for liability arising out of operations under this contract.

I. It is understood and agreed that the insurance required is in addition to and separate from any other obligation contained in this contract.

(c) Proof of Insurance: The Contractor shall furnish the City with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the City."

27. Warranty of Title

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same, together with all improvements and appurtenances constructed or placed by Contractor, to the City free from any claims, liens, or charges. Neither the Contractor nor any person, firm, or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any law permitting such persons to look to funds due the Contractor. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

28. Warranty of Workmanship and Materials

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements included in this Contract by the City or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of **12** months from the date of final acceptance of the work.

29. Job Offices

(a) The Contractor and its subcontractors may maintain such office and storage facilities on the site as are necessary for the proper conduct of the work. These shall be located to cause no interference to any work to be performed on the site. The City shall be consulted regarding locations.

(b) Upon completion of the improvements, or as directed by the City, the Contractor shall remove all such temporary structures and facilities from the site and leave the site of the work in the condition required by the Contract.

30. Partial Use of Site Improvements

The City may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the technical specifications and if in its opinion, each such section is reasonably safe, fit, and convenient for the use and accommodation for which it was intended, provided:

(a) The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.

(b) The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

31. Local Program Liaison

For purposes of this Agreement, the City's Capital Improvement's Manager or equivalent authorized person will serve as the Local Program Liaison and primary point of contact for the Contractor. All required progress reports and communication regarding the project shall be directed to this liaison and other local personnel as appropriate.

32. Records Retention

(a) The Contractor shall retain all required records for three years after the City makes its final payment and all pending matters are closed.

(b) Contractor shall include the substance of this clause in all subcontracts it awards.

33. Conflicts of interest.

(a) Governing Body. No member of the governing body of the City and no other officer, employee, or agent of the City, who exercises any functions or responsibilities in connection with administration, construction, engineering, or implementation of this award, shall have any personal financial interest, direct or indirect, in the Contractor or this Contract; and the Firm shall take appropriate steps to assure compliance.

(b) Other Local Public Officials. No other public official, who exercises any functions or responsibilities in connection with the planning and carrying out of administration, construction, engineering or implementation of this award, shall have any personal financial interest, direct or indirect, in the Contractor or this Contract; and the Contractor shall take appropriate steps to assure compliance.

34. Debarment and Suspension (Executive Orders 12549 and 12689)

The Contractor certifies, by entering into this Contract, that neither it nor its principals are presently debarred, suspended, or otherwise excluded from or ineligible for participation in federally-assisted programs under Executive Orders 12549 (1986) and 12689 (1989). The term "principal" for purposes of this Contract is defined as an officer, director, owner, partner, key employee, or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of the Contractor. The Contractor understands that it must not make any award or permit any award (or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, "Debarment and Suspension."

35. Procurement of Recovered Materials

The Contractor shall comply with section 6002 of the Solid Waste Act, as amended by the Resource Conservation and Recovery Act, procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired by the preceding fiscal year exceeded $10,000 as long as such procurement is economically feasible.

36. [For Contracts > $100K] Overtime Requirements

No Contractor or subcontractor contracting for any part of the Contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any laborer or mechanic in any workweek in which he is employed on such work to work in excess of 40 hours in such work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all hours worked in excess of 40 hours in such work week, as the case may be.

37. [For Contracts > $150K] Clean Air Act and the Federal Water Pollution Control Act

The Contractor or subcontractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401–7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251–1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

38. Contract Documents and Drawings

The City will furnish the Contractor without charge **3** copies of the Contract Documents, including Technical Specifications and Drawings. Additional copies requested by the Contractor will be furnished at cost.

39. Contract Period

The work to be performed under this contract shall commence within the time stipulated by the City in the Notice to Proceed and shall be fully completed within **120** calendar days thereafter.

40. Liquidated Damages

Since the actual damages for any delay in completion of the work under this contract are impossible to determine, the Contractor and his Sureties shall be liable for and shall pay to the City the sum of Two-Hundred Dollars ($200) as fixed, agreed and liquidated damages for each calendar day of delay from the above stipulated time for completion.

SPECIAL CONDITIONS

SPECIAL CONDITIONS

DESCRIPTION OF WORK:

"2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS – PHASE 3"

The Contractor shall furnish all labor, materials, equipment, tools, services and supervision necessary to perform all the work as described in the Proposal and shall deliver the work complete in all respects and in full accordance with the Contract Documents. All incidental services and materials which may be reasonably inferred as necessary to accomplish the intended result shall be provided by the Contractor whether specifically shown on the Drawings or itemized in the Specifications.

CONSTRUCTION SEQUENCE:

Within ten (10) days after receiving a written "Notice to Proceed" the Contractor will be expected to pursue continuous progress of the overall Project from beginning of the work to completion. The Contractor will, in general, be left to schedule his work as he sees fit in so far as the Owner remains satisfied that an orderly progress is being made on the project to the extent of finishing within the stated contract time.

The Contractor will, however, be required to coordinate the sequencing of this work with the Owner and various utility companies, and any other individual or entity which may suffer inconvenience or damage as a result of a lack of cooperation in the construction of the project.

TIME OF COMPLETION:

Construction time is to start ten (10) days after receipt of a written "Notice to Proceed". All items of work contemplated in these Specifications and the accompanying drawings are to be fully complete in the number of days specified in the bid proposal. After the notification of final completion and a final inspection, Contractor shall have thirty (30) days to remedy any incomplete or defective work.

PROJECT MEETINGS:

Prior to starting work, the Contractor shall attend a pre-construction conference to review the Contractor's schedules, to establish procedures for processing applications for payment, and to establish a working understanding between Owner, Engineer and Contractor. Representatives of all parties shall be in attendance. Other meetings will be scheduled during the construction as need dictates.

LIQUIDATED DAMAGES FOR DELAY:

The Contractor agrees that a delay in substantial completion of the project beyond the total number of days anticipated for substantial completion plus such extensions to the allotted time as may be provided for in the General Conditions shall cause a damage to the Owner and that the Owner may withhold, permanently, from the Contractor's total compensation a sum of two hundred dollars ($200.00) per calendar day as the stipulated damages for such delay.

GUARANTEES:

The Contractor shall provide a warranty which shall guarantee work against defective materials and workmanship for a period of one (1) year from the date of issue of certificate of acceptance. Neither final acceptance nor final payment or any provision in the contract documents will relieve Contractor of above guarantee. Failure to repair or replace defect upon notice entitles Owner to repair or replace same and recover reasonable cost thereof from the Contractor and/or his surety.

PERMITS AND RIGHT-OF-WAY:

The Owner will provide right-of-way for the purpose of construction without cost to the Contractor by securing permits in areas of public dedication or by obtaining easements across privately owned property. It shall be the responsibility of the Contractor prior to the initiation of construction on easements through private property, or upon areas of public dedication, to familiarize himself with the requirements of the pertinent easement or permit and to abide by all of the stated terms of such easements or permits. The Contractor shall give notice of intent to begin construction on privately owned property or permitted areas as required by the relevant easement or permit but in no case less than 48 hours before commencing work.

MATERIALS AND EQUIPMENT:

Incorporate into work only new materials and equipment of domestic manufacture unless otherwise designated. Store these materials and equipment in manner to protect them from damage.

REPAIR OF DAMAGE:

Driveways, curbs, culverts, yards or items of private or public ownership, if damaged during the course of construction of this project, shall be, to the greatest extent practicable, repaired or replaced to the condition of such items before their being damaged, at no cost.

SITE MAINTENANCE AND CLEAN-UP:

Maintain work site during construction neat and free of trash, rubbish or other debris. In cleanup operations, remove from site temporary structures, rubbish and waste materials, and leave site in a neat and presentable condition throughout. Dispose of excavated material beyond that which is needed to bring site to required final elevations.

MEASUREMENT AND PAYMENT:

Estimated quantities shown in the Contract Documents are provided solely for the purpose of allowing a uniform comparison of submitted bids. Payment will be made on either the basis of actual measured quantities or a lump sum as may be relevant to the particular item. For those items for which payment is based on actual measured quantities, the Contractor shall verify all measurements at the site and shall be responsible for the correctness of same. Unit prices shall then be used to calculate payment. Methods of measurement shall be given in the Technical Specifications for each measured item.

RETAINAGE:

The Owner will retain from the Contractor's monthly estimate and request for payment an amount equal to 10% of the invoice amount. This 10% shall be retained by the Owner until final acceptance of the total project and then paid to the Contractor.

PAYMENT FOR MATERIALS ON SITE:

Contractor shall present to the Owner with his monthly estimate of production and request for payment a list of all material delivered to the project site, but not installed, with the total invoice cost of that material and the Owner shall pay to the Contractor the invoice cost of such material as has been verified by the Engineer to be "on site", less a 10% retainage. "On site" shall mean on or immediately adjacent to the work area or point of material installation, or a central storage yard or office area which has been set up for the project in the immediate project area. This does not include material in transit to the job site, material stored in yards or areas located in other towns, or materials stored in a manufacturer's warehouse, even though Contractor may have been invoiced for such material. Materials considered as consumables, i.e. chlorine for disinfection, testing pipe and equipment, etc., shall not be considered as material on-site, and only principle material items shall be considered for payment for material on-site.

STATE SALES TAX:

The improvements proposed for construction under the terms of these Contract Documents shall become a part of the utility system of the Owner. The Owner qualifies as an exempt organization under the Limited Sales Excise Tax Rules and Regulations of the State of Texas. Since the Owner and the Contractor shall be exempt from the state sales tax, the state sales tax shall not be included in the Bid.

Prior to the execution of the Contract, the Contractor shall obtain a Limited Sales Tax Permit and shall show evidence of this permit when signing the Contract. The Contractor shall then issue Resale Certificates in lieu of payment of the sales tax, on material purchased for incorporation into the project. These instructions are in strict compliance with the State Sales Tax Code, Section 151.311. The Contractor is assumed to be fully aware of the sales tax regulations and agrees to cooperate fully with the Owner claiming its lawful exemption from the state sales tax.

TRAFFIC CONTROL:

It will be the Contractor's responsibility to adequately provide for the safety of the public during the course of the construction of the project to include flagmen. No separate compensation will be paid to the Contractor for traffic control.

MATERIALS TESTING:

The Owner will provide for the initial testing of materials to be incorporated into the project to such extent as may be desired including the testing of concrete samples taken at the time of concrete placement. The Contractor shall be responsible for supplying samples of materials as may be required for testing. Any re-testing required shall be at the Contractor's expense as stated in the General Conditions.

WATER FOR CONSTRUCTION:

Water used for the mixing of concrete, jetting or flooding trenches, or testing, or any other purposes incidental to this project, will be furnished by the Contractor. If water is obtained from the Owner's water supply, the Contractor shall make the necessary arrangements for securing and transporting such water and shall take such water in a manner and at such times that will not produce a harmful drain or decrease pressure in the Owner's water system. There will be no charge to Contractor for water used in the construction of this project.

LINES AND GRADES:

Detailed construction staking shall be the full responsibility of the Contractor.

LOCATION OF AND DAMAGE TO EXISTING UTILITIES:

The Contractor shall be solely responsible for all above ground utilities, structures, and appurtenances in regard to protection and replacement or repair of same. The Contractor shall also be solely responsible for visible below ground utilities, structures and appurtenances that may be accurately located by removing manhole covers, valve box covers, and other access point coverings, with a reasonable effort on the part of two workmen, using hand tools for such removal and inspection. The cost of protecting, replacing, or repairing the utilities, structures, and appurtenances covered by this paragraph shall be borne solely by the Contractor and shall be included in the prices bid for the various affected items in the Contract.

The Contractor shall notify all private and public utilities 48 hours prior to performing any work in the vicinity of said utilities. Such 48-hour notice shall not include Saturdays, Sundays and holidays.

In those instances where faults, caverns or subsidence zones are encountered during construction, the design engineer will make the necessary adjustments and/or modifications to ensure proper installation. This subject is further defined in the detailed specification list which governs this project.

CONTRACTOR'S FIELD ADMINISTRATION STAFF:

The Contractor shall employ for this project, as its field administration staff, superintendents and foremen who are careful and competent and acceptable to the Owner. The criteria upon which the Owner shall make this determination shall include the following:

A. The superintendent shall have at least five (5) years experience in the day-to-day field management and oversight of projects of a similar size and complexity to the project which is the subject of this Contract. This experience shall include, but is not limited to, scheduling of manpower and materials, safety, coordination of subcontractors, and familiarity with the submittal process, federal and state wage rate requirements, and contract close-out procedures.

B. The foreman shall have at least five (5) years experience in oversight and management of the work of various subcontractors and crafts. Should the scope of the project be such that a foreman is not required, the Contractor's superintendent shall assume the responsibilities of a foreman.

Documentation concerning these matters shall be reviewed by the Owner. The Contractor's field administration staff, and any subsequent substitutions or replacements thereto, shall be approved by the Owner in writing prior to such superintendent or foreman assuming responsibilities on the project.

Such written approval of field administration staff is a prerequisite to the Owner's obligation to execute a contract for this project. If such approval is not obtained, the award may be rescinded. Further, such written approval is also necessary prior to a change in field administration staff during the term of this Contract. If the Contractor fails to obtain prior written approval of the Owner concerning any substitutions or replacements in its field administration staff for this project, the award may be rescinded. Further, such written approval is also necessary prior to a change in field administration staff during the term of this Contract. If the Contractor fails to obtain prior written approval of the Owner concerning any substitutions or replacements in its field administration staff for this project during the term of the Contract, such a failure will constitute a basis to annul the Contract.

CHARACTER OF WORKMEN AND CONDITION OF EQUIPMENT:

The Contractor shall employ such superintendents, foremen, and workmen as are careful and competent and the Engineer may demand the dismissal of any person or persons employed by the Contractor, in, about or on the work who shall misconduct himself or be incompetent or negligent in the proper performance of his or their duties or neglect or refuse to comply with the directions of the Engineer, and such person or persons shall not be employed thereon again without the written consent of the Engineer. All workmen shall have sufficient skill and experience to perform properly the work assigned them.

The Contractor shall furnish such equipment as is considered necessary for the prosecution of the work in an acceptable manner and at a satisfactory rate of progress. All equipment, tools and machinery used for handling materials and executing any part of the work shall be subject to the approval of the Engineer and shall be maintained in a satisfactory working condition. Equipment on any portion of the work shall be such that no injury to the work or adjacent property will result from its use.

AS-BUILT DRAWINGS:

Contractor shall maintain daily a set of "As-Built" drawings detailing the location and depths of new and existing utilities. The completed set of "As-Builts" shall be submitted to the ENGINEER at the completion of the project.

SAMPLE FORMS

CONTRACTOR'S LOCAL OPPORTUNITY PLAN

(name of company) agrees to implement the following specific affirmative action steps directed at increasing the utilization of lower income residents and businesses within the (City) of _____.

A. To ascertain from the City's CDBG program official the exact boundaries of the project area and where advantageous, seek the assistance of local officials in preparing and implementing the affirmative action plan.
B. To attempt to recruit from within the city the necessary number of lower income residents through: local advertising media, signs placed at the proposed site for the project, and community organizations and public or private institutions operating within and servicing the project area such as Service Employment and Redevelopment (SER), Opportunities Industrialization Center (OIC), Urban League, Concentrated Employment Program, Hometown Plan, or the U.S. Employment Service.
C. To maintain a list of all lower income residents who have applied either on their own or on referral from any source, and to employ such persons, if otherwise eligible and if a vacancy exists.
D. To insert this plan in all bid documents and to require all bidders on subcontracts to submit an affirmative action plan including utilization goals and the specific steps planned to accomplish these goals.
E. To ensure that subcontracts (greater than $10,000), which are typically let on a negotiated rather than a bid basis in areas other than the covered project area, are also let on a negotiated basis, whenever feasible, in a covered project area.
F. To formally contact unions, subcontractors, and trade associations to secure their cooperation in this effort.
G. To ensure that all appropriate project area business concerns are notified of pending sub-contractual opportunities.
H. To maintain records, including copies of correspondence, memoranda, etc., which document that all of the above affirmative action steps have been taken.
I. To appoint or recruit an executive official of the company or agency as Equal Opportunity Officer to coordinate the implementation of this plan.
J. To maintain records concerning the amount and number of contracts, subcontracts, and purchases which contribute to objectives.
K. To maintain records of all projected work force needs for all phases of the project by occupation, trade, skill level, and number of positions and to update these projections based on the extent to which hiring meets these Local Opportunity objectives.

As officers and representatives of (name of company), we the undersigned have read and fully agree to this Plan, and become a party to the full implementation of the program and its provisions.

_____
Signature

_____
Printed Name

_____
Title

_____
Date

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. **This statement must be notarized.** If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information it desires.

Date: _____

Bidder (Legal Name of Firm):_____

Date Organized:_____

Address :_____

_____:_____

Date Incorporated_____

Federal ID Number:_____

Number of Years in contracting business under present name_____

List all other names under which your business has operated in the last 10 years:

_____

_____

Work Presently Under Contract:

Contract	Amount $	Completion Date

Type of work performed by your company: _____

Total Staff employed by Firm (Break down by Managers and Trades on separate sheet):

_____

_____

_____

Have you ever failed to complete any work awarded to you?☐ Yes ☐ No
(If yes, please attach summary of details on a separate sheet. Include brief explanation of cause and resolution)

Have you ever defaulted on a contract?☐ Yes ☐ No
(If yes, please attach summary of details on a separate sheet.)

Has your organization had any disbarments or suspensions that have been imposed in the past five years or that was still in effect during the five-year period or is still in effect? ☐ Yes ☐ No

(If yes, list and explain; such list must include disbarments and suspensions of officers, principals, partners,
members, and employees of your organization.)

List the projects most recently completed by your firm (include project of similar importance):

Project Amount $ Mo/Yr. Completed

_____

_____

_____

Major equipment available for this contract: _____

_____

_____

Are you in compliance with all applicable EEO requirements? ☐ Yes ☐ No
(If no, please attach summary of details on a separate sheet.))

Bank References

Address: _____ Contact Name: _____

City & State: _____Zip: _____Phone Number: _____

Credit available: $ _____

Has the firm or predecessor firm been involved in a bankruptcy or reorganization? ☐ Yes ☐ No
(If yes, please attach summary of details on a separate sheet.)

List on a sheet attached hereto all judgements, claims, arbitration proceedings, or suits pending or outstanding against bidder over the last five (5) years with amount of claim and brief description.

List on a sheet attached hereto all lawsuits or requested arbitration with regard to construction contracts which bidder has initiated within the last five (5) years and brief explanation of claim and outcome.

Attach resume(s) for the principal member(s) of your organization, including the officers as well as the proposed superintendent for the project.

Signed this _____ day of _____, 20____.

_____
Signature

_____

Printed Name and Title

_____
Company Name

Notary Statement:

_____, being duly sworn, says that he/she is the _____Position/Title_____of_____ (Firm Name), and hereby swears that the answers to the foregoing questions and all statements therein contained are true and correct. He/she hereby authorizes and requests any person, firm, or corporation to furnish any information requested City of _____ in verification of the recitals comprising this Statement of Bidder's Qualifications.

Subscribed and sworn before me this _____day of _____, 20____.

Notary Public

_____
Signature

_____
Printed Name

My Commission Expires: _____,

The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

ATTORNEY'S REVIEW CERTIFICATION

I, the undersigned, _____, the duly authorized and acting legal representative of the _____, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and am of the opinion that each of the agreements may be duly executed by the proper parties, acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties; and that the agreements shall constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Attorney's signature: _____ Date: _____

Print Attorney's Name: _____

Texas State Bar Number: _____

TECHNICAL SPECIFICATIONS

SECTION 021020
SITE CLEARING AND STRIPPING

1. DESCRIPTION

This specification shall govern all work necessary for clearing, grubbing, and stripping of objectionable matter as required to complete the project and shall include removing and disposing of trees, stumps, brush, roots, vegetation, rubbish, and other objectionable matter from the project site.

2. CONSTRUCTION METHODS

The site shall be cleared of all trees, stumps, brush, roots, vegetation, and other objectionable matter as indicated on drawings and/or as directed by the Engineer. Tree stumps and roots shall be grubbed to a minimum depth of 2 feet below natural ground. Areas which underlie compacted backfill shall be stripped of all vegetation, humus and other objectionable matter encountered within the top 6" of the soil. All material removed from the site under this operation shall become the Contractor's responsibility. The material shall be disposed of either at a disposal site indicated on the drawings or at a site obtained by the Contractor.

3. MEASUREMENT & PAYMENT

Unless otherwise specified on the Bid Form, site clearing and stripping or clear right-of-way shall be measured by the acre.

Payment shall be full compensation for all labor, equipment, tools and incidentals necessary for removing, handling, and disposing of objectionable matter from the site as indicated above.

END OF SECTION

SECTION 021040
SITE GRADING

1. DESCRIPTION

This specification shall govern all work necessary for backfill and grading of the site to complete the project.

2. CONSTRUCTION METHODS

Prior to site grading, the site shall be cleared in accordance with City Standard Specification Section 021020 "Site Clearing and Stripping". Unless specified otherwise in the drawings, the existing surface shall be loosened by scarifying or plowing to a depth of not less than six (6) inches. The loosened material shall be recompacted with fill required to bring the site to the required grades and elevations indicated on the plans.

The fill shall be uniform as to material, density, and moisture content. The fill shall be free of large clods, large rocks, organic matter, and other objectionable material. No fill that is placed by dumping in a pile or windrow shall be incorporated into a layer in that position; all such piles and windrows shall be moved by blading or similar method. All fill shall be placed in layers approximately parallel to the finish grade in layers not to exceed six (6) inches of uncompacted depth, unless indicated otherwise in drawings.

The fill shall be compacted to a density which approximates that of natural ground unless indicated otherwise in drawings.

The Engineer may order proof rolling to test the uniformity of compaction. All irregularities, depressions and soft spots that develop shall be corrected by the Contractor.

Excess material from excavation, which is not incorporated into the site as fill material shall be become property of the Contractor and disposed of away from the job site, unless indicated otherwise in the drawings.

3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, site grading shall not be measured for pay, but shall be considered subsidiary to other work.

SECTION 021080
REMOVING ABANDONED STRUCTURES

1. DESCRIPTION

This specification shall provide for the demolition, removal and disposal of abandoned structures or portions of abandoned structures, as noted in the drawings, and shall include all excavation and backfilling necessary to complete the removal. The work shall be done in accordance with the provisions of these specifications.

2. METHOD OF REMOVAL

Culverts or Sewers. Pipe shall be removed by careful excavation of all dirt on top and the sides in such manner that the pipe will not be damaged. Removal of sewer appurtenances shall be included for removal with the pipe. Those pipes which are deemed unsatisfactory for reuse by the Engineer may be removed in any manner the Contractor may select.

Concrete Structures. Unwanted concrete structures or concrete portions pf structures shall be removed to the lines and dimensions shown on the drawings or as directed by the Engineer. Any portion of the existing structure outside of the limits designated for removal, which is damaged during the operations of the Contractor, shall be restored to its original condition entirely at the Contractor's expense. Explosives shall not be used in the removal of portions of the existing structure unless approved by the Engineer, in writing.

Portions of the abandoned structure shall be removed to the lines and dimensions shown on the plans, and these materials shall be disposed of as shown in the drawings or as directed by the Engineer. Any portion of the existing structure, outside of the limits designated for removal, damaged during the operations of the Contractor, shall be restored to its original condition entirely at the Contractor's expense. Explosives shall not be used in the removal of portions of the existing structure unless approved by the Engineer, in writing.

Concrete portions of structures below the permanent ground line, which will not interfere in any manner with the proposed construction, may be left in place, but removal shall be carried at least five (5) feet below the permanent ground line and neatly squared off. Reinforcement shall be cut off close to the concrete.

Steel Structures. Steel structures or steel portions of structures shall be dismantled in sections as determined by the Engineer. The sections shall be stored if the members are to be salvaged and reused. Rivets and bolts connecting steel railing members, steel beams of beam spans and steel stringers of truss spans, shall be removed by butting the heads with a "cold cut" and punching or drilling from the hole, or by such other method as will not injure the members for re-use and will meet the approval of the Engineer. The removal of rivets and bolts from connections of truss members, bracing members, and other similar members in the structure will

not be required unless specifically called for on the plans or special provisions, and the Contractor shall have the option of dismantling these members by flame-cutting the members immediately adjacent to the connections. Flame-Cutting will not be permitted, however, when plans or special provisions call for the structure unit to be salvaged in such manner as to permit re-erection. In such case, all members shall be carefully matchmarked with paint in accordance with diagram furnished by the Engineer prior to dismantling, and all rivets and bolts shall be removed from the connections in the manner specified in the first portion of this paragraph.

Timber Structures Timber structures or timber portions of structures shall be removed in such a manner as to damage the timber for further use as little as possible. All bolts and nails shall be removed from such lumber as deemed salvable by the Engineer.

Unless otherwise specified in the drawings, timber piles shall be either pulled or cut off at the point not less than five (5) feet below the ground line, with the choice between these two methods resting with the Contractor, unless otherwise specified.

Brick or Stone Structures. Unwanted brick or stone structures or stone portions of structures shall be removed. Portions of such structures below the permanent ground line, which will not in any manner interfere with the proposed construction, may be left in place, but removal shall be carried out at least five (5) feet below the permanent ground line and neatly squared off.

Salvage. All material such as pipes, timbers, railings, etc., which the Engineer deems as salvable for reuse, and all salvaged structural steel, shall be delivered to a designated storage area.

Materials, other than structural steel, which are not deemed salvable by the Engineer, shall become the property of the Contractor, and shall be removed to suitable disposal sites off the right-of-way arranged for by the Contractor, or otherwise disposed of in a manner satisfactory to the Engineer.

Where temporary structures are necessary for a detour adjacent to the present structure, the Contractor will be permitted to use the material in the old structure for the detour structure, but he shall dismantle and stack or dispose of the material as required above as soon as the new structure is opened for traffic.

Backfill. All excavation made in connection with this specification and all openings below the natural ground line caused by the removal of abandoned structures or portions thereof shall be backfilled to the level of the original ground line, unless otherwise provided on the drawings. Backfill in accordance with applicable requirements of Section 022020 "Excavation and Backfill for Utilities" and 022080 "Embarkment". All open ends of abandoned pipe or other structures shall be filled or plugged as specified.

That portion of the backfill which will support any portion of the roadbed, embankment, levee, or structural feature shall be placed in layers of the same depth as those required for placing embankment, maximum 10-inch loose lifts unless otherwise specified. Material in each layer shall be wetted uniformly, if required, and shall be compacted to a minimum of 95% Standard Proctor

density, unless otherwise specified. In places inaccessible to blading and rolling equipment, mechanical or hand tamps, or rammers shall be used to obtain the required compaction.

That portion of the backfill which will not support any portion of the roadbed, embankment, or other structural feature shall be placed as directed by the Engineer in such manner and to such state of compaction as will preclude objectionable amount of settlement, maximum 10-inch loose lifts to minimum 95% Standard Proctor density unless otherwise specified.

3. MEASUREMENT AND PAYMENT

Measurement and payment for removal of structures shall be considered subsidiary to appropriate bid item.

END OF SECTION

SECTION 022010
TRAFFIC CONTROL

1. DESCRIPTION

Traffic control by the CONTRACTOR shall follow the guidelines as set forth in the Texas Manual of Uniform Traffic Control Devices. CONTRACTOR shall furnish traffic control plan to ENGINEER and the Texas Department of Transportation and obtain approval of plan from both prior to start of operation.

2. LIMITS OF INTERSECTION CLOSING

No intersections may be closed without specific authorization of the ENGINEER/CITY and the Texas Department of Transportation.

3. ACCESS TO PROPERTY

The CONTRACTOR shall provide and always maintain an all-weather driving surface and unencumbered ingress and egress to businesses and residences.

4. MODIFICATIONS OF TRAFFIC CONTROL PLAN

Modifications of the traffic control plan described herein shall be approved by the ENGINEER and the Texas Department of Transportation.

5. MEASUREMENT AND PAYMENT

Measurement and payment for Traffic Control shall be considered subsidiary to the appropriate bid items.

END OF SECTION

SECTION 022020
EXCAVATION AND BACKFILL FOR UTILITIES

1. DESCRIPTION

This specification shall govern all work for excavation and backfill for utilities required to complete the project.

2. CONSTRUCTION

(1) Unless otherwise specified on the drawings or permitted by the Engineer, all pipe and conduit shall be constructed in open cut trenches with vertical sides. Trenches shall be sheathed and braced as necessary throughout the construction period. Sheathing and bracing shall be the responsibility of the Contractor (refer to Section 022022 "Trench Safety for Excavations" of the City Standard Specifications).

Trenches shall have a maximum width of one foot beyond the horizontal projection of the outside surfaces of the pipe and parallel thereto on each side unless otherwise specified.

The Contractor shall not have more the 200 feet of open trench left behind the trenching operation and no more than 500 feet of ditch behind the ditching machine that is not compacted as required by the plans and specification. No trench or excavation shall remain open after working hours.

For all utility conduit and sewer pipe to be constructed in fill above natural ground, the embankment shall first be constructed to an elevation not less than one foot above the top of the pipe or conduit, after which excavation for the pipe or conduit shall be made.

If quicksand, muck, or similar unstable material is encountered during the excavation, the following procedure shall be used unless other methods are called for on the drawings. If the unstable condition is a result of ground water, the Contractor, prior to additional excavation, shall control it. After stable conditions have been achieved, unstable soil shall be removed or stabilized to a depth of 2 feet below the bottom of pipe for pipes 2 feet or more in height; and to a depth equal to the height of pipe, 6 inch minimum, for pipe less than 2 feet in height. Such excavation shall be carried out at least 1 foot beyond the horizontal limits of the structure on all sides. All unstable soil so removed shall be replaced with suitable stable material, placed in uniform layers of suitable depth as directed by the Engineer, and each layer shall be wetted, if necessary, and compacted by mechanical tamping as required to provide a stable condition. For unstable trench conditions requiring outside forms, seals, sheathing, and bracing, any additional excavation and backfill required shall be done at the Contractor's expense.

(2) **Shaping of Trench Bottom.** The trench bottom shall be undercut to a minimum depth sufficient to accommodate the class of bedding indicated in the plans and specification.

(3) **Dewatering Trench.** Pipe or conduit shall not be constructed or laid in a trench in the presence of water. All water shall be removed from the trench sufficiently prior to the pipe or conduit planning operation insure a relatively dry (no standing water), firm bed. The trench shall be maintained in such dewatered condition until the trench has been backfilled to a height at least one foot above the top of pipe. Removal of water may be accomplished by bailing, pumping, or by installation of well-points, as conditions warrant. Removing of well-points shall be at rate of 1/3 per 24 hours (every third well-point). The contractor shall prevent groundwater from trench or excavation dewatering operations from discharging directly into the storm water system. Groundwater from dewatering operations shall be sampled and tested, if applicable, and disposed of, in accordance with City Standard Specification Section 022021 "Control of Ground Water".

(4) **Excavation in Streets.** Excavation in streets, together with the maintenance of traffic where specified, and the restoration of the pavement riding surface, shall be in accordance with drawing detail or as required by other applicable specifications.

(5) **Removing Old Structures.** When abandoned masonry structures or foundations are encountered in the excavation, such obstructions shall be removed for the full width of the trench and to a depth of 1-foot below the bottom of the trench. When abandoned inlets or manholes are encountered and no plan provision is made for adjustment or connection to the new utility, such manholes and inlets shall be removed completely to a depth of 1-foot below the bottom of the trench. In each instance, the bottom to the trench shall be restored to grade by backfilling and compacting by the methods provided hereinafter for backfill. Where the trench cuts through utility lines which are known to be abandoned, these sewers shall be cut flush with sides of the trench and blocked with a concrete plug in a manner satisfactory to the Engineer.

(6) **Protection of Utilities.** The Contractor shall conduct his work such that a reasonable minimum of disturbance to existing utilities will result. Care shall be exercised to avoid the cutting or breakage of the water and gas line. Such lines, if broken, shall be restored promptly by the Contractor. When active wastewater lines are cut in the trenching operations, temporary flumes shall be provided across the trench while open, and the lines shall be restored when the backfilling has progressed to the original bedding lines of the sewer so cut.

The Contractor shall inform utility owners sufficiently in advance of the Contractor's operations to enable such utility owners to reroute, provide temporary detours, or to make other adjustments to utility lines in order that the Contractor may proceed with their work with a minimum of delay. The Contractor shall not hold the City liable for any expense due to delay or additional work because of utility adjustments or conflicts.

(7) **Excess Excavated Material.** All materials from excavation not required for backfilling the trench shall be removed, by the Contractor, from the job site promptly following the completion of the work involved.

(8) Backfill

A. Backfill Procedure Around Pipe (Initial Backfill)

All trenches and excavation shall be backfilled as soon as is practical after the pipes or conduits are properly laid. In addition to the specified pipe bedding material, the backfill around the pipe as applicable shall be granular material as shown on the standard details or as described in the applicable specification section and shall be free of large hard lumps or other debris. If indicated on the plans, the pipe shall be encased with cement-stabilized sand backfill as described below. The backfill shall be deposited in the trench simultaneously on both sides of the pipe for the full width of the trench, in layers not to exceed ten (10) inches (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted by use of mechanical tampers to a density comparable to the adjacent undisturbed soil or as otherwise specified on the plans, but not less than 95% Standard Proctor density. A thoroughly compacted material shall be in place between the external wall of the pipe and the undisturbed sides of the trench and to a level twelve (12) inches above the top of the pipe.

B. Backfill Over One Foot Above Pipe

UNPAVED AREAS:
The backfill for that portion of trench over (1) foot above the pipe or conduit not located under pavements (including waterlines, gravity wastewater lines, wastewater force mains and reinforced concrete storm water pipe) shall be selected imported select material or clean, excess material from the excavation meeting the following requirements:

- Free of hard lumps, rock fragments, or other debris.
- No clay lumps greater than 2" diameter.
- Moisture Content +/-3%

Backfill material shall be placed in layers not more than ten (10) inches in depth (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted using mechanical tampers to the natural bank density but not less than 95% Standard Proctor density, unless otherwise indicated. Flooding of backfill is not allowed. Jetting of backfill may only be allowed in sandy soils and in soils otherwise approved by the Engineer. Regardless of back fill method, no lift shall exceed ten (10) inches and density shall not be less than 95% Standard Proctor density. A period of not less than twenty-four (24) hours shall elapse between the time of jetting and the placing of the top four (4) feet of backfill. If jetting is used, the top four (4) feet of backfill shall be placed in layers not more than 10 inches in depth (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted by use of mechanical tampers to the natural bank density but not less than 95% Standard Proctor density (ASTM D698).

PAVED AREAS: At utility line crossings under pavements (including waterlines, gravity wastewater lines, wastewater force mains, and reinforced concrete storm water pipe), and where otherwise indicated on the drawings, trenches shall be backfilled as shown below.

From top of initial backfill typically twelve (12) inches above the top of the pipe to three (3) feet below bottom of road base course, backfill shall be select material meeting the requirements of 022100 "Select Material".

Asphalt Roadways

The upper three (3) feet of trench below the road base course shall be backfilled to the bottom of the road base course with cement-stabilized sand containing a minimum of 2 sacks of Standard Type I Portland cement per cubic yard of sand and compacted to not less than %95 Standard Proctor density.

Concrete Roadways

The contractor may elect to backfill the upper (3) feet of trench below the road base course with cement stabilized sand as noted above, or in the case of storm water pipe or box installation the Contractor may backfill and compact select material to 98% Standard Proctor density (ASTM D698) following City Standard Specification Section 022100.

3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, excavation and backfill for utilities, including select material or cement stabilized sand backfill, shall not be measured, and paid for separately. It shall be considered subsidiary to the items for which the excavation is required.

END OF SECTION

SECTION 022022
TRENCH SAFETY FOR EXCAVATIONS

1. DESCRIPTION

This specification shall govern all work for providing for worker safety in excavations and trenching operations required to complete the project.

2. REQUIREMENTS

Worker Safety in excavations and trenches shall be provided by the Contractor in accordance with Occupational Safety and Health Administration (OSHA) Standards, 29 CPR Park 1926 Subpart P - Excavations.

It is the sole responsibility of the Contractor, and not the City or Engineer, to determine and monitor the specific applicability of a safety system to the field conditions to be encountered on the job site during the project.

The Contractor shall indemnify and hold harmless the City and Engineer from all damages and cost that may result from failure of methods or equipment used by the Contractor to provide for worker safety.

Trenches as used herein shall apply to any excavation into which structures, utilities, or sewers are placed regardless of depth.

The Trench Safety Plan as used herein shall apply to all methods and materials used to provide for worker safety in excavation and trenching operations required during the project.

3. MEASUREMENT AND PAYMENT

Measurement of Trench Safety Plan shall be by the linear foot of trench or excavation, regardless of depth. Measurement shall be taken along the center line for trenches and along the longest horizontal distance across the bottom for other shape of excavations.

Payment for the Trench Safety Plan shall be at the unit price bid and shall fully compensate the Contractor for all work, equipment, materials, personnel, and incidentals as required to provide for worker safety in trenches and excavations for the project.

END OF SECTION

SECTION 022040
STREET EXCAVATION

1. DESCRIPTION

This specification shall govern all work for Street Excavation required to complete the project.

2. CONSTRUCTION METHODS

(A) Stripping and Excavation

Strip the top six (6) inches in all areas to underlay compacted fill, curbs, base, or pavement, by removing all humus, vegetation and other unsuitable materials. Unless otherwise noted, remove existing trees, shrubs, fences, curb, gutter, sidewalk, drives, paving, pipe and structures and other items within the graded area which interfere with new construction of finished grading.

All suitable excavated materials shall be utilized, insofar as practicable, in constructing the required roadway sections or in uniformly widening embankments, flattening slopes, etc., as directed by the Engineer, provided that the material meets the requirements for roadway embankment as specified in section 3 below. Unwanted or unsuitable roadway excavation and roadway excavation more than that needed for construction shall become the property of the Contractor to be disposed of by him outside the limits of the right-of-way at a location suitable to the Engineer. "Unsuitable" material encountered below subgrade elevation in roadway cuts, when declared unwanted by the Engineer, shall be replaced as directed by the Engineer with suitable material from the roadway excavation or with other suitable material.

Maintain moisture and density until covered and protected by the subbase or base course. Remove soft or wet areas found at any time, replace them with suitable material, and recompact (especially utility trenches).

(B) Subgrade Preparation

That area shown on the drawings for street construction shall be cut to grade, scarified to a depth not less than 6 inches, or as otherwise indicated on the drawings, and compacted to 95% Standard Proctor density (ASTM D698) to within 0 to +3% of optimum moisture. The section may be accepted if no more than 1 in 5 of the most recent moisture or density tests is beyond ±1% deviation from the required moisture or density requirement. Irregularities exceeding 1/2 inch in 16 feet shall be corrected. Soft areas found at any time shall be removed, replaced with suitable material, and compacted (especially at utility trenches). The correct moisture density relationship shall be maintained until the subgrade is protected. Excessive loss of moisture shall be prevented by sprinkling, sealing, or covering with a subsequent layer.

Should the subgrade, due to any reason or cause, lose the required stability, density, or moisture before it is protected by placement of the next layer, it shall be re-compacted and refinished and retested at the expense of the Contractor until acceptable to the City.

(C) Curb Backfill and Topsoil (Sidewalk, Parkways, Islands, etc.)

Fill and compact areas behind curbs and adjacent to sidewalks and driveways within 48 hours after completion of concrete work. The top 6 inches (where disturbed by construction or where unsatisfactory material is exposed by excavation) of finish earth grade shall be clean excavated material or topsoil capable of supporting a good growth of grass when fertilized and seeded or sodded. It shall be free of concrete, asphalt, shell, caliche, debris, and any other material that detracts from its appearance or hampers the growth of grass. Topsoil shall meet the requirements specified in City Standard Specification Section 028020 "Seeding".

(D) Matching Grades at Right-of-Way. Line

Finish grade at the property line shall be as shown on the drawings. The Engineer may require a reasonable amount of filling on private property where the sidewalk grade is above the property elevation. Use suitable material from the excavation. Unless otherwise directed, cuts at right-of way lines shall be made at a slope of three horizontal to one vertical (3:1) or flatter.

(E) Drainage

During construction, the roadbed and ditches shall be maintained in such condition as to always ensure proper drainage, and ditches and channels shall be so constructed and maintained as to avoid damage to the roadway section.

All slopes which, in the judgment of the Engineer, require variation, shall be accurately shaped, and care shall be taken that no material is loosened below the required slopes. All breakage and slides shall be removed and disposed of as directed.

3. SELECTION OF ROADBED MATERIALS

Where shown on the plans, Select Material shall be utilized to improve the roadbed, in which case the work shall be performed in such manner and sequence that suitable materials may be selected, removed separately, and deposited in the roadway within limits and at elevations required. Material used for roadway embankment shall meet the requirements of City Standard Specification Section 022100 Select Material.

4. GEOGRID

If indicated in the drawings, geogrid shall be placed in the base layer according to the pavement details to provide a mechanically stabilized aggregate base layer within the pavement structure. Geogrid shall be "Tensar TX5 Triaxial Geogrid", or pre-approved equivalent. Use (and approval) of a different product must be supported by documentation showing that the alternate pavement section will meet or exceed the required number of 18-kip equivalent single axle loads (ESAL) and structural number (SN) over the stated pavement design life, and the pavement design must be sealed and signed by a Texas professional engineer. Documentation

must also include the structural design value used for the geogrid structural contribution, based on and supported by validated test data. Alternate pavement designs shall utilize the same structural design values for other pavement structural components (HMAC, base, sub-base) as used in the original pavement design, and the pavement designs must be approved by the Engineer and the geotechnical consultant.

Contractor shall take care to protect geogrid from damage. Overlap edges of geogrid in accordance with the manufacturer's recommendations, but not less than 12 inches. Do not drive tracked equipment directly on the geogrid. Provide at least 6 inches of compacted aggregate base material over the geogrid before driving any tracked equipment over the geogrid area. Standard highway-legal rubber-tired trucks may drive over the geogrid at very slow speeds (less than 5 mph). Avoid turns and sudden starts and stops when driving on the geogrid. Any damaged geogrid shall be replaced by the Contractor at no additional cost to the City. Proper replacement shall consist of replacing the affected area by adding 3 feet of geogrid in each direction beyond the limits of the affected area.

5. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, street excavation shall be measured and paid for by the square yard to the limits shown on the drawings including excavation for street transitions. Payment shall be full compensation for furnishing all labor, materials, tools, equipment, borrow material and incidentals necessary to complete the work.

Unless otherwise specified on the Bid Form, compacted subgrade shall be measured and paid for by the square yard to the limits shown on the drawings. Payment shall be full compensation for furnishing all labor, materials, tools, equipment, bon-ow material and incidentals necessary to complete the work.

Unless otherwise specified on the Bid Form, geogrid shall be measured and paid for by the square yard to the limits shown on the drawings, excluding overlaps. Payment shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work.

All work required for disposing of waste, including hauling, will not be paid for directly but shall be considered subsidiary to the various contract items.

END OF SECTION

SECTION 022080
EMBANKMENT

1. DESCRIPTION

This specification shall govern all work for Embankment required to complete the project.

2. CONSTRUCTION METHODS

Prior to placing embankment, the area to be covered shall be stripped of all vegetation and the material so removed shall be disposed of off the job site. Washes, gulleys, wet areas, and yielding areas shall be corrected as directed by the Engineer.

Unless otherwise indicated in the drawings, the surface of the ground which is to receive embankment shall be loosened by scarifying or plowing to a depth of not less than six (6) inches. The loosened material shall be recompacted with the new embankment as hereinafter specified. Embankment shall be placed in layers not to exceed ten (10) inches uncompacted (loose) depth for the full width of the embankment, unless otherwise noted.

Where embankment is adjacent to a hillside or old roadbed, the existing slope shall be cut in steps to not less than the vertical depth of an uncompacted layer. The fill material shall be placed from the low side and compacted. Each layer shall overlap the existing embankment by at least the width indicated by the embankment slope.

Trees, stumps, roots, vegetation, debris or other unsuitable materials shall not be placed in embankment.

Each layer of embankment shall be uniform as to material, density and moisture content before beginning compaction. Where layers of unlike materials about each other, each layer shall be feather-edged for at least 100 feet, or the material shall be so mixed as to prevent abrupt changes in the soil. No material placed in the embankment by dumping in a pile or windrow shall be incorporated in a layer in that position, but all such piles or windrows shall be moved by blading or similar methods. Clods or lumps of material shall be broken, and the embankment material mixed by blading, harrowing, disking or similar methods to the end that a uniform material of uniform density is secured in each layer. Except as otherwise required by the drawings, all embankments shall be constructed in layers approximately parallel to the finished grade and each layer shall be so constructed as to provide a uniform slope of 1/4 inch per foot from the centerline of the embankment to the outside.

Each layer shall be compacted to the required density and moisture by any method, type and size of equipment that will give the required compaction. Prior to and in conjunction with the rolling operation, each layer shall be brought to the moisture content necessary to obtain the required density and shall be kept leveled with suitable equipment to insure uniform compaction over the entire layer. For each layer of earth embankment and select material, it is the intent of this specification to provide the density as required herein, unless otherwise shown on the drawings. Soils for embankment shall be sprinkled with water as required to provide not less than optimum

moisture and compacted to the extent necessary to provide not less than 95% Standard Proctor density (ASTM D698). Field density determinations will be made in accordance with approved methods.

After each layer of earth embankment or select material is complete, tests, as necessary, will be made by the Engineer. If the material fails to meet the density specified, the course shall be reworked as necessary to obtain the specified compaction, and the compaction method shall be altered on subsequent work to obtain specified density. Such procedure shall be determined by, and subject to, the approval of the Engineer.

The Engineer may order proof rolling to test the uniformity of compaction of the embankment layers. All irregularities, depressions, weak or soft spots which develop shall be corrected immediately by the Contractor.

Should the embankment, due to any reason or cause, lose the required stability, density or moisture before the pavement structure is placed, it shall be recompacted and refinished at the sole expense of the Contractor. Excessive loss of moisture in the subgrade shall be prevented by sprinkling, sealing, or covering with a subsequent layer of granular material.

3. SELECTION OF MATERIAL

In addition to the requirement in the excavation items of the specifications covering the general selection and utilization of materials to improve the roadbed, embankments shall be constructed in proper sequence to receive the select material layers shown on drawings, with such modifications as may be directed by the Engineer. The layer of embankment immediately preceding the upper layer of select material shall be constructed to the proper section and grade within a tolerance of not more than 0.10 foot from the established section and grade when properly compacted and finished to receive the select material layer. Select material, when specified, shall meet the requirements in City Standard Specification Section 022100 "Select Material".

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, embankment shall not be measured and paid for separately, but shall be subsidiary to other items of work.

END OF SECTION

SECTION 022100
SELECT MATERIAL (S-15)

1. DESCRIPTION

This specification shall govern the use of select material to be used to treat designated sections of roadways, embankments, trenches, etc. Select material shall be a mixture of sand and clay or other suitable granular material. The material shall be free from vegetation, debris, and clay lumps. That portion of the select material passing a 40-mesh sieve shall have a liquid limit of 45 maximum, a plasticity index range from 6 to 13, and a calculated linear shrinkage of 8.5 maximum.

2. CONSTRUCTION METHODS

Select material shall be mixed uniformly and placed in layers not to exceed 6" loose depth. The material shall be brought to approximately optimum moisture content and compacted to 95% Standard Proctor Density. Each layer shall be complete before the succeeding layer is placed.

The finished surface of the select material shall conform to the grade and section shown on the plans.

3. MEASUREMENT & PAYMENT

Select material shall not be measured and paid for separately. It shall be considered subsidiary to the items for which the select material is required.

END OF SECTION

SECTION 022420
SILT FENCE

1. DESCRIPTION

This specification shall govern all work necessary for providing and installing silt fencing required to control sedimentation and erosion during construction of the project.

2. MATERIAL REQUIREMENTS

(A) Geotextile shall meet the requirements for temporary silt fence per AASHTO M288.

(B) **Fence Reinforcement Materials:**

Silt fence reinforcement shall be one of the following systems.

Type I : Self-Supported Fence - This system consists of fence posts, spaced no more than 8-1/2 feet apart, and geotextile without net reinforcement. Fence posts shall be a minimum of 42 inches long, embedded at least one (1) foot into the ground, and constructed of either wood or steel. Soft wood posts shall be at least 3 inches in diameter or nominal 2 x 4 inches in cross section and essentially straight. Hardwood posts shall be a minimum of 1.5 x 1.5 inches in cross section. Fabric attachment may be by staples or locking plastic ties at least every 6 inches, or by sewn vertical pockets. Steel posts shall be T or L shaped with a minimum weight of 1.3 pounds per foot. Attachment shall be by pockets or by plastic ties if the posts have suitable projections.

Type 2: Net-Reinforced Fence - This system consists of fence posts, spaced no more than 8-1/2 feet apart, and geotextile with an attached reinforcing net. Fence posts shall meet the requirements of Self-Supported Fence. Net reinforcement shall be galvanized welded wire mesh of at least 12.5-gauge wire with maximum opening size of 4 x 2 inches. The fabric shall be attached to the top of the net by crimping or cord at least every 2 feet, or as otherwise specified.

Type 3: Triangular Filter Dike - This system consists of a rigid wire mesh, at least 6-gauge, formed into an equilateral triangle cross-sectional shape with sides measuring 18 inches, wrapped with geotextile silt fence fabric. The fabric shall be continuously wrapped around the dike, with a skirt extending at least 12 inches from its upslope corner.

(C) **Packaging Requirements:** Prior to installation, the fabric shall be protected from damage due to ultraviolet light and moisture by either wrappers or inside storage.

(D) Certification and Identification: Each lot or shipment shall be accompanied by a certification of conformance to this specification. The shipment must be identified by a ticket or by labels securely affixed to the fabric rolls. This ticket or label must list the following information:

a. Name of manufacturer or supplier
b. Brand name and style
c. Manufacturer's lot number or control number
d. Roll size (length and width)
e. Chemical composition

MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, silt fence shall be measured by the linear foot. Payment shall be at the bid price for the unit of measurement specified and shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work. Payment shall include, but not be limited to, placing, maintaining, and removing the silt fence.

END OF SECTION

SECTION 025205
PAVEMENT REPAIR, CURB, GUTTER, SIDEWALK AND DRIVEWAY REPLACEMENT

DESRIPTION

This specification shall govern the removal and replacement of all types of pavements and surfacing required to complete the project.

MATERIALS

Unless otherwise specified on the drawings, materials and proportions used along with this specification shall conform to the respective following specifications:

City Standard Specifications

Section 022020 "Excavation and Backfill for Utilities"
Section 022100 "Select Material"
Section 025223 "Crushed Limestone Flexible Base"
Section 025424 "Hot Mix Asphaltic Concrete Pavement"
Section 025610 "Concrete Curb and Gutter
Section 025612 "Concrete Sidewalks and Driveways"
Section 025620 "Portland Cement Concrete Pavement"
Section 030020 "Portland Cement Concrete", Class A Concrete
Section 032020 "Reinforcing Steel"
Section 038000 "Concrete Structures".

METHOD OF CUTTING

The outline of the trench shall be marked upon the surface of the pavement to be cut, and all cuts, and all cuts into the pavement shall be saw-cut as nearly vertical as it is possible to make them. All unwanted materials removed shall be disposed of by the Contractor and shall not be used as backfill material.

BACKFILL OF TRENCH

Excavation and backfilling of trench shall be in accordance with City Standard Specification Section 022020 "Excavation and Backfill for Utilities."

REPLACING STREET AND OTHER PAVEMENT

All pavements, driveways, sidewalks and curbs and gutters which are cut shall be replaced in a workmanlike manner, with like or better materials or per pavement repair details to be provided on the drawings. Pavement cuts in a street for any utility require a permit from the City Engineer. The installation of a utility that crosses the ROW at a perpendicular or near perpendicular angle and has an OD of 6" or less will not be permitted to be installed by cutting the road section.

Street excavation/cut for a utility in an asphalt roadway shall include a full lane overlay or pavement repair for parallel cuts, or a 12' wide pavement repair for perpendicular repair for perpendicular cuts. Street excavation/cut for a utility in a concrete roadway shall include full panel replacement. The drawings and/or permit application should include a site specific pavement cut and restoration plan that indicates the general nature of the pavement and roadway (for examples, concrete arterial, asphalt residential) to be cut and restored, the existing pavement section (if known), the location and approximate area of the excavation/ pavement repair, including the approximate length and width of the pavement repair in relation to the roadway travel lane(s).

REPLACING DRIVEWAY PAVEMENT

On all concrete driveway pavements, the replacement shall consist of a reinforced Class "A" concrete slab with a minimum thickness of six (6) inches. The type of finish for the replaced section shall be the same as that appearing on the old pavement. Reinforcement shall be #4 bars at 12 inches each way with additional diagonal bars as indicated on the drawings. Any other type shall be replaced with a like or better replacement. Replacement shall, in general, be to original joint or score mark.

REPLACING SIDEWALKS

On all sidewalk pavements, the replacement shall consist of a reinforced Class "A" concrete slab four (4) inches thick. The type of finish for the replaced section shall be the same as that appearing on the old sidewalk. Replacement shall, in general, be to original joint or score marks. Reinforcement shall be 4"x 4" – W2.9 x W2.9 welded wire fabric located at mid-depth in the slab.

REPLACING CURB AND GUTTER

On all curbs and gutters, the replacement shall consist of a conforming in all details to the original section or to City of Corpus Christi Standard curb and gutter section, if required by the Engineer. Cuts through the curb shall be replaced with Class "A" concrete. Preserve the original steel reinforcing and reinforce all new curbs with three #4 bars. Adjust grades for positive drainage. Replacement shall, in general, be to original joint or score mark. For jointed concrete roadways, the joints in curb or in curb and gutter should match the concrete roadway joints.

REPAIRING STREET AND UNIMPROVED STREETS

On streets or roads without curb and gutter where a shoulder is disturbed, it shall be restored to like or better condition. The shoulder surface shall be rolled to an acceptably stable condition.

MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, pavement repair shall be measured by the square yard of the type of repair specified; curb and gutter replacement shall be measured by the linear

foot: and sidewalk and driveway replacement shall each be measured by the square foot. Payment will be made at the unit price bid for the completed work and shall be full compensation for all labor, materials, equipment, tools, and incidentals required to complete the work. No separate measurement or payment will be made for subgrade compaction, sand leveling course, geogrid, ordinary backfill, cement-stabilized sand backfill, flexible base, prime coat, hot-mix asphaltic concrete, etc.

END OF SECTION

SECTION 025220
FLEXIBLE BASE - LIMESTONE

1. DESCRIPTION

The specifications presented in this item are intended to present a minimum level of quality in the construction of flexible base which must be equaled or exceeded by the flexible base construction incorporated into work being a part of the proposed paving repairs for which this set of specifications is applicable.

Flexible Base may be used for a foundation for a surface course or for other base courses; shall be composed of crusher run broken stone; and shall be constructed as herein specified, in conformity with sections shown on plans, and to the lines and grades as established by the ENGINEER.

2. MATERIAL

The materials shall be crushed limestone from an approved source and shall consist of durable particles of stone mixed with approved binding material. The material shall conform to TxDOT Specifications (2014) Item 247, "Flexible Base", Type A, Grade 1.

3. CONSTRUCTION METHODS

Flexible base shall be placed by methods conforming to TxDOT Specifications (2014) Item 247.4. Compacted thickness of crushed limestone base shall be as shown on the plans with not less than 95% of maximum dry unit weight obtained by compaction of ASTM D-1557 procedure.

END OF SECTION

SECTION 025223
CRUSHED LMESTONE FLEXIBLE BASE

1. DESCRIPTION

This Specification shall govern all work for furnishing and placing Crushed Limestone Flexible Base required to complete the project.

2. MATERIAL

Crushed Limestone Flexible Base shall consist of crushed limestone produced from oversize quarried aggregate, sized by crushing and produced from a naturally occurring single source, meeting the requirements for Type 'A' material as specified in Texas Department of Transportation (TxDOT) Specification Item 247 "Flexible Base". Crushed gravel or uncrushed gravel shall not be acceptable. No blending of sources and/or additive materials will be allowed. The material shall be free of vegetation and shall be approved by the Engineer. All acceptable material shall be screened, and the oversize shall be crushed and returned to the screened material in such a manner that a uniform product will be produced which meets all the physical requirements for Grade 1-2 as specified in TxDOT Specification Item 247 "Flexible Base".

3. TESTNG

The city will engage a laboratory and pay for one test each gradation, liquid limit, plasticity index, modified proctor, moisture-density relation, CBR, and necessary field densities. The Engineer may call for additional tests at any time. The cost of all retests, in case of failure to meet specifications, will be deducted from the Contractor's payment. The city will pay for proctor and soil constants and abrasion tests at the rate described in the materials testing schedule. If the material changes, the Contractor shall pay the cost of additional tests required by the Engineer. The Engineer may waive testing and/or lime admix for small amounts for unimportant uses.

4. CONSTRUCTION METHODS

Prior to placement of flexible base, the surface of the previous underlying course shall be finished true to line and grade as established, and in conformity with the typical section shown on the drawings. Grade tolerance shall be generally 1/2 inch, and highs and lows must approximately balance. If called for in the drawings or elsewhere in the contract documents, geogrid, as specified in City Standard Specification Section 022040 "Street Excavation", shall be placed as indicated.

Flexible base shall be delivered and spread the same day if possible (no later than the next day). The base shall be mixed as required to produce a uniform mixture with water. Base shall be placed in uniform lifts not to exceed 10-inch loose lifts or 8-inch compacted lifts. Moisture and density requirements shall be as indicated on the drawings, typical minimum 98% Modified Proctor (ASTM DI557) under flexible pavements or typical minimum 98% Standard Proctor (ASTM D698) under concrete pavement and to within ± 2% of optimum moisture. The section may be accepted if no more than 1 of the 5 most recent moisture or density tests is outside of the specified

limits, and the failed test is within +1% deviation from specified moisture or density requirements.

The surface of the compacted base, after meeting moisture and density requirements, shall be primed in accordance with City Standard Specification Section 025412 "Prime Coat".

On completion of compaction and priming, the surface shall be smooth and conform to lines, grades, and sections shown on the drawings. Areas with any deviation more than 1/4 inch in cross-section and in lengths of 16 feet measured longitudinally shall be corrected by loosening, adding, or removing material, reshaping, and recompacting by repriming and rolling.

Moisture and density shall be maintained until the paving is complete. Excessive loss of moisture shall be prevented by sprinkling, sealing, or covering with a subsequent layer. Should the base, due to any reason or cause, lose the required stability, density, or moisture before it is protected by placement of the next layer, it shall be re-compacted, refinished, and retested at the expense of the Contractor until acceptable to the City.

5. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, crushed limestone flexible base shall be measured by the square yard complete in place. Payment shall be full compensation for all materials, royalty, hauling, placing, compacting, labor, equipment, tools, and incidentals necessary for the completion of work.

Prime shall be measured and paid under separate bid item if specified on the Bid Form.

Geogrid shall be measured and paid under separate bid item if specified.

END OF SECTION

SECTION 025608
INLETS

1. DESCRIPTION

This specification shall govern for the construction of inlets complete in place and the materials used therein, including the installation, and the furnishing of frames, grates, rings, and covers.

2. TYPES

The various types of inlets are designated on the drawings by letters or by numbers indicating the particular design of each. Each type shall be constructed in accordance with the details shown on the drawings and to the depth required by the profiles and schedules given.

3. MATERIALS

Concrete

Concrete for curb inlets shall be Class "A" concrete conforming to the requirements of City Standard Specification Section 038000 "Concrete Structures", and City Standard Specification Section 030020 "Portland Cement Concrete", except as otherwise provided on the drawings. Concrete for grate inlets, drop inlets and post inlets shall be Class "C" concrete in accordance with City Standard Specification Section 030020 "Portland Cement Concrete".

Mortar

Mortar shall be composed of one part Portland cement and two parts clean, sharp mortar sand suitably graded for the purpose by conforming in other respects to the provisions of City Standard Specification Section 030020 "Portland Cement Concrete" for fine aggregate. Hydrated lime or lime putty may be added to the mix but in no case shall it exceed 10 percent by weight of the total dry mix.

Reinforcing Steel

Reinforcing Steel shall conform to the requirements of City Standard Specification Section 032020 "Reinforcing Steel".

Concrete Blocks

Concrete blocks, when shown on the drawings, shall conform to the requirements of ASTM C 139.

Frames, Grates, Rings and Covers

Frames, grates, rings, and covers shall conform to the requirements of City Standard Specification Section 055420 "Frames, Grates, Rings and Covers".

Cast Iron

Cast iron for supports and inlet units shall conform to the shape and dimensions shown on the plans. The castings shall be clean and perfect, free from sand or blow holes or other defects. Cast iron castings shall conform to the requirements of "Gray Iron Castings" ASTM A 48, Class 30.

4. CONSTRUCTION METHODS

General

All concrete work shall be performed in accordance with the requirements of City Standard Specification Section 038000 "Concrete Structures", unless otherwise specified. Forms will be required for all concrete walls, except where the nature of the surrounding material is such that it can be trimmed to a smooth vertical face.

Inlets for Precast Concrete Pipe Sewers

The construction of inlets for precast concrete pipe sewers shall be done as soon as is practicable after sewer lines into or through inlet locations are completed. All sewers shall be cut neatly at the inside face of the walls of inlet and pointed up with mortar. Subgrade under cast-in-place and precast inlets shall be compacted to not less than 95% Standard Proctor density.

Inverts

The inverts passing out or through the inlet shall be shaped and routed across the floor of inlet as shown on the plans. This shaping may be accomplished by adding and shaping mortar or concrete after the base is cast or by placing the required additional material with the base.

Finishing Complete Inlets

Inlets shall be completed in accordance with the drawings. Backfilling to finish grade elevation with native material, free of debris and compacted to over 95% Standard Proctor density. Backfilling shall be in accordance with the provisions of City Standard Specification Section 022020 "Excavation and Backfill for Utilities".

5. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, inlets shall be measured as individual units by each inlet, complete in place.

Extension to inlets will be measured by each extension separately from the inlet.

Excavation, backfill, frames, grates, rings and covers will be considered subsidiary to the construction of the inlets.

Payments shall be full compensation for furnishing all concrete, reinforcing steel, mortar, castings, frames, grates, rings and covers, and for all other materials, labor, tools, equipment, and incidentals required to perform the work prescribed above.

END OF SECTION

SECTION 025610
CONCRETE CURB AND GUTTER

1. DESCRIPTION

This specification shall consist of Portland cement concrete combined concrete curb and gutter or separate concrete curb with or without reinforcing steel as required, constructed on an approved subgrade or foundation material in accordance with these specifications, in conformity with the lines and grades established by the Engineer and details shown in the drawings.

2. MATERIALS

Unless otherwise specified on the drawings, materials and proportions for concrete used in construction under this specification shall conform to the requirements as specified for Class "A" Concrete under City Standard Specification Section 030020 "Portland Cement Concrete". Reinforcing steel shall conform to the requirements as specified in City Standard Specification Section 032020 "Reinforcing Steel". The expansion joint filler shall be redwood material meeting the requirements specified in City Standard Specification Section 038000 "Concrete Structures".

3. CONSTRUCTION METHODS

The foundation shall be excavated and shaped to line, grade and cross-section, and hand tamped and sprinkled. If dry, the subgrade or foundation material shall be sprinkled lightly with water and compacted to not less than 98% Standard Proctor density, or as required on the drawings. Flexible base shall be compacted to specified density and moisture immediately before concrete is deposited thereon.

Outside forms shall be of wood or metal, of a section satisfactory to the Engineer, straight, free of warp, and of a depth equal to the depth of the curb and gutter. They shall be securely staked to line and grade and maintained in a true position during the depositing of concrete. Inside forms for the curb shall be approved material, shall be of such design as to provide the curb required, and shall be rigidly attached to the outside forms. For reinforced concrete roadways, all jointing must be reflected through the curb, including redwood expansion joints and construction joints. The driveway gutter shall be placed integrally with the driveway as shown in the City Standard Details.

The reinforcing steel shall be placed in position as shown on the typical details. Care shall be exercised to keep all reinforcing steel in its proper location. .

Concrete for curb and gutter shall be mixed in a manner satisfactory to the Engineer. The curb and gutter shall be placed in sections of the length indicated on the plans, and each section shall be separated by a pre-molded insert or board joint of cross-section specified for the curb and gutter, and of the thickness indicated on the drawings.

After the concrete has been struck off and after it has become sufficiently set, the exposed surfaces shall be thoroughly worked with a wooden float. The exposed edges shall be rounded using an edging tool to the radius indicated on the drawings. All exposed surfaces of curb and gutter, or curb, shall be brushed to a smooth and uniform surface.

The completed curb and gutter shall be cured with Type 2, white pigmented curing compound unless shown otherwise on the drawings. Other methods of curing as outlined in City Standard Specification Section 038000 "Concrete Structures" will be acceptable with a required curing period of 72 hours.

The area behind the curb shall be backfilled, tamped, and sloped as directed as soon as possible and no later than 48 hours after the removal of forms. The backfill shall be placed to the full height of the curb, or as otherwise specified.

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, concrete curb and gutter or concrete curb will be measured by the linear foot for each type of curb, complete in place. Payment shall be full compensation for preparing the subgrade; for furnishing and placing all materials including reinforcing steel and expansion joint material; for furnishing, placing, shaping and tamping backfill; and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work.

END OF SECTION

SECTION 025612
CONCRETE SIDEWALKS AND DRIVEWAYS

1. DESCRIPTION

This specification shall consist of sidewalks and driveways, with or without reinforcing steel, composed of Portland cement concrete, constructed as herein specified on an approved subgrade, in conformity with the lines and grades established by the Engineer and the details shown on the drawings.

2. MATERIALS

Materials and proportions used in construction under this item shall conform to the requirements as specified for Class "A" concrete under City Standard Specification Section 030020 "Portland Cement Concrete". Reinforcing steel shall conform to the requirements as specified in City Standard Specification Section 032020 "Reinforcing Steel". The expansion joint filler shall be Redwood meeting the requirements specified in City Standard Specification Section 038000 "Concrete Structures". Cap seal shall be "Greenstreak" or approved equal.

3. CONSTRUCTION METHODS

The subgrade shall be excavated, compacted and shaped to line, grade and cross-section and hand tamped and sprinkled with water. Subgrade under concrete sidewalks and driveways shall be compacted to not less than 95% Standard Proctor density. The subgrade shall be within 0-3% of optimum moisture content at the time the concrete is placed.

Forms shall be of wood or metal, of a section satisfactory to the Engineer, straight, free from warp, and of a depth equal to the thickness of the finished work. They shall be securely staked to line and grade and maintained in a true position during the depositing of concrete.

The reinforcing steel shall be placed in position as shown on the drawings. Care shall be exercised to keep all reinforcing steel in its proper location.

Driveways shall incorporate the gutter in a unified concrete placement as shown in the City Standard Detail for driveways.

Sidewalks shall be constructed in sections of the lengths shown on drawings. Unless otherwise provided by the drawings, no section shall be of a length less than 8 feet, and any section less than 8 feet shall be removed by the Contractor at his own expense.

The different sections shall be separated by a pre-molded insert or board joint of the thickness shown on the drawings, placed vertically and at right angles to the longitudinal axis of the sidewalks. Where the sidewalk or driveways abut a curb or retaining wall, approved expansion joint material shall be placed along their entire length. Similar expansion joint material shall be placed around all obstructions protruding through sidewalks or driveways.

Concrete shall be mixed in a manner satisfactory to the Engineer, placed in the forms to the depth specified and spaded and tamped until thoroughly compacted and mortar entirely covers the surface. The top surface shall be floated with a wooden float to a gritty texture. The outer edges and joints shall then be rounded with approved tools to the radii shown on drawings.

5-foot-wide sidewalks shall be marked into separate sections, each 5 feet in length, using approved jointing tools. For other widths of sidewalk, joints to be spaced longitudinally to match the transverse width.

When completed, the sidewalks and driveways shall be cured with Type 2, white pigmented curing compound. Other methods of curing as outlined in City Standard Specification Section 038000 "Concrete Structures" will be acceptable with a required curing period of 72 hours.

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, concrete sidewalks and driveways shall be measured by the square foot of surface area of completed sidewalks, driveways, or sidewalks and driveways, as indicated on the drawings.

Payment shall be full compensation for preparing and compacting the subgrade; for furnishing and placing all materials including concrete, reinforcing steel and expansion joint material; and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work.

END OF SECTION

SECTION 025614
CONCRETE CURB RAMPS

1. DESCRIPTION

This specification shall govern all work necessary for constructing Concrete Curb Ramps required to complete the project.

2. MATERIALS

Concrete shall be Class "A" in accordance with Section 030020 "Portland Cement Concrete" of the City Standard Specifications.

Reinforcement shall be 4x4 - W2.9xW2.9 welded wire fabric, or #4 steel reinforcing bars spaced at 12 inches each way in accordance with Section 032020 "Reinforcing Steel" of the City Standard Specifications.

3. CONSTRUCTION METHODS

The subgrade shall be shaped to line, grade, and cross-section, and shall be of uniform density and moisture when concrete is placed. The subgrade shall be hand tamped and sprinkled with water to achieve the desired consistency and uniform support. Subgrade compaction shall not be less than 95% Standard Proctor density.

Ramps shall be constructed of Class "A" concrete to line and section as shown on the plans. Unless shown otherwise in the drawings, ramps shall have a minimum concrete thickness more than 5 inches, prior to application of the detectable warning surfacing.

Slopes, S, shall be as follows, unless shown otherwise on the drawings:

RAMPS

Ramp in direction of travel.	$S \leq 1:12$
Side slope of ramp (flare).	$S \leq 1:10$
Cross slope.	$1:100 \leq S \leq 1:50$

ADJOINING AREAS

Landings adjacent to ramp	$S \leq 1:20$
Driveways abutting tied sidewalks	$S \leq 1:10$

The width of ramp shall be 60 inches (minimum), exclusive of flare, unless specifically shown otherwise in the drawings. No ramp shall be less than 36 inches wide under any circumstances. Obstructions shall be removed or relocated, as appropriate, or the location of the ramp may be shifted, if authorized.

Detectable warning surface shall be polymer composite material detectable warning panels as shown on the drawings. Surfacing shall be flush with abutting areas and placed using a template as required to achieve an esthetic well-defined edge. Surfacing shall be subsidiary work and will not be measured for separate pay.

Pavement markings for street crossings shall be placed such that the crosswalk is properly aligned with respect to the curb ramp. See striping details for proper alignment of pavement markings with respect to intersection and curb ramp.

A properly constructed curb ramp shall be tilted to line, section, and grade, and shall be free of loose material and irregularities.

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, concrete curb ramps shall be measured by the horizontal square foot of ramp surface area, including side flares when used. Adjoining curbs, gutters, sidewalks, and driveways will be excluded from said measurement.

Payment shall include, but not be limited to, subgrade preparation, formwork, concrete, rebar, detectable warning surfaces, borders, molding, and curing required to complete the curb ramp, and shall be full compensation for all labor, materials, equipment, and incidentals required to complete the work.

END OF SECTION

SECTION 025620
PORTLAND CEMENT CONCRETE PAVEMENT

1. DESCRIPTION

This specification shall govern for the construction of Portland cement concrete pavement on a prepared subgrade or base course, in accordance with the typical sections shown on the drawings.

The concrete shall be composed of Portland cement, aggregates (fine and coarse), admixtures if desired or required, and water, proportioned and mixed as hereinafter provided.

All subsurface utilities must be inspected, tested, and accepted prior to any paving.

2. MATERIALS

(I) Cement

The cement shall be either Type I, Type II or Type III Portland cement conforming to ASTM Designation: C150, modified as follows:

> Unless otherwise specified by the Engineer, the specific surface area of Type I and II cements shall not exceed 2000 square centimeters per gram (Wagner Turbidimeter — TxDOT Test Method Tex-310-D). The Contractor shall furnish the Engineer with a statement as to the specific surface area of the cement, expressed in square centimeters per gram, for each shipment.

For concrete pavements, strength requirements shall be demonstrated using flexural (beam) or compressive (cylinder) tests as required in the drawings.

Either Type I or II cement shall be used unless Type II is specified on the plans. Except when Type II is specified on the plans, Type III cement may be used when the anticipated air temperature for the succeeding 12 hours will not exceed 60^0F. Type III cement shall be used when high early strength concrete pavement is specified on the drawings.

Different types of cement may be used in the same project, but all cement used in any one monolithic placement of concrete pavement shall be of the same type and brand. Only one brand of each type of cement will be permitted in any one project unless otherwise authorized by the Engineer.

Cement may be delivered in bulk where adequate bin storage is provided. All other cement shall be delivered in bags marked plainly with the name of the manufacturer and the type of cement. Similar information shall be provided in the bills of lading accompanying each shipment of packaged or bulk cement. Bags shall contain 94 pounds net. All bags shall be in good condition at the time of delivery.

All cement shall be properly protected against dampness. No caked cement will be accepted.

Cement remaining in storage for a prolonged period may be retested and rejected if it fails to conform to any of the requirements of these specifications.

(2) Mixing Water

Water for use in concrete and for curing shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete".

(3) Coarse Aggregate

Coarse aggregate for use in concrete mixture shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete", Grade No. 2.

(4) Fine Aggregate

Fine aggregate for use in concrete mixture shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete", Grade No. 1.

(5) Mineral Filler

Mineral filler shall consist of stone dust, clean crushed sand, or other approved inert material.

(6) Mortar (Grout)

Mortar for repair of concrete pavements shall consist of I part cement, 2 parts finely graded sand, and enough water to make the mixture plastic. When required to prevent color difference, white cement shall be added to produce the color required. When required by the Engineer, latex adhesive shall be added to the mortar.

(7) Admixtures

Calcium chloride will not be permitted. Unless otherwise noted, air-entraining, retarding and water-reducing admixtures may be used in all concrete and shall conform to the requirements of City Standard Specification Section 030020 "Portland Cement Concrete".

(8) Reinforcing Steel

Unless otherwise designated on the plans, all steel reinforcement shall be deformed bars, and shall conform to ASTM Designation: A615, Grade 60, and shall be open hearth, basic oxygen or electric furnace new billet steel in accordance with City Standard Specification Section 032020 "Reinforcing Steel".

Dowels shall be plain billet steel smooth bars conforming to ASTM Designation: A615, Grade 60, and shall have hot-dip galvanized finish.

3. STORAGE OF MATERIALS

All cement and aggregate shall be stored and handled in accordance with City Standard Specification Section 030020 "Portland Cement Concrete".

4. MEASUREMENT OF MATERIALS

Measurement of the materials, except water, used in batches of concrete, shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete".

5. CLASSIFICATION AND MIX DESIGN

It shall be the responsibility of the Contractor to furnish the mix design to comply with the requirements herein and in accordance with THD Bulletin C-ll. The Contractor shall perform, at his own expense, the work required to substantiate the design, except the testing of strength specimens, which will be done by the Engineer. Complete concrete design data shall be submitted to the Engineer for approval.

It shall also be the responsibility of the Contractor to determine and measure the batch quantity of each ingredient, including all water, so that the mix conforms to these specifications and any other requirements shown on the plans.

In lieu of the above mix design responsibility, the Contractor may accept a design furnished by the Engineer; however, this will not relieve the Contractor of providing concrete meeting the requirements of these specifications.

Trial batches will be made and tested using all the proposed ingredients prior to placing the concrete, and when the aggregate and/or brand of cement or admixture is changed. Trial batches shall be made in the mixer to be used on the job. When transit mix concrete is to be used, the trial designs will be made in a transit mixer representative of the mixers to be used. Batch size shall not be less than 50 percent of the rated mixing capacity of the truck.

Mix designs from previous or concurrent jobs may be used without trial batches if it is shown that no substantial change in any of the proposed ingredients has been made.

This specification section incorporates the requirements of City Standard Specification Section 030020 "Portland Cement Concrete".

6. CONSISTENCY

In cases where the consistency requirements cannot be satisfied without exceeding the maximum allowable amount of water, the Contractor may use, or the Engineer may require, an approved water-reducing or retarding agent, or the Contractor shall furnish additional aggregates or aggregates with different characteristics, which will produce the required results. Additional cement may be required or permitted as a temporary measure until aggregates are changed and designs checked with the different aggregates or admixture. The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface. When field conditions are such that additional moisture is needed for the final concrete

surface finishing operation, the required water shall be applied to the surface by fog spray only and shall be held to a minimum. The concrete shall be workable, cohesive, possess satisfactory finishing qualities, and of the stiffest consistency that can be placed and vibrated into a homogenous mass. Excessive bleeding shall be avoided. Slump requirements shall be as specified in Table 1.

TABLE 1
Slump Requirements

Construction Method	Desired Slump	Minimum Slump	Maximum Slump
Concrete Pavement (slipformed)	1.5 inches	1 inch	3 inches
Concrete Pavement (formed)	4 inches	2.5 inches	6.5 inches

NOTE: No concrete will be permitted with slump more than the maximum shown.

7. QUALITY OF CONCRETE

The concrete shall be uniform and workable. The cement content, maximum allowable water cement ratio, desired slump, minimum slump, maximum slump, and the strength requirements of the class of concrete for concrete pavement shall conform to the requirements of Table 1 and Table 2 and as required herein.

During the process of the work, the Engineer will cast test beams or cylinders as a check on the flexural or compressive strength of the concrete placed. The testing shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete". If the required flexural or compressive strength is not secured with the cement specified in Table 2, changes in the batch design will be made. The concrete shall meet either the minimum flexural (beam) strength (7-day or 28-day) or minimum compressive strength (7-day or 28-day) shown in Table 2.

TABLE 2
Class of Concrete for Concrete Pavement

Class of Concrete	Minimum Flexural (Beam) Strength	Minimum Compressive Strength	Maximum Water-Cement Ratio	Coarse Aggregate
P*	450 psi (7 days)	3200 psi (7 days)	5.6 gal./sack	No. 2 (1 1/2")
	570 psi (28 days)	4000 psi (28 days)	0.50	

* 5% entrained air

8. MIXING CONDITIONS

The concrete shall be mixed in quantities required for immediate use. Any concrete which is not in place within the limits outlined in City Standard Specification Section 038000 "Concrete Structures", Article "Placing Concrete-General", shall not be used. Re-tamping of concrete will not be permitted.

Mixing conditions shall conform to the requirements of City Standard Specification Section 030020 "Portland Cement Concrete".

9. MIXING AND MIXNG EQUIPMENT

Mixing and mixing equipment shall conform to the requirements of City Standard Specification Section 030020 "Portland Cement Concrete".

10. READY-MIX(PLANTS)

The requirements for ready-mix plants shall be as specified in City Standard Specification Section 030020 "Portland Cement Concrete".

11. PLACING CURING AND FNISHING

All subsurface utilities must be inspected, tested, and accepted prior to any paving.

Subgrade preparation shall be as specified on the plans. The placing of concrete, including construction of forms and falsework, curing and finishing shall be in accordance with City Standard Specification Section 038000 "Concrete Structures". For membrane curing, curing material shall conform to Type 2, Class A curing compound, or as otherwise shown on the drawings.

12. JOINTS CONCRETE PAVEMENT

The placing of joints in concrete pavement shall be in accordance with City Standard Specification Section 038000 "Concrete Structures" and as detailed in the drawings.

13. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, the quantities of concrete for concrete pavement(s), which will constitute the completed and accepted pavement(s) in-place, will be measured by the square yard or square foot for the indicated thickness and type of cement.

Payment shall be full compensation for furnishing, hauling, mixing, placing, curing and finishing all concrete; all grouting and pointing; furnishing and placing reinforcing steel and steel dowels shown on the plans; furnishing and placing drains; furnishing and placing metal flashing strips; furnishing and placing expansion joint material, joint filler and sealants, and contraction (control)

joints required by this specification or shown on the plans; and for all forms and falsework, labor, tools, equipment and incidentals necessary to complete the work.
Any paving placed prior to inspection, testing, and acceptance of underground utilities may be rejected by the city and will be replaced at the Contractor's expense after correcting any subsurface utility defects.

END OF SECTION

SECTION 025802
TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION

1. DESCRIPTION

This specification shall govern all work required for Temporary Traffic Controls during construction. The work shall include furnishing, installing, moving, replacing, and maintaining all temporary traffic controls including, but not limited to, barricades, signs, barriers, cones, lights, signals, temporary detours, temporary striping and markers, flagger, temporary drainage pipes and structures, blue business signs, and such temporary devices as necessary to safely complete the project.

2. MATERIALS

Traffic control devices shall conform to the latest edition of the "Texas Manual on Uniform Traffic Control Devices", unless indicated otherwise on the Traffic Control Plan.

3. METHODS

Sufficient traffic control measures shall be used to assure a safe condition and to provide a minimum of inconvenience to motorists and pedestrians.

If the Traffic Control Plan (TCP) is included in the drawings, any changes to the TCP by the Contractor shall be prepared by a Texas licensed professional engineer and submitted to the City Engineer for approval, prior to construction. If the TCP is not included in the drawings, the Contractor shall provide the TCP prepared by a Texas licensed professional engineer and submit the TCP to the City Engineer for approval, prior to construction.

The Contractor is responsible for implementing and maintaining the traffic control plan and will be responsible for furnishing all traffic control devices, temporary signage and ATSSA certified flaggers. The construction methods shall be conducted to provide the least possible interference to traffic to always permit the continuous movement of traffic in all allowable directions. The Contractor shall cleanup and remove from the work area all loose material resulting from construction operations at the end of each workday.

All signs, barricades, and pavement markings shall conform to the BC standard sheets, TCP sheets and the latest version of the "Texas Manual on Uniform Traffic Control Devices".

The Contractor may be required to furnish additional barricades, signs, and warning lights to maintain traffic and promote motorist's safety. Any such additional signs and barricades will be considered subsidiary to the pay item for traffic control. All signs, barricades, and posts will be either new or freshly painted.

The contractor and any traffic control subcontractor must be ATSSA certified for Traffic Control.

A competent person, responsible for implementation of the TCP and for traffic safety, shall be designated by the Contractor.

The name and off-hours phone number of the competent person shall be provided in writing at the Pre-Construction Conference.

The competent person shall be on site, during working hours and on call always in the event of off-hour emergency.

The contractor must provide temporary blue sign boards that direct traffic to businesses and driveways during each phase of construction — see example below. The sign boards may be either skid mounted, or barrel mounted. The city will assist the contractor in determining which businesses and driveways will receive signage during various construction phases. The provision, installation, and removal of signage will be subsidiary to the contract items provided for "Traffic Control."

Example Blue Sign

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, temporary traffic controls during construction shall be measured as a lump sum. Payment shall include, but not be limited to, furnishing, installing, moving, replacing and maintaining all temporary traffic controls including, but not limited to, barricades, signs, banners, cones, lights, signals, temporary striping and markers, flaggers, removable and non-removable work zone pavements markings and signage, channelizing devices, temporary detours, temporary flexible-reflective roadway marker tabs, temporary traffic markers, temporary drainage pipes and structures, blue business signs, and such temporary devices and relocation of existing signs and devices. Payment shall be full compensation for all labor, equipment, materials, personnel, and incidentals necessary to provide a safe condition during construction of all phases and elements of the project and to complete the work.

Payment will be made on the following basis: The initial monthly estimate will include 50% of the lump sum bid amount minus retention (typically 5%). The balance will be paid with the final estimate, upon completion of the project.

END OF SECTION

SECTION 027402
REINFORCED CONCRETE PIPE CULVERTS

1. DESCRIPTION

This specification shall govern the furnishing and placing of reinforced concrete pipe culverts and the material and incidental construction requirements for reinforced concrete pipe sewers. The culvert pipe shall be installed in accordance with the requirements of these specifications to the lines and grades shown on the plans, and shall be of the classes, sizes and dimensions shown thereon. The installation of pipe shall include all joints or connections to new or existing pipe, headwalls, etc., as may be required to complete the work.

2. MATERIALS

General

Except as modified herein, materials, manufacture and design of pipe shall conform to ASTM C-76 for Circular Pipe. All pipes shall be machine made or cast by a process which will provide for uniform placement of the concrete in the form and compaction by mechanical devices which will assure a dense concrete. Concrete shall be mixed in a central batch plant or other approved batching facility from which the quality and uniformity of the concrete can be assured. Transit mixed concrete will not be acceptable for use in precast concrete pipe.

Design

All pipes shall be Class Ill (Wall "B") unless otherwise specified on the plans. The shell thickness, the amount of circumferential reinforcement and the strength of the pipe shall conform to the specified class as summarized in ASTM C-76 for Circular Pipe.

Sizes and Permissible Variations

a. Variations in diameter, size, shape, wall thickness, reinforcement, placement of reinforcement, laying length and the permissible underrun of length shall be in accordance with the applicable ASTM Specification for each type of pipe as referred to previously.

b. Where rubber gasket pipe joints are to be used, the design of the Joints and Permissible Variations in Dimensions shall be in accordance with ASTM C-443.

Workmanship and Finish

Pipe shall be substantially free from fractures, large or deep cracks and surface roughness. The ends of the pipe shall be normal to the walls and centerline of the pipe within the limits of variations allowed under the applicable ASTM specification.

Curing

Pipe shall be cured in accordance with the applicable ASTM Specification for each type of pipe as referred to above.

Marking

The following information shall be clearly marked on each section of pipe:

a. The class of pipe.

b. The date of manufacture.

c. The name or trademark of the manufacturer.

d. Marking shall be indented on the pipe section or painted thereon with waterproof paint.

Minimum Age for Shipment

Pipe shall be considered ready for shipment when it conforms to the requirements of the tests specified herein.

Inspection

The quality of materials, the process of manufacture, and the finished pipe shall be subject to inspection and approval by the Engineer at the pipe manufacturing plant. In addition, the finished pipe shall be subject to further inspection by the Engineer at the project site prior to and during installation.

Causes for Rejection

Pipe shall be subject to rejection on account of failure to conform to any of the specification requirements. Individual sections of pipe may be rejected because of any of the following:

a. Fractures or cracks passing through the shell, except for a single end crack that does not exceed the depth of the joint.

b. Defects that indicate imperfect proportioning, mixing and molding.

c. Surface defects indicating honeycombed or open texture.

d. Damaged ends, where such damage would prevent making a satisfactory joint.

Repairs

Pipe may be repaired, if necessary, because of occasional imperfections in manufacture or accidental injury during the handling, and will be acceptable if, in the opinion of the Engineer, the repairs are sound and properly finished and cured and the repaired pipe conforms to the requirements of the specifications.

Rejections

All rejected pipe shall be plainly marked by the Engineer and shall be replaced by the Contractor with pipe that meet the requirements of these specifications. Such rejected pipe shall be removed immediately from the worksite.

Jointing Materials

Unless otherwise specified on the plans, the Contractor shall have the option of making the joints by any of the following methods:

a. Ram-Nek, a pre-formed plastic base joint material manufactured by K. T. Knyder Company, Houston, Texas, or an approved equal. Use of Talcote as joint material will not be permitted.

b. Ram-Nek joint material and primer shall be supplied for use on pipe in the following sizes, which is the minimum that will be required. Additional Ram-Nek may be required if, in the opinion of the Engineer, a proper joint is not secured.

Pipe Size	Primer Per 100 Jts	Cut Lengths Per Joint
24"	6.2 gals	2 pcs 1 ½" x 3'-5"
30"	8.5 gals	2 ½ pcs 1 ½" x 3'-5"
36"	9.5 gals	3 pcs 1 ¾" x 3'-5"
42"	12.0 gals	3 ½ pcs 1 ¾" x 3'-5"
48"	15.0 gals	4 pcs 1 ¾" x 3'-5"
54"	20.0 gals	4 ½ pcs 1 ¾" x 3'-5"
60"	25.0 gals	5 pcs 1 ¾" x 3'-5"
66"	30.0 gals	5 ½ pcs 1 ¾" x 3'-5"
72"	32.0 gals	6 pcs 2" x 3'-5"
84"	35.0 gals	7 pcs 2" x 3'-5"

c. TYLOX Types "C", "C-P" or "CR" rubber gaskets, as applicable, as manufactured by Hamilton Kent Manufacturing Company, Kent, Ohio, or approved equal. All gaskets, lubricants, adhesives, etc., shall be manufactured, constructed, installed, etc., as recommended by the manufacturer of the rubber gasket material and conform to ASTM Designation: C-443. In addition, the Contractor shall furnish to the City, for approval, manufacturer's brochures detailing the complete use, installation, and specifications of concrete pipe and rubber gaskets before any rubber gasket material is used on the project. All rubber gaskets shall be fabricated from synthetic rubber.

d. Cement Mortar is prohibited from jointing pipe except at manholes, pipe junctions, etc., or where specifically approved by the Engineer.

e. Geotextile for wrapping pipe joints shall be Class "A" subsurface drainage type in accordance with AASHTO M288.

3. CONSTRUCTION METHODS

Reinforced concrete pipe culverts shall be constructed from the specified materials in accordance with the following methods and procedures:

Excavation

All excavation shall be in accordance with the requirements of City Standard Specification Section 022020 "Excavation and Backfill for Utilities," except where tunneling or jacking methods are shown on the plans or permitted by the Engineer. When pipe is laid in a trench, the trench, when completed and shaped to receive the pipe, shall be of sufficient width to provide free working space for satisfactory bedding and jointing and thorough tamping of the backfill and bedding material under and around the pipe. The Contractor shall make such temporary provisions as may be necessary to ensure adequate drainage of the trench and bedding during the construction operation. Pipe shall be placed such that the identification markings are visible at the top prior to backfill.

Bedding

The pipe shall be bedded in accordance with the bedding details shown on the drawings. Bedding shall not be measured for pay but shall be subsidiary to other work.
If the subgrade of the trench is unstable, even if this condition occurs at relatively shallow depths, full

encasement of the pipe with crushed stone shall be required.

Laying Pipe

Unless otherwise authorized by the Engineer, the laying of pipe on the prepared foundation shall be started at the outlet (downstream) end with the spigot or tongue end pointing downstream and shall proceed toward the inlet (upstream) end with the abutting sections properly matched, title to the established lines and grades. Where bell and spigot pipe are used, cross trenches shall be cut in the foundation to allow the barrel of the pipe to rest firmly upon the prepared bed. These cross trenches shall be not more than two inches larger than the bell ends of the pipe. Proper facilities shall be provided for hoisting and lowering the sections of pipe into the trench without disturbing the prepared foundation and the sides of the trench. The ends of the pipe shall be carefully cleaned before the pipe is placed. As each length of pipe is laid, the mouth of the pipe shall be protected to prevent the entrance of earth or bedding material.

The pipe shall be fitted and matched so that when laid in the bed, it shall form a smooth, uniform conduit. When elliptical pipe with circular reinforcing or circular pipe with elliptical reinforcing is used, the pipe shall be laid in the trench in such position that the markings "TOP" or "BOTTOM" shall not be more than 5 degrees from the vertical plane through the longitudinal axis of the pipe. For pipes over 42 inches in diameter, the Contractor may drill two holes not larger than 2 inches in diameter, in the top of each section of the pipe, to aid in lifting and placing. The holes shall be neatly drilled, without spalling of the concrete, and shall be done without the cutting of any reinforcement. After the pipe is laid, the holes shall be filled with mortar and properly cured, and placed such that they are visible from the top for inspection prior to backfill.

Multiple installations of reinforced concrete pipe shall be laid with the center lines of individual barrels parallel. When not otherwise indicated on plans, the following clear distances between outer surfaces of adjacent pipe shall be used.

Diameter of Pipe	18"	24"	30"	36"	42"	48"	54"	60" to 84"
Clear Distance between Pipes	0'-9"	0'-11"	1'-1"	1'-3"	1'-5"	1'-7"	1'-11"	2'-0"

Jointing

If the use of Portland cement mortar joints is allowed, all pipes shall be jointed tight and sealed with stiff mortar, composed of one part Portland cement and two parts sand, so placed as to form a durable water-tight joint. The installation shall be as required by the Engineer.

a. Joints using Rubber Gaskets: Where rubber gasket pipe joints are required by the plans, the joint assembly shall be made according to the recommendations of the gasket manufacturer. Water-tight joints will be required when using rubber gaskets.
b. Joints using Cold-Applied Preformed Plastic Gaskets shall be made as follows:

(1) A suitable prime of the type recommended by the manufacturer of the gasket joint sealer shall be brush-applied to the tongue and groove joint surfaces and the end surfaces and allowed to dry and harden. No primer shall be applied over mud, sand or dirt or sharp cement protrusions. The surface to be primed must be clean and dry when primer is applied.
(2) Before laying the pipe in the trench, the plastic gasket sealer shall be attached around the tapered tongue or tapered groove near the shoulder or hub of each pipe joint. The paper wrapper shall be removed from one side only of the two-piece wrapper on the gasket and pressed firmly to the clean, dry pipe joint surface. The outside wrapper shall not be removed until immediately before pushing the pipe into its final position.
(3) When the tongue is correctly aligned with the flare of the groove, the outside wrapper on the gasket shall be removed and the pipe shall be pulled or pushed home with sufficient force and power (backhoe shovel, chain hoist, ratchet hoist or winch) to cause the evidence of squeeze-out of the gasket material on the inside or outside around the complete pipe joint circumference. The extruded gasket material shall be smoothed out over the joint on the exterior and interior of the pipe. Any joint material pushed out into the interior of the pipe that would tend to obstruct the flow shall be removed. (Pipe shall be pulled home in a straight line with all parts of the pipe on line and grade at all times.) Backfilling of pipe laid with plastic gasket joints may proceed as soon as the joint has been inspected and approved by the Engineer. Special precautions shall be taken in placing and compacting backfill to avoid damage to the joints.
(4) When the atmospheric temperature is below 60 degrees F, plastic joint seal gaskets shall either be stored in an area warmed to above 70 degrees F, or artificially warmed to this temperature in a manner satisfactory to the Engineer. Gaskets shall then be applied to pipe joints immediately prior to placing pipe in the trench, followed by connection to previously laid pipe. Pipe Joints for storm sewers shall be wrapped with geotextile material. The geotextile wrap shall be at least 2 feet wide and shall be centered on each joint.
(5) After the pipe has been placed, bedded and jointed as specified, filling and/or backfilling shall be done in accordance with the applicable requirements of City Standard Specification Section 022020 "Excavation and Backfill for Utilities." If unstable conditions are encountered, fully encase the pipe with crushed stone as described above. When mortar joints are allowed, no fill or backfill shall be placed until the jointing material has been cured for at least six (6) hours. Special precautions shall be taken in placing and compacting the backfill to avoid any movement of the pipe or damage to the joints. For side drain culverts and all other culverts where joints consist of materials other than mortar, immediate backfilling will be permitted.
(6) Unless otherwise shown on the plans or permitted in writing by the Engineer, no heavy earth moving equipment will be permitted to haul over the structure until a minimum of 4 feet of permanent or temporary compacted fill has been placed thereon. Pipe damaged by the Contractor's equipment shall be removed and replaced by the Contractor at no additional cost.

Cleaning and Television Inspection
All enclosed reinforced concrete pipe and manholes installed on this project shall be cleaned and televised in accordance with City Standard Specification Section 027611 "Cleaning and Televised Inspection of Conduits."

4. MEASUREMENT

Unless otherwise specified on the Bid Form, reinforced concrete pipe will be measured by the linear foot. Such measurement will be made between the ends of the pipe barrel along its central axis. Where spurs or branches, or connections to existing pipelines are involved, measurement of the spur or new connecting pipe will be made from the intersection of its center axis with the outside surfaces of the pipe into which it connects. Where inlets,

headwalls, catch basins, manholes, junction chambers, or other structures are included in lines of pipe, that length of pipe tying into the structure wall will be included for measurement, but no other portion of the structure length or width will be so included.

For multiple pipes, the measured length will be the sum of the lengths of the barrels measured as prescribed above.

5. PAYMENT

Payment for reinforced concrete pipe measured as prescribed above will be made at the contract unit price bid per linear foot for the various sizes of "Reinforced Concrete Pipe" of the class specified.

Payment shall be full compensation for furnishing and transporting the pipe; hauling and placing of earth cushion material where required for bedding pipe; for the preparation and shaping of beds; for hauling, placing and jointing of pipes; for furnishing and installing geotextile pipe joint wrapping; for end finish; for all connections to existing and new structures; for cleaning and television inspection; and for all other items of materials, labor, equipment, tools, excavation, backfill and incidentals necessary to complete the culvert or storm sewer in accordance with the plans and these specifications.

END OF SECTION

SECTION 027611
CLEANING AND TELEVISED INSPECTION OF CONDUITS

1. **SCOPE**

This specification shall govern for all work, equipment, supervision, and materials required to provide for cleaning and remote CCTV inspection and documentation of wastewater, or other lines and manholes as required.

2. **TECHNICAL REQUIREMENTS**

2.1 **General**

Closed circuit television inspection will typically be done under one or more of the conditions listed below. Requirements for on-screen labeling during each line segment set up, televising, video file labeling and hard copy inspection reports will be specifically addressed. The Contractor shall neither request nor receive assistance from the City in the performance of the work described in this specification. Unless otherwise specified and at Contractors expense, the Contractor shall provide for the control of wastewater flows and monitoring of the collection system for back-ups and surcharges, while flow control devices are in place. It shall be the responsibility of the Contractor(s) to adhere to all applicable OSHA rules and regulations while performing any and all City-related projects or jobs (to include, but not necessarily limited to "Confined Space Entry".

2.2 **Inspection Equipment and Methods**

Electronic media shall be used to record the condition of all the segments of the mains and the manholes, tap locations and unusual situations during inspection. The inspection imaging shall be made on color professional grade DVD format for each line segment. All observations will require both audio and on-screen display. The camera shall transit through the wastewater line in either direction at a speed not greater than 30 feet per minute, stopping as necessary to permit proper documentation of the wastewater line's condition. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. A television camera with pan and tilt capability will be required. The camera, television monitor, and other components of the video systems shall be capable of producing picture quality to the satisfaction of the City. The capture system shall have the capability of recording, digitizing, and storing single frames of video images and "real time" live video, as well as collecting, storing, and printing wastewater line inspection data for graphic display and report generation. The imaging capture system shall store digitized picture images, have the ability to export picture files to industry standard formats (jpg, bmp, and tif), be transferable to DVD and be printed at no cost to the City. Use of proprietary software is discouraged; however, if the Contractor provides the software and three licenses to the City, proprietary software COMPATIBLE with the City's GIS and existing database systems in use may be

approved. However, in every case all observations will be recorded using the City approved PACP codes.

2.3 **Flow Control / By-Passing**

This procedure will be used on all previously accepted (City owned) line segments. Except for new wastewater line acceptance inspections, the line shall be dewatered during inspection. A water jet cleaning unit will normally be running in the line in advance of the television camera to allow the highest quality picture available. Dewatering shall remove standing water and fog from the line segment to provide 360-degree view of the pipe being televised. Too high-water level or the camera being submerged will be grounds for rejection of the inspection. All wastewater flows from intersecting lines shall typically be controlled through the use of in-line plugs for vacuum trucks and are considered subsidiary to the inspection for all line sizes. Plugs in intersecting lines shall be installed by the Contractor with no assistance from the City. The Contractor shall also monitor the upstream system for back-ups and surcharges, which may lead to Sanitary Sewer Overflows (SSOs). The Contractor shall immediately report to the City Public Work Department for all sanitary sewer overflows. Flow Control devices shall be installed in accordance with all applicable OSHA requirements, including, but not necessarily limited to confined space protocol.

2.4 **Evaluation of Existing Lines for Potential Repairs/Rehabilitation – Pre CCTV:**

Cleaning and televising using a CCTV camera may be needed to traverse each line segment from manhole to manhole as specified in the work order. When an obstruction prevents the camera from proceeding, the obstruction will be recorded on the initial setup and a reverse setup will be attempted to view the pipe and obstruction from the other side. If the camera fails to pass through the entire section, the inspection shall be considered complete and no additional inspection will be required. However, the line segment evaluation form, as well as the graphic report, shall note full line length and the length traveled from each manhole set-up. All inspection efforts on the line segment will be recorded on the same tape / disk. The Contractor must exert all reasonable effort to televise the entire length of a segment of wastewater line, or to assist the repair crews with usable information for point repair. Prior to transiting the line the video display initially is to include upstream and downstream manhole numbers, pipe size / material, adjacent street names and the date. During the transit the display must show the continuous distance from the insertion manhole with an accuracy of $\pm$1% of the actual length to help mark observations on the report form. The video must have narrative documentation of notable observations. The Inspection Report shall consist of condition observations recorded using City-approved computer software generated formats, generally conforming to NASSCO and PACP codes. Specifically, items considered notable include deviations in alignment and grade; abnormal conditions of the pipe barrel and joints; locations and quantities of any sources of infiltration or inflow; dropped, broken, properly / improperly installed service taps; debris, roots, or other impediments to flow and any other condition that may prevent either the proper completion of the inspection, or affect any proposed rehabilitation process. Evaluation of existing lines includes associated manhole inspection.

2.5 **Evaluation After Repairs / Rehabilitation Post CCTV:**

Following repairs or rehabilitation to existing lines (by Contractor), a CCTV camera shall travel through required line segment to televise. The intent of this process is to inspect the interior of the line to determine the location of repairs, and extent of any unacceptable work. Prior to transiting the line, the video display initially is to include upstream and downstream manhole numbers, pipe size / material, adjacent street names and the date. During the transit the display must show the continuous distance from the insertion manhole with an accuracy of +/- 1% of the actual length to help mark observations on the report form. Specifically, items such as detailed inspection of the repaired area using pan-and- tilt equipment will be shown in the Inspection Report, including digital photographs of acceptable or inadequate and/or questionable work. The video must include narrative documentation of notable observations and be cross referenced to the Inspection Report. The Inspection Report shall consist of condition observations recorded using City-approved computer-software generated formats conforming to NASSCO and PACP codes.

2.6 **New Pipeline Inspection:**

Upon completion of the installation of new lines, including any appurtenances such as manholes, service connections, etc., a CCTV camera shall traverse through each completed line segment. The intent of this process is to inspect the interior of the completed line to determine the location of service taps and extent of omissions and/or any unacceptable work on the pipeline or manholes, such as sags, infiltration, gapped joints, protruding gaskets, etc. Prior to transiting the line, the initial video shall initially include the upstream and downstream manhole designations, pipe size, project name and other pertinent information. When inspecting / documenting new wastewater line conditions, the Contractor must conduct a specific inspection for the presence of sags in the newly installed line. The approved method involves the use of an inclinometer on the camera. The belly tolerance is 5% or less for acceptable pipe installation. Any deviation from the 5% belly tolerance limit must be approved by the applicable Utility Operating Department.

The graphic report will note the start and stop of sags and approximate maximum depth. During the transit the display must show the continuous distance from the insertion manhole with an accuracy of $\pm$1% of the actual length to help mark observations on the Inspection Report form. The video must include narrative documentation of notable observations and be cross referenced to the Inspection Report. The Inspection Report shall consist of condition observations recorded using approved computer-software generated formats. Specifically, items such as deviations in alignment and grade causing bellies / sags; abnormal conditions of the pipe barrel and joints; locations and quantities of any sources of infiltration or inflow; dropped, broken, properly / improperly installed service taps or any other condition that may assist the Utilities Department in determining the quality of the pipeline installation.

2.7 **Manhole Inspection:**
A CCTV camera shall traverse the manhole from top to bottom to record the condition of the manhole and invert for structural condition and sources of infiltration on the manhole and invert. The initial video display must show the entry manhole number, location / street address, date, and depth.

a. The requirement is to commence capturing video at ground level. The video must be steady while panning and lowering to clearly record condition of the ring, corbel, the walls, and pipeline penetrations. The camera is to rotate during descent to inspect typical conditions and all penetrations. At the bottom of the manhole the complete invert will be inspected / viewed for infiltration and general condition. A washed-out picture due to sunlight or shaking will be rejected for payment.

b. This manhole information may be retained on the same DVD if the line segment is also being investigated, or, if inspection is issued as a separate work order, a separate DVD and report will be required. As with pipeline inspection, digital photographs of key points of note must accompany the report and DVD. These would include seals on pipeline penetration, infiltration locations and other anomalies.

c. The format of the Manhole Inspection Report will be as proposed by the Contractor and, following discussion, mutually approved by the Utilities Department and the Contractor. A sample form is included at the end of this specification. It will contain as a minimum:

location & I.D. number	manhole diameter
manhole material	depth of manhole
condition of ring / cover	evidence of infiltration
condition of walls	presence of inflow inhibitor
condition of pipe mouths	presence of coatings
condition of invert	location: street / easement above
	invert penetrations

2.8 **CCTV Set-up:**
A CCTV set-up includes all of the work, equipment, supervision, personnel, and materials needed to traverse a line segment.

2.9 **CCTV Reverse Set-up:**
A CCTV reverse set-up is an attempt to view the line segment from the other side due to an obstruction encountered during the initial set-up.

3. CLEANING REQUIREMENTS

3.1 Clean **ALL** debris such as dirt, gravel, rocks, grease, roots and other organic/inorganic debris from existing lines and manholes to allow for inspection to proceed.

The Contractor will be required to clean the line segment using hydraulic equipment. The debris being removed from the pipeline shall be removed from the collection system at the receiving manhole, and not be allowed to be merely moved to the next line segment. Debris shall be properly disposed of in accordance with local, state, and federal regulations.

The Contractor shall have the option of dewatering debris removed from cleaning operations on this project at the North or South WWTP, as directed by the Engineer. The Contractor shall coordinate with the City Utilities Department at all times (see also City Standard Specification Section 027604 Disposal of Waste from Wastewater Cleaning Operations.

The Contractor would be required to haul and handle the material to, at and from the facility as well as the restoration of drying beds. Restoration of the drying beds includes the removal of all the de-watered material and the replacement of the existing sand bed with new sand. All work required within the treatment plant, including the replacement of sand, shall be in accordance with the requirements set forth by the Plant Supervisor. The use of the drying beds would be subject to prior approval of the facility and the associated de-watering fees.

If the City's facilities are used for de-watering or disposal of waste, the Contractor shall be responsible for making contact with the appropriate Solid Waste or Wastewater Officials or both, making all arrangements for the use of City facilities, scheduling of delivery and pickup, etc. Materials and handling operations shall meet the requirements set forth by said Officials. The contractor shall coordinate with the Wastewater Pre-Treatment Coordinator to acquire the appropriate manifest documentation and shall also provide a copy of the landfill disposal weight ticket/receipt to the Engineer. Failure to meet these requirements shall be cause for rejection of the materials by either the landfill or the treatment plant operations. Proper disposal of this waste shall be the responsibility of the Contractor. The Contractor shall provide the Engineer with written documentation of the proper disposal of this waste. The Contractor shall not be paid until this documentation is provided.

4. DELIVERABLES

4.1 The Contractor is required to provide the Engineer with both narrated CCTV **video** and computer software-generated Inspection Report products, because of each inspection. Acceptable submissions become the property of the City.

a. **Quality Control:** camera distortion, inadequate lighting, dirty or submerged lens and blurry or hazy pictures determined to be the fault of the Contractor

b. will be cause for rejection of the inspection effort. If the quality of the deliverables does not meet with City approval, the Contractor shall repeat the documenting process at no cost to the City.

c. Video: for each inspection, one properly labeled color, professional grade, video, recorded in standard play (SP) mode, will be required. The video will display continuous distance from the insertion manhole, and include narrative observations at notable points, with correlating information shown in the Inspection Report. Labeling of the video(s) will include, either typed or neatly printed the following information on the dust cover:

Project Name	Street Name	Tape Number
Contractor	Upstream MH #	Downstream MH #
Date	Survey / Post / New	Work Order #
Pipe Size	Material	Project #

d. **Inspection Reports**
inspection reports are to be from City-approved and software-generated formats on 8½" x 11" paper, in color to improve definition of problem areas, and delivered video to the Engineer. Each report shall include the same information as noted on the videos, plus the following additional information: pipe diameter, pipe material, manhole diameters & depths, whether this is a "reverse" set-up, direction of flow arrow, and total length of the pipeline. Notable observations are to be shown in the report as digital color photos, with up to four images per page. One report is required for each line segment. Note that the final approval for the use of the Contractor's proposed software will be needed before the first inspection. The Contractor shall submit to the City a sample of the proposed report for review and approval by the City.

5. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Proposal, Pre-CCTV (Cleaning and Televised Inspection of existing lines to potentially be rehabilitated) and Post CCTV (Televised Inspection for acceptance of new lines or rehabbed lines) of Wastewater Lines shall not be measured for pay but will be considered subsidiary to the appropriate bid item. Cleaning and Televised Inspection of Wastewater Lines includes an inspection of all manholes entered, crossed, or associated with the line being inspected. Reverse CCTV Set-Up shall not be allowed for acceptance televising as obstructions should not be encountered in new pipe that would require the Contractor to relocate to another manhole (upstream or downstream) of the original manhole.

SAMPLE TELEVISED INSPECTION REPORT FORM

CITY OF KINGSVILLE
TELEVISED INSPECTION REPORT DATA REQUIREMENTS
[On screen at start of each set-up and on Inspection Report]

City's Project Name			
City's Project Number		Contractor/Operator	
Date / Time Televised		DVD Number	
Upstream MH Location		Downstream MH Loc.	
Upstream MH Number		Downstream MH Num.	
Upstream MH Depth		Downstream MH Depth	
Pipe Size		Pre-Rehab TV Y N	Evaluation TV Y N
		Post-Rehab TV Y N	Reverse Set-Up Y N
Pipe Material			

DISTANCE FROM ENTRY POINT	OBSERVATIONS/COMMENTS

DVD LABELING REQUIREMENTS [On each DVD]

City Project Name		Upstream Manhole No.	
City Project No.		Downstream Manhole No.	
Street Name		Pre	Post Other
DVD No.		Date/Time Made	
Contractor			

END OF SECTION

SECTION 030020
PORTLAND CEMENT CONCRETE

1. DESCRIPTION

This specification shall govern for the materials used; for the storing and handling of materials; and for the proportioning and mixing of concrete for culverts, manholes, inlets, curb and gutter, sidewalks, driveways, curb ramps, headwalls and wingwalls, riprap, and incidental concrete construction.

The concrete shall be composed of Portland cement, aggregates (fine and coarse), admixtures if desired or required, and water, proportioned and mixed as hereinafter provided.

2. MATERIALS

(1) Cement

The cement shall be either Type I, II or III Portland cement conforming to ASTM Designation: C150, modified as follows:

> Unless otherwise specified by the Engineer, the specific surface area of Type I and II cements shall not exceed 2000 square centimeters per gram (Wagner Turbidimeter — TxDOT Test Method Tex-310-D). For concrete piling, the above limit on specific surface area is waived for Type II cement only. The Contractor shall furnish the Engineer, with each shipment, a statement as to the specific surface area of the cement expressed in square centimeters per gram.

For cement strength requirements, either the flexural or compressive test may be used.

Either Type I or II cement shall be used unless Type II is specified on the plans. Except when Type II is specified on the plans, Type III cement may be used when the anticipated air temperature for the succeeding 12 hours will not exceed 60^0F. Type III cement may be used in all precast prestressed concrete, except in piling when Type II cement is required for substructure concrete.

Different types of cement may be used in the same structure, but all cement used in any one monolithic placement shall be of the same type and brand. Only one brand of each type will be permitted in any one structure unless otherwise authorized by the Engineer.

Cement may be delivered in bulk where adequate bin storage is provided. All other cement shall be delivered in bags marked plainly with the name of the manufacturer and the type of cement.

Similar information shall be provided in the bills of lading accompanying each shipment of packaged or bulk cement. Bags shall contain 94 pounds net. All bags shall be in good condition at the time of delivery.

All cement shall be properly protected against dampness. No caked cement will be accepted.

Cement remaining in storage for a prolonged period may be retested and rejected if it fails to conform to any of the requirements of these specifications.

(2) Mixing Water

Water for use in concrete and for curing shall be free from oils, acids, organic matter, or other deleterious substances and shall not contain more than 1000 parts per million of chlorides as CL nor more than 1000 parts per million of sulfates as S04.

Water from municipal supplies approved by the State Health Department will not require testing, but water from other sources will be sampled and tested before use in structural concrete.

Tests shall be made in accordance with the "Method of Test for Quality of Water to be Used in Concrete" (AASHTO Method T26), except where such methods conflict with provisions of this specification.

(3) Coarse Aggregate

Coarse aggregate shall consist of durable particles of gavel, crushed blast furnace slag, crushed stone, or combinations thereof; free from frozen material or injurious amount of salt, alkali, vegetable matter, or other objectionable material either free or as an adherent coating; and its quality shall be reasonably uniform throughout. It shall not contain more than 0.25 percent by weight of clay lumps, nor more than 1.0 percent by weight of shale, nor more than 5 percent by weight of laminated and/or friable particles when tested in accordance with TxDOT Test Method Tex-413-A. It shall have a wear of not more than 40 percent when tested in accordance with TxDOT Test Method Tex-410-A.

Unless otherwise specified on the plans, coarse aggregate will be subjected to five cycles of the soundness test in accordance with TxDOT Test Method Tex-411-A. The loss shall not be greater than 12 percent when sodium sulfate is used, or 18 percent when magnesium sulfate is used.

Permissible sizes of aggregate shall be governed by Table 4 and Table 1, except that when exposed aggregate surfaces are required, coarse aggregate gradation will be as specified on the plans.

When tested by approved methods, the coarse aggregate, including combinations of aggregates when used, shall conform to the grading requirements shown in Table 1.

TABLE 1
Coarse Aggregate Gradation Chart

Percent Retained on Each Sieve										
Aggregate Grade No.	**Nominal Size**	**2-1/2 In.**	**2 In.**	**1-1/2 In.**	**1 In.**	**3/4 In.**	**1/2 In.**	**3/8 In.**	**No. 4**	**No. 8**
1	2 in.	0	0 to 20	15 to 50		60 to 80			95 to 100	
2 (467)*	1-1/2 in.		0	0 to 5		30 to 65		70 to 90	95 to 100	
4 (57)*	1 in.			0	0 to 5		40 to 75		90 to 100	95 to 100
8	3/8 in.						0	0 to 5	24 to 80	90 to 100

*Numbers in parenthesis indicate conformance with ASTM C33.

The aggregate shall be washed. The Loss by Decantation (TxDOT Test Method Tex-406-A) plus the allowable weight of clay lumps, shall not exceed one percent, or the value shown on the plans, whichever is smaller.

(4) Fine Aggregate

Fine aggregate shall consist of clean, hard, durable, and uncoated particles of natural or manufactured sand or a combination thereof, with or without a mineral filler. It shall be free from frozen material or injurious amounts of salt, alkali, vegetable matter or other objectionable material and it shall not contain more than 0.5 percent by weight of clay lumps. When subjected to the color test for organic impurities (TxDOT Test Method Tex-408-A), it shall not show a color darker than standard.

The fine aggregate shall produce a mortar having a tensile strength equal to or greater than that of Ottawa sand mortar when tested in accordance with TxDOT Test Method Tex-317-D.

Where manufactured sand is used in lieu of natural sand for slab concrete subject to direct traffic, the acid insoluble residue of the fine aggregate shall be not less than 28 percent by weight when tested in accordance with TxDOT Test Method Tex-612-J.

When tested by approved methods, the fine aggregate or combination of aggregates, including mineral filler, shall conform to the grading requirements shown in Table 2.

TABLE 2
Fine Aggregate Gradation Chart

Percent Retained on Each Sieve								
Aggregate Grade No.	**3/8 In.**	**No. 4**	**No. 8**	**No. 16**	**No. 30**	**No. 50**	**No. 100**	**No. 200**
1	0	0 to 5	0 to 20	15 to 50	35 to 75	70 to 90	90 to 100	97 to 100

NOTE 1: Where manufactured sand is used in lieu of natural sand, the percent retained on the No. 200 sieve shall be 94 to 100.

NOTE 2: Where the sand equivalent value is greater than 85, the retainage on the No. 50 sieve may be 70 to 94 percent.

Fine aggregate will be subjected to the Sand Equivalent Test (TxDOT Test Method Tex-203-F). The sand equivalent shall not be less than 80 nor less than the value shown on the plans, whichever is greater.

For concrete Classes 'A' and 'C', the fineness modulus as defined below for fine aggregates shall be between 2.30 and 3.10.

The fineness modulus will be determined by adding the percentages by weight retained on the following sieves, and dividing by 100; Nos. 4, 8, 16, 30, 50 and 100.

(5) Mineral Filler

Mineral filler shall consist of stone dust, clean crushed sand, or other approved inert material.

(6) Mortar (Grout)

Mortar for repair of concrete shall consist of 1 part cement, 2 parts finely graded sand, and enough water to make the mixture plastic. When required to prevent color difference, white cement shall be added to produce the color required. When required by the Engineer, latex adhesive shall be added to the mortar.

(7) Admixtures

Calcium Chloride will not be permitted. Unless otherwise noted, air-entraining, retarding and water reducing admixtures may be used in all concrete and shall conform to the following requirements:

A "water-reducing, retarding admixture" is defined as a material which, when added to a concrete mixture in the correct quantity, will reduce the quantity of mixing water required to produce concrete of a given consistency and will retard the initial set of the concrete.

A "water-reducing admixture" is defined as a material which, when added to a concrete mixture in the correct quantity, will reduce the quantity of mixing water required to produce concrete of a given consistency.

(a) **Retarding and Water-Reducing Admixtures.** The admixture shall meet the requirements for Type A and Type D admixture as specified in ASTM Designation: C494, modified as follows:

(1) The water-reducing retarder shall retard the initial set of the concrete a minimum of 2 hours and a maximum of 4 hours, at a specified dosage rate, at a temperature of 90^0F.

(2) The cement used in any series of tests shall be either the cement proposed for specific work or a "reference" Type I cement from one mill.

(3) Unless otherwise noted on the plans, the minimum relative durability factor shall be 80.

The air-entraining admixture used in the referenced and test concrete shall be neutralized Vinsol resin.

(b) Air-Entraining Admixture. The admixture shall meet the requirements of ASTM Designation: C260, modified as follows:

(1) The cement used in any series of tests shall be either the cement proposed for specific work or a "reference". Type I cement from one mill.

(2) Unless otherwise noted on the plans, the minimum relative durability factor shall be 80.

The air-entraining admixture used in the referenced concrete shall be neutralized Vinsol resin.

3. STORAGE OF CEMENT

All cement shall be stored in well-ventilated weatherproof buildings or approved bins, which will protect it from dampness or absorption of moisture. Storage facilities shall be ample, and each shipment of packaged cement shall be kept separated to provide easy access for identification and inspection.

The Engineer may permit small quantities of sacked cement to be stored in the open for a maximum of 48 hours on a raised platform and under waterproof covering.

4. STORAGE OF AGGREGATE

The method of handling and storing concrete aggregate shall prevent contamination with foreign materials. If the aggregates are stored on the ground, the sites for the stockpiles shall be clear of all vegetation and level. The bottom layer of aggregate shall not be disturbed or used without recleaning.

When conditions require the use of two or more sizes of aggregates, they shall be separated to prevent intermixing. Where space is limited, stockpiles shall be separated by physical barriers.

Methods of handling aggregates during stockpiling and subsequent use shall be such that segregation will be minimized.

Unless otherwise authorized by the Engineer, all aggregate shall be stockpiled at least 24 hours to reduce the free moisture content.

5. MEASUREMENT OF MATERIALS

The measurement of the materials, except water, used in batches of concrete, shall be by weight. The fine aggregate, coarse aggregate and mineral filler shall be weighed separately. Where bulk cement is used, it shall be weighed separately, but batch weighing of sacked cement will not be required. Where sacked cement is used, the quantities of material per batch shall be based upon using full bags of cement. Batches involving the use of fractional bags will not be permitted.

Allowance shall be made for the water content in the aggregates.

Bags of cement varying more than 3 percent from the specified weight of 94 pounds may be rejected, and when the average weight per bag in any shipment, as determined by weighing 50 bags taken at random, is less than the net weight specified, the entire shipment may be rejected. If the shipment is accepted, the Engineer will adjust the concrete mix to a net weight per bag fixed by an .average of all individual weights which are less than the average weight determined from the total number weighed.

6. CLASSIFICATION AND MIX DESIGN

It shall be the responsibility of the Contractor to furnish the mix design, using a coarse aggregate factor acceptable to the Engineer, for the class(es) of concrete specified. The mix shall be designed by a qualified concrete technician to conform with the requirements contained herein and in accordance with the THD Bulletin C-11. The Contractor shall perform, at his own expense, the work required to substantiate the design, except the testing of strength specimens, which will be done by the Engineer. Complete concrete design data shall be submitted to the Engineer for approval.

It shall also be the responsibility of the Contractor to determine and measure the batch quantity of each ingredient, including all water, so that the mix conforms to these specifications and any other requirements shown on the plans. Trial batches will be made and tested using all the proposed ingredients prior to placing the concrete, and when the aggregate and/or brand of cement or admixture is changed. Trial batches shall be made in the mixer to be used on the job. When transit mix concrete is to be used, the trial designs will be made in a transit mixer representative of the mixers to be used. Batch size shall not be less than 50 percent of the rated mixing capacity of the truck.

Mix designs from previous or concurrent jobs may be used without trial batches if it is shown that no substantial change in any of the proposed ingredients has been made.

The coarse aggregate factor shall not be more than 0.82, except that when the voids in the coarse aggregate exceed 48 percent of the total dry loose volume, the coarse aggregate factor shall not exceed 0.85. The coarse aggregate factor shall not be less than 0.70 for Grades 1, 2 and 3 aggregates.

If the strength required for the class of concrete being produced is not secured with the cement specified in Table 4, the Contractor may use an approved water-reducing or retarding admixture, or he shall furnish aggregates with different characteristics which will produce the required results. Additional cement may be required or permitted as a temporary measure until the redesign is checked.

Water-reducing or retarding agents may be used with all classes of concrete at the option of the Contractor.

Whenwater-reducing or retarding agents are used at the option of the Contractor, reduced dosage of the admixture will be permitted.

Entrained air will be required in accordance with Table 4. The concrete shall be designed to entrain 5 percent air when Grade 2 coarse aggregate is used and 6 percent when Grade 3 coarse aggregate is used. Concrete as placed in the structure shall contain the proper amount as required above with a tolerance of plus or minus 1.5 percentage points. Occasional variations beyond this tolerance will not be cause for rejection. When the quantity of entrained air is found to be above 7 percent with Grade 2 coarse aggregate or above 8 percent for Grade 3 coarse aggregate, additional test beams or cylinders will be made. If these beams or cylinders pass the minimum flexural or compressive requirements, the concrete will not be rejected because of the variation in air content.

7. CONSISTENCY

In cases where the consistency requirements cannot be satisfied without exceeding the maximum allowable amount of water, the Contractor may use, or the Engineer may require, an approved water reducing or retarding agent, or the Contractor shall furnish additional aggregates or aggregates with different characteristics, which will produce the required results. Additional cement may be required or permitted as a temporary measure until aggregates are changed and designs checked with the different aggregates or admixture.

The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface. When field conditions are such that additional moisture is needed for the final concrete surface finishing operation, the required water shall be applied to the surface by fog spray only and shall be held to a minimum. The concrete shall be workable, cohesive, possess satisfactory finishing qualities, and of the stiffest consistency that can be placed and vibrated into a homogenous mass. Excessive bleeding shall be avoided. Slump requirements will be as specified in Table 3.

TABLE 3
Slump Requirements

Concrete Designation Structural Concrete:	Desired Slump	Max. Slump
(1) Thin-Walled Sections (9" or less)	4 inches	5 inches
(2) Slabs, Caps, Columns, Piers, Wall Sections over 9", etc.	3 inches	4 inches
Underwater or Seal Concrete	5 inches	6 inches
Riprap, Curb, Gutter and Other Miscellaneous Concrete	2.5 inches	4 inches

NOTE: No concrete will be permitted with slump more than the maximums shown.

8. QUALITY OF CONCRETE

General

The concrete shall be uniform and workable. The cement content, maximum allowable water-cement ratio, the desired and maximum slump, and the strength requirements of the various classes of concrete shall conform to the requirements of Table 3 and Table 4 and as required herein.

During the process of the work, the Engineer or his designated representative will cast test cylinders or beams as a check on the compressive or flexural strength of the concrete placed. Test cylinders must be picked up by the testing lab within 24 hours.

A test shall be defined as the average of the breaking strength of two cylinders or two beams, as the case may be. Specimens will be tested in accordance with TxDOT Test Methods Tex-418-A or Tex-420-A.

Test beams or cylinders will be required as specified in the contract documents. For small placements on structures such as manholes, inlets, culverts, wingwalls, etc., the Engineer may vary the number of tests to a minimum of one for each 25 cubic yards placed over a several day period.

All test specimens, beams, or cylinders, representing tests for removal of forms and/or falsework shall be cured using the same methods, and under the same conditions as the concrete represented.

'Design Strength" beams and cylinders shall be cured in accordance with THD Bulletin C-11.

The Contractor shall provide and maintain curing facilities as described in THD Bulletin C-11 for the purpose of curing test specimens. Provision shall be made to maintain the water in the curing tank at temperatures between 70^0F and 90^0F.

When control of concrete quality is by twenty-eight-day compressive tests, job control will be by seven-day compressive tests which are shown to provide the required twenty-eight-day strength, based on results from trial batches. If the required seven-day strength is not secured with the cement specified in Table 4, changes in the batch design will be made.

TABLE 4

Classes Of Concrete

Class of Concrete	Sacks cement per C.Y. (min)	Minimum Compressive Strength (fc) 28-Day (psi)	Min. Beam Strength 7-Day (psi)	Maximum Water-Cement Ratio (gal/sack)	Coarse Aggregate No.
A*	5.0	3000	500***	6.5	2-4-8****
B*	4.5	2500	417	8.0	2-4-8****
C*	6.0	3600	600***	6.0	1-2-4**
D	6.0	3000	500	7.0	2-4
S	6.5	4000	570	5.0	2-4

*Entrained Air (slabs, piers, and bent concrete).
**Grade 1 Coarse Aggregate may be used in foundation only (except cased drilled shafts).
***When Type II Cement is used with Class C Concrete, the 7-day beam break requirement will be 550 psi; with Class A Concrete, the minimum 7-day beam break requirement will be 460 psi.
****Permission to use Grade 8 Aggregate must have prior approval of the Engineer.

9. MIXING CONDITIONS

The concrete shall be mixed in quantities required for immediate use. Any concrete which is not in place within the limits outlined in City Standard Specification Section 038000 "Concrete Structures", Article "Placing Concrete-General", shall not be used. Retamping of concrete will not be permitted.

In threatening weather, which may result in conditions that will adversely affect the quality of the concrete to be placed, the Engineer may order postponement of the work. Where work has been started and changes in weather conditions require protective measures, the Contractor shall furnish adequate shelter to protect the concrete against damage from rainfall, or from freezing temperatures. If necessary to continue operations during rainfall, the Contractor shall also provide protective coverings for the material stockpiles. Aggregate stockpiles need be covered only to the extent

extent necessary to control the moisture conditions in the aggregates to adequately control the consistency of the concrete.

10. MIXING AND MIMNG EQUIPMENT

All equipment, tools, and machinery used for hauling materials and performing any part of the work shall be maintained in such condition to insure completion of the work underway without excessive delays for repairs or replacements.

The mixing shall be done in a batch mixer of approved type and size that will produce uniform.

distribution of the material throughout the mass. Mixers may be either the revolving drum type or the revolving blade type and shall be capable of producing concrete meeting the requirements of these specifications.

After all the ingredients are assembled in the drum, the mixing shall continue not less than 1 minute for mixers of one cubic yard or less capacity plus 15 seconds for each additional cubic yard or portion thereof.

The mixer shall operate at the speed and capacity designated by the Mixer Manufacturers Bureau of the Associated General Contractors of America. The mixer shall have a plate affixed showing the manufacturer's recommended operating data.

The absolute volume of the concrete batch shall not exceed the rated capacity of the mixer.

The entire contents of the drum shall be discharged before any materials are placed therein for the succeeding batch.

The first batch of concrete materials placed in the mixer for each placement shall contain an extra quantity of sand, cement, and water sufficient to coat the inside surface of the drum.

Upon the cessation of mixing for any considerable length of time, the mixer shall be thoroughly cleaned.

The concrete mixer shall be equipped with an automatic timing device which is put into operation when the skip is raised to its full height and dumping. This device shall lock the discharging mechanism and prevent emptying of the mixer until all the materials have been mixed for the minimum time required, and it shall ring a bell after the specified time of mixing has elapsed.

The water tank shall be arranged so that the amount of water can be measured accurately, and when the tank starts to discharge, the inlet supply shall cut off automatically.

Whenever a concrete mixer is not adequate or suitable for the work, it shall be removed from the site upon a written order from the Engineer and a suitable mixer provided by the Contractor.

Pick-up and thro-over blades in the drum of the mixer which are worn down more than 10 percent in depth shall be repaired or replaced with new blades.

Improperly mixed concrete shall not be placed in the structure.

Job mix concrete shall be concrete mixed in an approved batch mixer in accordance with the requirements stated above, adjacent to the structure for which the concrete is being mixed and moved to the placement site in non-agitating equipment.

11. READY-MIX PLANTS

A. General. It shall be the Contractor's responsibility to furnish concrete meeting all requirement of the governing specification sections, and concrete not meeting the slump, workability and consistency requirements of the governing specification sections shall not be placed in the structure or pavement.

Ready-Mixed Concrete shall be mixed and delivered by means of one of the following approved methods.

(1) Mixed completely in a stationary mixer and transported to the point of delivery in a truck agitator or a truck mixer operating at tuck agitator or tuck mixer agitation speed. (Central-Mix Concrete)

(2) Mixed complete in a tuck mixer and transported to the placement site at mixing and/or agitating speed (Transit-Mix Concrete), subject to the following provisions:

(a) Truck mixers will be permitted to transport concrete to the job site at mixing speed if equipped with double actuated counters which will separate revolutions at mixing speed from total revolutions.

(b)Truck mixers equipped with a single actuated counter counting total revolutions of the drum shall mix the concrete at the plant not less than 50 nor more than 70.

revolutions at mixing speed, transport it to the job site at agitating speed and complete the required mixing before placing the concrete.

(3) Mixed completely in a stationery mixer and transported to the job site in approved non-agitating. trucks with special bodies. This method of transporting will be permitted for concrete pavement only.

B. Equipment.

(1) **Batching Plant**. The batching plant shall be provided with adequate bins for batching all aggregates and materials required by the specifications.

Bulk cement shall be weighed on a scale separate from those used for other materials and in a hopper entirely free and independent of that used for weighing the aggregates.

(2) **Mixers and Agitators.**

(a) **General:** Mixers shall be of an approved stationary or truck-type capable of combining the ingredients into a thoroughly mixed and uniform mass.

Facilities shall be provided to permit ready access to the inside of the drum for inspection, cleaning, and repair of blades.

Mixers and agitators shall be subject to daily examination for changes in condition due to accumulation of hardened concrete and/or wear of blades, and any hardened concrete shall be removed before the mixer will be permitted to be used. Worn blades shall be repaired or replaced with new in accordance with the manufacturer's design and arrangement for that particular unit when any part or section is worn as much as 10 percent below the original height of the manufacturer's design.

(b) **Stationary Mixers:** These shall conform to the requirements of Article "Mixing and Mixing Equipment". Truck mixers mounted on a stationary base will not be considered as a stationary mixer.

(c) **Truck Mixers:** In addition, truck mixers shall comply with the following requirements:

An engine in satisfactory working condition and capable of accurately gauging the desired speed of rotation shall be mounted as an integral part of the mixing unit for the purpose of rotating the drum. Truck mixers equipped with a transmission that will govern the speed of the drum within the specified revolutions per minute (rpm) will not require a separate engine.

All tuck mixers shall be equipped with actuated counters by which the proper number of revolutions of the drum, as specified in Article 11. A. above, may be readily verified. The counters shall be read and recorded at the start of mixing at mixing speeds.

Each until shall have adequate water supply and accurate metering or gauging devices for measuring the amount used.

(d) **Agitators:** Concrete agitators shall be of the truck type, capable of maintaining a thoroughly mixed and uniform concrete mass and discharging it within the same degree of uniformity specified for mixers. Agitators shall comply with all the requirements for truck mixers, except for the actual mixing requirements.

C. **Operation of Plant and Equipment.**

Delivery of ready-mixed concrete shall equal or exceed the rate approved by the Engineer for continuous placement. In all cases, the delivery of concrete to the placement site shall assure compliance with the time limits in the applicable specification for depositing successive batches in any monolithic unit.

The Contractor shall satisfy the Engineer that adequate standby trucks are available.

A standard ticket system will be used for recording concrete batching, mixing and delivery date.

Tickets will be delivered to the job inspector.

Loads arriving without a ticket and/or in unsatisfactory condition shall not be used.

When a stationary mixer is used for the entire mixing operation, the mixing time for one cubic yard of concrete shall be one minute plus 15 seconds for each additional cubic yard or portion thereof. This mixing time shall start when all cement, aggregates and initial water have entered the drum.

The mixer shall be charged so that some of the mixing water will enter the drum in advance of the cement and aggregate. All the mixing water shall be in the drum by the end of the first one-fourth of the specified mixing time. Water used to flush down the blades after charging shall be accurately measured and included in the quantity of mixing water. The introduction of the initial mixing water, except blade wash down water and that permitted in this Article, shall be prior to or simultaneous with the charging of the aggregates and cement.

The loading of truck mixers shall not exceed 63 percent of the total volume of the drum. When used as an agitator only, the loading shall not exceed 80 percent of the drum volume.

When Ready-Mix Concrete is used, additional mortar (one sack cement, three parts sand and sufficient water) shall be added to the batch to coat the drum of the mixer or agitator tuck, and this shall be required for every load of Class C concrete only and for the first batch from central mix plants.

A portion of the mixing water, required by the batch design to produce the desired slump, may be withheld, and added at the job site, but only with permission of the Engineer and under his supervision. When water is added under the above conditions, it shall be thoroughly mixed as specified below for water added at the job site.

Mixing speed shall be attained as soon as all ingredients are in the mixer, and each complete batch (containing all the required ingredients) shall be mixed not less than 70 nor more than 100 revolutions of the drum at mixing speed except that when water is added at the job site, 25 revolutions (minimum) at mixing speed will be required to uniformly disperse the additional water throughout the mix. Mixing speed shall be as designated by the manufacturer.

All revolutions after the prescribed mixing time shall be at agitating speed. The agitating speed shall be not less than one (1) nor more than five (5) rpm. The drum shall be kept in continuous motion from the time mixing is started until the discharge is completed.

12. PLACING, CURING AND FINISHING

The placing of concrete, including construction of forms and falsework, curing and finishing, shall be in accordance with City Standard Specification Section 038000 "Concrete Structures".

13. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, the quantities of concrete of the various classifications which will constitute the completed and accepted structure(s) in-place will be measured by the cubic yard, per each, square foot, square yard, or linear foot, as the case may be. Measurement will be as shown on the drawings and/or in the Bid Form.

Payment shall be full compensation for furnishing, hauling, mixing, placing, curing, and finishing all concrete; all grouting and pointing; furnishing and placing drains; furnishing and placing metal flashing strips; furnishing and placing expansion joint material required by this specification or shown on the plans; and for all forms and falsework, labor, tools, equipment, and incidentals necessary to complete the work.

END OF SECTION

SECTION 032020
REINFORCING STEEL

1. DESCRIPTION

This specification shall govern the furnishing and placing of reinforcing steel, deformed and smooth, of the size and quantity designated on the plans and in accordance with these specifications.

2. MATERIALS

Unless otherwise designated on the plans, all bar reinforcement shall be deformed, and shall conform to ASTM Designation: A 615, Grades 60 or 75, and shall be open hearth, basic oxygen, or electric furnace new billet steel.

Large diameter new billet steel (Nos. 14 and 18), Grade 75, will be permitted for straight bars only.

Where bending of bar sizes No. 14 or No. 18 of Grade 60 is required, bend testing shall be performed on representative specimens as described for smaller bars in the applicable ASTM Specification. The required bend shall be 90 degrees around a pin having a diameter of 10 times the nominal diameter of the bar.

Spiral reinforcement shall be smooth (not deformed) bars or wire of the minimum diameter shown on the plans and shall be made by one or more of the following processes: open hearth, basic oxygen, or electric furnace. Bars shall be rolled from billets reduced from ingots and shall comply with ASTM Designation: A 306, Grade 65 minimum (references to ASTM Designation: A 29 is voided). Dimensional tolerances shall be in accordance with ASTM Designation: A 615, or ASTM DesiB1ation: A 615, Grade 60, except for deformations. Wire shall be cold-drawn from rods that have been hot-rolled from billets and shall comply with ASTM Designation: A 185.

In cases where the provisions of this specification conflict with the provisions of the ASTM Designation to which reference is made, the provisions of this specification shall govern.

Report of chemical analysis showing the percentages of carbon, manganese, phosphorus and sulfur will be required for all reinforcing steel when it is to be welded.

The nominal size and area and the theoretical weight of reinforcing steel bars covered by this specification are as follows:

Bar Size Number	Nominal Diameter, In.	Nominal Area, Sq. In.	Weight per Linear Foot, Pounds
2	0.250	0.050	0.167
3	0.375	0.110	0.376
4	0.500	0.200	0.668
5	0.625	0.310	1.043
6	0.750	0.440	1.502
7	0.875	0.600	2.044
8	1.000	0.790	2.670
9	1.128	1.000	3.400
10	1.270	1.270	4.303
11	1.410	1.560	5.313
14	1.693	2.250	7.600

Smooth round bars shall be designated by size number through No. 4. Smooth bars larger than No. 4 shall be designated by diameter in inches.

When wire is ordered by gauge numbers, the following relation between gauge number and diameter, in inches, shall apply unless otherwise specified:

Gauge Number	Equivalent Diameter, Inches	Gauge Number	Equivalent Diameter, Inches
0	0.3065	8	0.1620
1	0.2830	9	0.1483
2	0.2625	10	0.1350
3	0.2437	11	0.1205
4	0.2253	12	0.1055
5	0.2070	13	0.0915
6	0.1920	14	0.0800
7	0.1770		

1. BENDING

The reinforcement shall be bent cold, true to the shapes indicated on the plans. Bending shall preferably be done in the shop. Irregularities in bending shall be cause for rejection.

Unless otherwise shown on the plans, the inside diameter of bar bends, in terms of the nominal bar diameter (d), shall be as follows:

Bends of 90 degrees and greater in stirrups, ties and other secondary bars that enclose another bar in the bend:

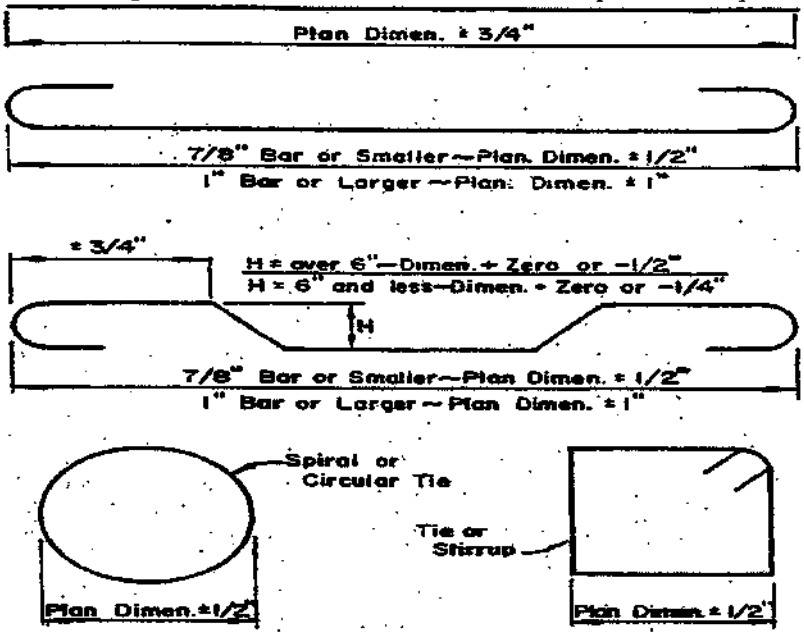
	Grade 60
#3, #4, #5	4d
#6, #7, #8	5d

All bends in main bars and in secondary bars not covered above:

	Grade 60	Grade75
#3 thru #8	6d	--
#9, #10	8d	--
#11	8d	8d
#14, #18	10d	--

2. TOLERANCES

Fabricating tolerances for bars shall be within 3 percent of specified or as follows:



1. STORING

Steel reinforcement shall be stored above the surface of the ground upon platforms, skids or other supports, and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust. When placed in the work, reinforcement shall be free from dirt, paint, grease, oil, or other foreiB1 materials. Reinforcement shall be free from injurious defects such as cracks and laminations. Rust, surface seams, surface irregularities or mill scale will not be cause for rejection, provided the minimum dimensions, cross sectional area and tensile properties of a hand wire crushed specimen meets the physical requirements for size and grade of steel specified.

2. SPLICES

No splicing of bars, except when provided on the plans or specified herein, will be permitted without written approval of the Engineer.

Splices will not be permitted in main reinforcement at points of maximum stress. When permitted in main bars, splices in adjacent bars shall be staggered a minimum of two splice lengths.

TABLE 1
Minimum Lap Requirements

Lap		Uncoated	Coated
Lap in inches	≥	40d	60d

Where: d = bar diameter in inches

Welding of reinforcing bars may be used only where shown on the plans or as permitted herein. All welding operations, processes, equipment, materials, workmanship and inspection shall conform to the requirements of the drawings and industry standards. All splices shall be of such dimension and character as to develop the full strength of bar being spliced.

End preparation for butt welding reinforcing bars shall be done in the field. Delivered bars shall be of sufficient length to permit this practice.

For box culvert extensions with less than one foot of fill, the existing longitudinal bars shall have a 20-diameter lap with the new bars. For box culvert extensions with more than one foot of fill, a minimum of 6 inches lap will be required.

Unless otherwise shown on the plans, dowel bars transferring tensile stresses shall have a minimum embedment equal to the minimum lap requirements shown in Table 1. Shear transfer dowels shall have a minimum embedment of 12 inches.

1. PLACING

Reinforcement shall be placed as near as possible in the position shown on the plans. Unless otherwise shown on the plans, dimensions shown for reinforcement are to the centers of the bars. In the plane of the steel parallel to the nearest surface of concrete, bars shall not vary from plan placement by more than one-twelfth of the spacing between bars. In the plane of the steel perpendicular to the nearest surface of concrete, bars shall not vary from plan placement by more than one-quarter inch. The cover of concrete to the nearest surface of steel shall meet the above requirements but shall never be less than one inch or as otherwise shown on the plans.

Vertical stirrups shall always pass around the main tension members and be attached securely thereto. The reinforcing steel shall be spaced its required distance from the form surface by means of approved galvanized metal spacers, metal spacers with plastic coated tips, stainless steel spacers, plastic spacers, or approved pre-cast mortar or concrete blocks. For approval of plastic spacers on the project, representative samples of the plastic shall show no visible indications of deterioration after immersion in a 5 percent solution of sodium hydroxide for 120 hours.

All reinforcing steel shall be tied at all intersections, except that where spacing is less than one foot in each direction, alternate intersections only need be tied.

Before any concrete is placed, all mortar shall be cleaned from the reinforcement. Precast mortar or concrete blocks to be used for holding steel in position adjacent to formed surfaces shall be cast in molds meeting the approval of the Engineer and shall be cured by covering with wet burlap or cotton.

mats for a period of 72 hours.

The blocks shall be cast in the form of a frustum of a cone or pyramid with the smaller face placed against the forms.

A suitable tie wire shall be provided in each block, to be used for anchoring to the steel. Except in unusual cases, and when specifically, otherwise authorized by the Engineer, the size of the surface to be placed adjacent to the forms shall not exceed two and one-half inches square or the equivalent thereof in cases where circular or rectangular areas are provided. Blocks shall be cast accurately to the thickness required, and the surface to be placed adjacent to the forms shall be a true plane free of surface imperfections.

Reinforcement shall be supported and tied in such manner that a sufficiently rigid case of steel is provided. If the cage is not adequately supported to resist settlement or floating upward of the steel, overturning of truss bars or movement in any direction during concrete placement, permission to continue concrete placement will be withheld until corrective measures are taken. Sufficient measurements shall be made during concrete placement to ensure compliance with the first paragraph of Article 7 of this specification.

Mats of wire fabric shall overlap each other sufficiently to maintain a uniform strength and shall be fastened securely at the ends and edges.

No concrete shall be deposited until the Engineer has inspected the placement of the reinforcing steel and given permission to proceed.

8. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, reinforcing steel is considered subsidiary to the various items shown in the Bid Form and shall not be measured and paid for as a separate item.

END OF SECTION

SECTION 037040
EPOXY COMPOUNDS (S-44)

1. DESCRIPTION

This specification shall govern all work necessary to provide and apply Epoxy compounds.

2. MATERIALS (USETYPE)

Epoxy Bonding Compound for bonding new concrete to hardened concrete or other structural material: Epoxy Bonding Compound shall be a two component, 100 %6 solids, moisture insensitive system. Epoxy shall be "FX— 752 Bonding Agent" as manufactured by Fox Industries Inc. of Baltimore, Maryland or "Sikastix 370, Sikadur Hi —Mod" as manufactured by Sika Chemical Corporation of Lyndhurst, New Jersey or approved equal.

Epoxy. Grout for Epoxy patch on non—horizontal surfaces to concrete: Epoxy Compound shall be a low—modulus, high viscosity, moisture insensitive system. Epoxy shall be "Sikastix 3 60, Skadur Lo—Mod Gel" as manufactured by Sika Chemical Corporation or approved equal.

3. CONSTRUCTION METHODS

Bond new concrete to existing concrete:

Surface Preparation: The existing concrete or structural surface to which the new concrete is to be bonded shall be cleaned. The existing surface shall be made free from dust, laitance, grease, curing compounds, waxes and all foreign material. Cleaning shall be done by sandblasting, mechanical abrasion, or (by washing only if authorized by the Engineer). During application of bonding compound, surface may be dry, moist, or wet, but surface shall be free of standing water.

Proportioning and Mixing: The epoxy shall be proportioned and mixed in strict accordance with the manufacturer's instructions. The epoxy shall be used in a neat condition (without aggregate filler).

Application of Epoxy: The epoxy bonding compound shall be applied to the prepared surface with the minimum allowable coverages as follows:

Concrete (float finished, cleaned by washing) 75 SF/gal.

Concrete (rough finish, cleaned by sandblast or mechanical abrasion) 50 SF/gal.

Other surfaces as specified on the drawings.

Concrete Overlay: The concrete overlay shall be in accordance with the drawings or 030020 of standard specifications. The concrete overlay shall be applied over the epoxy within a period of time which SHALL NOT EXCEED 60 %6 of the tack free time of the epoxy.

It is important for the Contractor to note that these times vary with the temperature and pot time. The following allowable times (60% of tack free time, where the tack free time is the period of

time from initial mixing of the two components until the thin film of epoxy hardens) are provided below. The allowable times must be determined from the tack free times which are provided by the manufacturer. The following allowable times are averages and provided only as an aid to the Contractor:

Temperature	Allowable Elapse Time from Mixing Epoxy Until Placing Concrete Overlay
900F	40 min.
800F	12 hrs.
700F	22 hrs.
600F	32 hrs.

If the allowable period of time is allowed to elapse before concrete overlay can be placed, another layer of epoxy shall be applied prior to placement of the concrete.

Epoxy Grout for patch to non—horizontal surfaces to concrete:

Surface Preparation: The surface shall be prepared as described in section "Surface Preparation" of "Bond new concrete to existing concrete".

Proportioning and Mixing: The epoxy shall be proportioned and mixed in strict accordance with the manufacturer instruction. The epoxy may be mixed with dry masonry sand. Sand shall conform to A. S.T. M. C—144 with 100 $^{9}6$ passing a No. 8 sieve and not more than 15% to 35% passing a No. 50 mesh sieve. The amount of sand filler shall not exceed 3/4 to 1 (loose sand to epoxy by volume).

Application: Epoxy shall be applied in strict accordance with manufacturer instructions. Area adjacent to work shall be cleaned free of epoxy spills to provide a neat appearance before work will be accepted.

4. GENERAL PRECAUTION

The Contractor is advised to become familiar with the type of epoxy, method of application, and its basic limitations prior to using the epoxy.

5. MEASUREMENT AND PAYMENT

Unless indicated otherwise in the Proposal, Epoxy Compounds shall be considered subsidiary to the appropriate bid item.

END OF SECTION

SECTION 038000
CONCRETE STRUCTURES

1. DESCRIPTION

This specification shall govern for construction of all types of structures involving the use of structural concrete, except where the requirements are waived or revised by other governing specifications.

All concrete structures shall be constructed in accordance with the design requirements and details shown on the plans; in conformity with the pertinent provisions of the items contracted for; the incidental specifications referred to; and in conformity with the requirements herein.

2. MATERIALS

(1) Concrete. All concrete shall conform to the provisions of City Standard Specification Section 030020 "Portland Cement Concrete".

The class of concrete for each type of structure or unit shall be as specified on the plans or by pertinent governing specifications.

(2) Expansion Joint Material.

(a) Preformed Fiber Material. Preformed fiber expansion joint material shall be of the dimensions shown on the plans. The material shall be one of the following types, unless otherwise noted on the plans:

1. **Preformed Bituminous Fiber Materials** shall meet the requirements of ASTM Designation: DI 751 "Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)".

2. **Preformed Non-Bituminous Fiber Material** shall meet the requirements of ASTM Designation: DI 751 "Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types) ", except that the requirements pertaining to bitumen content, density and water absorption shall be voided.

3. **Redwood.**

(b) Joint Sealing Materials. Unless otherwise shown in the drawings, joint sealing material shall conform to the following requirements. The material shall adhere to the sides of the concrete joint or crack and shall form an effective seal against infiltration of water and incompressible. The material shall not crack or break when exposed to low temperatures.

Class I-a. (Two-Component, Synthetic Polymer, Cold-Extruded Type). Curing is to be by polymerization and not by evaporation of solvent or fluxing of harder particles. This type is specifically designed for vertical or sloping joints and hence not self-leveling. It shall cure sufficiently at an average temperature of 77 degrees F ± 3 degrees F in a maximum of 24 hours. For performance requirements see under 2.(2)(b)2. below.

Class I-b. (Two-Component, Synthetic Polymer, Cold-Pourable, Self-Leveling Type). Curing is to be by polymerization and not by evaporation of solvent or fluxing of harder particles. It shall cure sufficiently at an average temperature of 77 degrees F ± 3 degrees F in a maximum of 3 hours.

Performance Requirements: Class I-a and Class I-b joint materials, when tested in accordance with TxDOT Test Method Tex-525-C, shall meet the above curing times and the following requirements:

It shall be of such consistency that it can be mixed and poured, or mixed and extruded into joints at temperatures above 60 degrees F.

Penetration, 77° F . :	
150 gm. cone, 5 sec., max, cm	0.90
Bond and Extension 75%, O° F, 5 cycles:	
Dry Concrete Blocks	Pass
Wet Concrete Blocks	Pass
Steel Blocks...(Primed if specified by manuf.).	Pass
Flow at 200° F	None
Water Content % by weight, max	5.0
Resilience:	
Original sample min. % (cured)	50
Oven aged at 158° F min. %	50
For Class 2-a Material Only:	
Cold Flow (10 min.)	None

(c) **Asphalt Board**. Asphalt Board shall consist of two liners of 0.016-inch asphalt impregnated paper, filled with a mastic mixture of asphalt and vegetable fiber and/or mineral filler. Boards shall be smooth, flat, and sufficiently rigid to permit installation. When tested in accordance with TxDOT Test Method Tex-524-C, the asphalt board shall not deflect from the horizontal more than one inch in three and one-half inches (1 " in 3 h').

(d) **Rebonded Neoprene Filler**. Rebonded neoprene filler shall consist of ground closed-cell neoprene particles, rebonded and molded into sheets of uniform thickness, of the dimensions shown on plans.

Filler material shall have the following physical properties and shall meet the requirements of ASTM Designation: D 1752 "Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction", Type 1, where applicable:

PROPERTY	METHOD	REQUIREMENT
Color	ASTM DI 752,Type 1	Black
Density	ASTM D1752, Type 1	40 lb./ft^3 Min.
Recovery	ASTM DI 752,Type 1	90%Min.
Compression	ASTM D1752,Type 1	50 to 500 psi
Extrusion	ASTM DI 752, Type 1	0.25-inch Max.
Tensile Strength	ASTM D1752, Type 1	20 psi Min.
Elongation		75% Min.

The manufacturers shall furnish the Engineer with certified test results as to compliance with the above requirements and a 12-inch x 12-inch x 1 inch sample from the shipment for approval.

(3) **Curing Materials.**

(a) Membrane curing materials shall comply with ASTM Designation: C 309 "Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete", Type 1 clear or translucent, or Type 2 white-pigmented. The material shall have a minimum flashpoint of 80 degrees F when tested by the "Pensky-Martin Closed Cup Method".

It shall be of such consistency that it can be satisfactorily applied as a fine mist through an atomizing nozzle by means of approved pressure spraying equipment at atmospheric temperatures above 40 degrees F.

It shall be of such nature that it will not produce permanent discoloration of concrete surfaces nor react deleteriously with the concrete or its components. Type 1 compound shall contain a fugitive dye that will be distinctly visible not less than 4 hours nor more than 7 days after application. The compound shall produce a firm, continuous, uniform moisture impermeable film free from pinholes and shall adhere satisfactorily to the surfaces of damp concrete. It shall, when applied to the damp concrete surface at the rate of coverage specified herein, be dry to the touch in not more than 4 hours and shall adhere in a tenacious film without running off or appreciable sagging. It shall not disintegrate, check, peel, or crack during the required curing period.

The compound shall not peel or pick up under traffic and shall disappear from the surface of the concrete by gradual disintegration.

The compound shall be delivered to the job only in the manufacturer's original containers, which shall be clearly labeled with the manufacturer's name, the trade name of the material, and a batch number or symbol with which test samples may be correlated.
The water retention test shall be in accordance with TxDOT Test Method Tex-219-F. Percentage loss shall be defined as the water lost after the application of the curing material was applied. The permissible percentage moisture loss (at the rate of coverage specified herein) shall not exceed the following:

24 hours after application.....2 percent
72 hours after application.....4 percent

Type I (Resin Base Only) curing compound will be permitted for slab concrete in bridge decks and top slabs of direct traffic culverts.

(b) Mat curing of concrete is allowed where permitted by Table 1 in this specification or where otherwise approved by the Engineer.

3. EXPANSION JOINTS

Joints and devices to provide for expansion and contraction shall be constructed where and as indicated herein or on the plans.

All open joints and joints to be filled with expansion joint material, shall be constructed using forms adaptable to loosening or early removal. To avoid expansion or contraction damage to the adjacent concrete, these forms shall be loosened as soon as possible after the final concrete is set to permit free movement without requiring full form removal.

Prior to placing the sealing material, the vertical facing the joint shall be cleaned of all laitance by sandblasting or by mechanical routing. Cracked or spalled edges shall be repaired. The joint shall be blown clean of all foreign material and sealed. Where preformed fiber joint material is used, it shall be anchored to the concrete on one side of the joint by light wire or nails, to prevent the material from falling out. The top one inch (1") of the joint shall be filled with joint sealing material.

Finished joints shall conform to the indicated outline with the concrete sections completely separated by the specified opening or joint material.

Soon after form removal and again where necessary after surface finishing, all projecting concrete shall be removed along exposed edges to secure full effectiveness of the expansion joints.

4. CONSTRUCTION JOINTS

The joint formed by placing plastic concrete in direct contact with concrete that has attained its initial set shall be deemed a construction joint. The term "monolithic placement" shall be interpreted to mean at the manner and sequence of concrete placing shall not create construction joints.

Construction joints shall be of the type and at the locations shown on the plans. Additional joints will not be permitted without written authorization from the Engineer, and when authorized, shall have details equivalent to those shown on the plans for joints in similar locations.

Unless otherwise provided, construction joints shall be square and normal to the forms. Bulkheads shall be provided in the forms for all joints, except when horizontal.

Construction joints requiring the use of joint sealing material shall be as detailed on the plans. The material will be specified on the plans without reference to joint type.

A concrete placement terminating at a horizontal construction joint shall have the top surface roughened thoroughly as soon as practicable after the initial set is attained. The surfaces at bulkheads shall be roughened as soon as the forms are removed.

The hardened concrete surface shall be thoroughly cleaned of all loose material, laitance, dirt or foreign material, and saturated with water so it is moist when placing fresh concrete against it. Forms shall be drawn tight against the placing of the fresh concrete.

5. FORMS

(1) General. Except where otherwise specified, forms may be of either timber or metal.

Forms for round columns exposed to view shall be of steel, except that other materials will be allowed with written permission of the Engineer.

Forming plans shall be submitted to the Engineer for approval as specified. Forms shall be designed for the pressure exerted by a liquid weighing 150 pounds per cubic foot. The rate of placing the concrete shall be taken into consideration in determining the depth of the equivalent liquid. For job fabricated forms, an additional live load of 50 pounds per square foot shall be allowed on horizontal surfaces. The maximum unit stresses shall not exceed 125 percent of the allowable stresses used by the Texas Department of Transportation for the design of structures.

Commercially produced structural units used in formwork shall not exceed the manufacturer's maximum allowable working load for moment, shear, or end reaction. The maximum working load shall include a live load of 35 pounds per square foot of horizontal form surface, and sufficient details and data shall be submitted for use in checking formwork details for approval.

Forms shall be practically mortar-tight, rigidly braced, and strong enough to prevent bulging between supports and maintained to the proper line and grade during concrete placement. Forms shall be maintained in a manner that will prevent warping and shrinkage.

Offset at form joints shall not exceed one-sixteenth of an inch (1/16").

Deflections due to cast-in-place slab concrete and railing shown in the dead load deflection diagram shall be considered in the setting of slab forms.

All forms and footing areas shall be cleaned of any extraneous matter before placing concrete.

Permission to place concrete will not be given until all such work is completed to the satisfaction of the Engineer.

If, at any stage of the work, the forms show signs of bulging or sagging, the portion of the concrete causing such a condition shall be removed immediately, if necessary, and the forms shall be reset and securely braced against further movement.

(2) Timber Forms. Lumber for forms shall be properly seasoned, of good quality, and free from imperfections which would affect its strength or impair the finished surface of the concrete. The lumber used for facing or sheathing shall be finished on at least one side and two edges and shall be sized to uniform thickness.

Form lining will be required for all formed surfaces, except for the inside of culvert barrels, inlets, and manholes; surfaces that are subsequently covered by backfill material or are completely enclosed; and any surface formed by a single finished board. Lining will not be required when plywood forms are used.

Form lining shall be of an approved type such as Masonite or plywood. Thin membrane sheeting, such as polyethylene sheets, shall not be used to form lining.

Forms may be constructed of plywood not less than one-half inch in thickness, with no form lining required. The grain of the face plies on plywood forms shall be placed parallel to the span between the supporting studs or joists.

Plywood used for forming surfaces that remain exposed shall be equal to that specified as B-B Plyform Class I or Class II Exterior, of the U. S. Department of Commerce, National Bureau of Standards and Technology, latest edition.

Forms or form lumber to be reused shall be maintained clean and in good condition. Any lumber which is split, warped, bulged, marred, or has defects that will produce inferior work, shall not be used and, if condemned, shall be promptly removed from the work.

Studs and joists shall be spaced so that the facing form material remains in true alignment under the imposed loads.

Wales shall be spaced close enough to hold forms securely to the designated lines and scabbed at least 4 feet on each side of joints to provide continuity. A row of wales shall be placed near the bottom of each placement.

Facing material shall be placed with parallel and square joints and securely fastened to supporting studs.

Forms for surfaces receiving only an ordinary finish and exposed to view shall be placed with the form panels symmetrical, i.e., long dimensions set in the same direction. Horizontal joints shall be continuous.

Molding specified for chamfer strips or other uses shall be made of materials of a grade that will not split when nailed and which can be maintained to a true line without warping. Wood molding shall be mill cut and dressed on all faces. Unless otherwise provided, forms shall be filleted at all sharp corners and edges with triangular chamfer strips measuring three-quarter inch (3/4") on the sides.

Forms for railing and ornamental work shall be constructed to standards equivalent to first-class millwork. All moldings, panel work and bevel strips shall be straight and true with nearly mitered joints designed so the finished work is true, sharp, and clean cut.

All forms shall be constructed to permit their removal without marring or damaging the concrete. The forms may be given a slight draft to permit ease of removal.

Metal form ties of an approved type or a satisfactory substitute shall be used to hold forms in place and shall be of a type that permits ease of removal of the metal as hereinafter specified.

All metal appliances used inside of forms for alignment purposes shall be removed to a depth of at least one-half inch (1/2") from the concrete surface. They shall be made so the metal may be removed without undue chipping or spalling, and when removed, shall leave a smooth opening in the concrete surface. Burning off rods, bolts or ties will not be permitted.

Any wire ties used shall be cut back at least one-half inch (1/2") from the face of the concrete.

Devices holding metal ties in place shall be capable of developing the strength of the tie and adjustable to allow for proper alignment.

Metal and wooden spreaders which are separate from the forms shall be removed entirely as the concrete is being placed.

Adequate clean-out openings shall be proved for narrow walls and other locations where access to the bottom of the forms is not readily attainable.

Prior to placing concrete, the facing of all forms shall be treated with oil or other bond breaking coating of such composition that it will not discolor or otherwise injuriously affect the concrete surface. Care shall be exercised to prevent coating of the reinforcing steel.

(3) **Metal Forms**. The foregoing requirements for timber forms regarding design, mortar-tightness, filleted corners, beveled projections, bracing, alignment, removal, reuse, and wetting shall also apply to metal forms, except that these will not require lining, unless specifically noted on the plans.

The thickness of form metal shall be as required to maintain the true shape without warping or bulging. All bolt and rivet heads on the facing sides shall be countersunk. Clamps, pins, or other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or line up properly shall not be used. Metal shall be kept free from rust, grease, or other foreign materials.

6. PLACING REINFORCEMENT

Reinforcement in concrete structures shall be placed carefully and accurately and rigidly supported as provided in the City Standard Specification Section 032020 "Reinforcing Steel". Reinforcing steel supports shall not be welded to I-beams or girders.

7. PLACING CONCRETE-GENERAL

The minimum temperature of all concrete at the time of placement shall be not less than 50 degrees F.

The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface. When conditions are such that additional moisture is needed for finishing, the required water shall be applied to the surface by fog spray only and shall be held to a minimum amount. Fog spray for this purpose may be applied with hand operated fogging equipment.

The maximum time interval between the addition of cement to the batch and the placing of concrete in the forms shall not exceed the following:

Air or Concrete Temperature	Maximum Time
Non-Agitated Concrete:	
Above 80 degrees F	15 minutes
Up to 80 degrees F	30 minutes
Agitated Concrete:	
Above 90 degrees F	45 minutes
75 degrees F to 90 degrees F	60 minutes
35 degrees F to 74 degrees F	90 minutes

The use of an approved retarding agent in the concrete will permit the extension of each of the above temperature-time maximums by 30 minutes for direct traffic culverts, and one hour for all other concrete except that the maximum time shall not exceed 30 minutes for non-agitated concrete.

Before starting work, the Contractor shall inform the Engineer fully of the construction methods he proposes to use, the adequacy of which shall be subject to the approval of the Engineer.

The Contractor shall give the Engineer sufficient advance notice before placing concrete in any unit of the structure to permit the inspection of forms, reinforcing steel placement, and other preparations. Concrete shall not be placed in any unit prior to the completion of formwork and placement of reinforcement therein.

Concrete mixing, placing, and finishing shall be done during daylight hours, unless adequate provisions are made to light the entire site of all operations.

Concrete placement will not be permitted when impending weather conditions impair the quality of the finished work. If rainfall should occur after placing operations are started, the Contractor shall provide ample covering to protect the work. In case of a drop in temperature, the provisions set forth in Article "Placing Concrete in Cold Weather" of this specification shall be applied.

The placing of concrete shall be regulated so the pressures caused by the plastic concrete shall not exceed the loads used in form design.

The method of handling, placing and consolidation of concrete shall minimize segregation and displacement of the reinforcement, and produce a uniformly dense and compact mass. Concrete shall not have a free fall of more than 5 feet, except in the case of thin walls such as in culverts. Any hardened concrete spatter ahead of the plastic concrete shall be removed.

The method and equipment used to transport concrete to the forms shall be capable of maintaining the rate of placement approved by the Engineer. Concrete may be transported by buckets, chutes, buggies, belt conveyors, pumps, or other acceptable methods.
When belt conveyors or pumps are used, sampling for testing will be done at the discharge end. Concrete transported by conveyors shall be protected from sun and wind, if necessary, to prevent loss of slump and workability. Pipes through which concrete is pumped shall be shaded and/or wrapped with wet burlap, if necessary, to prevent loss of slump and workability. Concrete shall not be transported through aluminum pipes, tubes, or other aluminum equipment.

Chutes, troughs, conveyors, or pipes shall be arranged and used so that the concrete ingredients will not be separated. When steep slopes are necessary, the chutes shall be equipped with baffle boards or made in short lengths that reverse the direction of movement, or the chute ends shall terminate in vertical downspouts. Open troughs and chutes shall extend, if necessary, down inside the forms or through holes left in them. All transporting equipment shall be kept clean and free from hardened concrete coatings. Water used for cleaning shall be discharged clear of the concrete.

Each part of the forms shall be filled by depositing concrete as near its final position as possible. The coarse aggregate shall be worked back from the face and the concrete forced under and around the reinforcement bars without displacing them. Depositing large quantities at one point and running or working it along the forms will not be allowed.

Concrete shall be deposited in the forms in layers of suitable depth but not more than 36 inches in thickness, unless otherwise directed by the Engineer.

The sequence of successive layers or adjacent portions of concrete shall be such that they can be vibrated into a homogenous mass with the previously placed concrete without a cold joint. Not more than one hour shall elapse between adjacent or successive placements of concrete. Unauthorized construction joints shall be avoided by placing all concrete between the authorized joints in one continuous operation.

An approved retarding agent shall be used to control stress cracks and/or unauthorized cold joints in mass placements where differential settlement and/or setting time may induce stress cracking.

Openings in forms shall be provided, if needed, for the removal of laitance of foreign matter of any kind.

All forms shall be wetted thoroughly before the concrete is placed therein.

All concrete shall be well consolidated, and the mortar flushed to the form surfaces by continuous working with immersion type vibrators. Vibrators which operate by attachment to forms or reinforcement will not be permitted, except on steel forms. At least one stand-by vibrator shall be provided for emergency use in addition to those required for placement.

The concrete shall be vibrated immediately after deposit. Prior to the beginning of work, a systematic spacing of the points of vibration shall be established to insure complete consolidation and thorough working of the concrete around the reinforcement, embedded fixtures, and into the corners and angles of the forms. Immersion type vibrators shall be inserted vertically, at points 18 to 30 inches apart, and slowly withdrawn. The vibrator may be inserted in a sloping or horizontal position in shallow slabs. The entire depth of each lift shall be vibrated, allowing the vibrator to penetrate several inches into the preceding lift. Concrete along construction joints shall be thoroughly consolidated by operating the vibrator along and close to but not against the joint surface, The vibration shall continue until thorough consolidation, and complete embedment of reinforcement and fixtures is produced, but not long enough to cause segregation. Vibration may be supplemented by hand spading or rodding, if necessary, to insure the flushing of mortar to the surface of all forms.

Slab concrete shall be mixed in a plant located off the structure. Carting or wheeling concrete batches over completed slabs will not be permitted until they have aged at least four (4) full curing days. If carts are used, timber planking will be required for the remainder of the curing period. Carts shall be equipped with pneumatic tires. Curing operations shall not be interrupted for the purpose of wheeling concrete over finished slabs.

After concrete has attained its initial set, at least one (1) curing day shall elapse before placing strain on projecting reinforcement to prevent damage to the concrete.

The storing of reinforcing or structural steel on completed roadway slabs generally shall be avoided and, when permitted, shall be limited to quantities and distribution that will not induce excessive stresses.

8. PLACING CONCRETE IN COLD WEATHER

(1) Cast-in-Place Concrete. Concrete may be placed when the atmospheric temperature is not less than 35 degrees F. Concrete shall not be placed in contact with any material coated with frost or having a temperature less than 32 degrees F.

Aggregates shall be free from ice, frost, and frozen lumps. When required, to produce the minimum specified concrete temperature, the aggregate and/or the water shall be heated uniformly, in accordance with the following:

> The water temperature shall not exceed 180 degrees F, and/or the aggregate temperature shall not exceed 150 degrees F. The heating apparatus shall heat the mass of aggregate uniformly. The temperature of the mixture of aggregates and water shall be between 50 degrees F and 85 degrees F before introduction of the cement.
>
> All concrete shall be effectively protected as follows:

(a) The temperature of slab concrete of all unformed surfaces shall be maintained at 50 degrees F or above for a period of 72 hours from time of placement and above 40 degrees F for an additional 72 hours.

(b) The temperature at the surface of all concrete in piers, culverts walls, retaining walls, parapets, wingwalls, bottoms of slabs, and other similar formed concrete shall be maintained at 40 degrees F or above for a period of 72 hours from time of placement.

(c) The temperature of all concrete, including the bottom slabs of culverts placed on or in the ground, shall be maintained above 32 degrees F for a period of 72 hours from time of placement.

Protection shall consist of providing additional covering, insulated forms, or other means, and if necessary, supplementing such covering with artificial heating. Curing as specified under Article "Curing Concrete" of this specification shall be provided during this period until all requirements for curing have been satisfied.

When impending weather conditions indicate the possibility of the need for such temperature protection, all necessary heating and covering material shall be on hand ready for use before permission is granted to begin placement.

Sufficient extra test specimens will be made and cured with the placement to ascertain the condition of the concrete as placed, prior to form removal and acceptance.

(2) **Precast Concrete.** A fabricating plant for precast products which has adequate protection from cold weather in the form of permanent or portable framework and covering, which protects the concrete when placed in the forms, and is equipped with approved steam curing facilities, may place concrete under any low temperature conditions provided:

(a) The framework and covering are placed, and heat is provided for the concrete and the forms within one hour after the concrete is placed. This shall not be construed to be one hour after the last concrete is placed, but that no concrete shall remain unprotected longer than one hour.

(b) Steam heat shall keep the air surrounding the concrete between 50 degrees F and 85 degrees F for a minimum of three hours prior to beginning the temperature rise which is required for steam curing.

(c) For fabricating plants without the above facilities and for job site precast products, the requirements of the Article "Curing Concrete" of this specification shall apply.

The Contractor is responsible for the protection of concrete placed under any and all-weather conditions. Permission given by the Engineer for placing concrete during freezing weather will in no way relieve the Contractor of the responsibility for producing concrete equal in quality to that placed under normal conditions. Should concrete placed under such conditions prove unsatisfactory, it shall be removed and replaced at no additional cost.

9. PLACING CONCRETE IN WATER

Concrete shall be deposited in water only when specified on the plans or with written permission by the Engineer. The forms or cofferdams shall be sufficiently tight to prevent any water current passing through the space in which the concrete is being deposited. Pumping will not be permitted during the concrete placing, nor until it has set for at least 36 hours.

The concrete shall be placed with a tremie, closed bottom-dump bucket, or other approved method, and shall not be permitted to fall freely through the water nor shall it be disturbed after it has been placed. The concrete surface shall be kept approximately level during placement.

The tremie shall consist of a water-tight tube 14 inches or less in diameter. It shall be constructed so that the bottom can be sealed and opened after it is in place and fully charged with concrete. It shall be supported so that it can be easily moved horizontally to cover all the work area and vertically to control the concrete flow.

Bottom-dump buckets used for underwater placing shall have a capacity of not less than one-half cubic yard. It shall be lowered gradually and carefully until it rests upon the concrete already placed and raised very slowly during the upward travel; the intent being to maintain still water at the point of discharge and to avoid agitating the mixture.

The placing operations shall be continuous until the work is complete.

10. PLACING CONCRETE BOX CULVERTS

In general, construction joints will be permitted only where shown on the plans.

Where the top slab and walls are placed monolithically in culverts more than 4 feet in clear height, an interval of not less than one (1) nor more than two (2) hours shall elapse before placing the top slab to allow for shrinkage in the wall concrete.

The base slab shall be finished accurately at the proper time to provide a smooth uniform surface. Top slabs which carry direct traffic shall be finished as specified for roadway slabs in Article "Finish of Roadway Slabs". Top slabs of fill type culverts shall be given a reasonably smooth float finish.

11. PLACING CONCRETE IN FOUNDATIONS AND SUBSTRUCTURE

Concrete shall not be placed in footings until the depth and character of the foundation has been inspected by the Engineer and permission has been given to proceed.
Placing of concrete footings upon seal concrete courses will be permitted after the caissons or cofferdams are free from water and the seal concrete course cleaned. Any necessary pumping or bailing during the concrete operation shall be done from a suitable sump located outside the forms.

All temporary wales or braces inside cofferdams or caissons shall be constructed or adjusted as the work proceeds to prevent unauthorized construction joints in footings or shafts.

When footings can be placed in a dry excavation without the use of cofferdams or caissons, forms may be omitted, if desired by the Contractor and approved by the Engineer, and the entire excavation filled with concrete to the elevation of the top of footing; in which case, measurement for payment will be based on the footing dimensions shown on the plans.

12. TREATMENT AND FINISHNG OF HORIZONTAL SURFACES EXCEPT ROADWAY SLABS

All unformed upper surfaces shall be struck off to grade and finished. The use of mortar topping for surfaces under this classification will not be permitted.

After the concrete has been struck off, the surface shall be floated with a suitable float. Sidewalks shall be given a wood float or broom finish, or may be striped with a brush, as specified by the Engineer. Other surfaces shall be wood float finished and striped with a fine brush leaving a fine-grained texture.

13. FINISH OF ROADWAY SLABS

As soon as the concrete has been placed and vibrated in a section of sufficient width to permit working, the surface shall be approximately leveled, struck off and screeded, carrying a slight excess of concrete ahead of the screed to insure filling of all low spots. The screed shall be designed rigid enough to hold true to shape and shall have sufficient adjustments to provide for the required camber. A vibrating screed may be used if heavy enough to prevent undue distortion. The screeds shall be provided with a metal edge.

Longitudinal screeds shall be moved across the concrete with a saw-like motion while their ends rest on headers or templates set true to the roadway grade or on the adjacent finished slab.

The surface of the concrete shall be screeded enough times and at such intervals to produce a uniform surface, true to grade and free of voids.

If necessary, the screeded surface shall be worked to smooth finish with a long-handled wood or metal float of the proper size, or hand floated from bridges over the slab.

When required by the Engineer, the Contractor shall perform sufficient checks with a long handled 10-foot straightedge on the plastic concrete to ensure that the final surface will be within the tolerances specified below. The check shall be made with the straightedge parallel to the centerline. Each pass thereof shall lap half of the preceding pass. All high spots shall be removed and all depressions over one-sixteenth inch (1/16") in depth shall be filled with fresh concrete and floated. The checking and floating shall be continued until the surface is true to grade and free of depressions, high spots, voids, or rough spots.

Rail support holes shall be filled with concrete and finished to match the top of the slab.

Surface Texturing.

Perform surface texturing using either carpet drag, or metal tinning as indicated on the drawings. Complete final texturing before the concrete has attained its initial set. Draw the carpet drag longitudinally along the pavement surface with the carpet contact surface area adjusted to provide a satisfactory coarsely textured surface. A metal-tine texture finish is required using a tinning machine unless otherwise shown on the plans. Provide the metal-tine finish immediately after the concrete surface has set enough for consistent tinning. Operate the metal-tine device to obtain grooves spaced at 1 in., approximately 3/16 in. deep, with a minimum depth of 1/8 in., and approximately 1/12 in. wide. Do not overlap a previously tined area. Use manual methods for achieving similar results on ramps and other irregular sections of pavements. Repair damage to the edge of the slab and joints immediately after texturing. Do not tine pavement that will be overlaid.

Upon completion of the floating and/or straight edging and before the disappearance of the moisture sheen, the surface shall be given a broom or burlap drag finish. The grooves of these finishes shall be parallel to the structure centerline. It is the intent that the average texture depth resulting from the number of tests directed by the Engineer be not less than 0.035 inch with a minimum texture depth of 0.030 inch for any one test when tested in accordance with TxDOT Test Method Tex-436-A. Should the texture depth fall below that intended, the finishing procedures shall be revised to produce the desired texture.

After the concrete has attained its final set, the roadway surface shall be tested with a standard 10foot straightedge. The straightedge shall be placed parallel to the centerline of roadway to bridge any depressions and touch high spots. Ordinates of irregularities measured from the face of the straightedge to the surface of the slab shall not exceed one-eighth of an inch (1/8"), making proper allowances for camber, vertical curvature, and surface texture. Occasional variations, not exceeding three-sixteenth of an inch (3/16") will be acceptable, if in the opinion of the Engineer it will not affect the riding quality.

When directed by the Engineer, irregularities exceeding the above requirements shall be corrected. In all roadway slab finishing operations, camber for specified vertical curvature and transverse slopes shall be provided.

14. CURING CONCRETE

The Contractor shall inform the Engineer fully of the methods and procedures proposed for curing; shall provide the proper equipment and material in adequate amounts; and shall have the proposed methods, equipment and material approved prior to placing concrete.

Inadequate curing and/or facilities, therefore, shall be cause for the Engineer to stop all construction on the job until remedial action is taken. All concrete shall be cured for a period of four (4) curing days except as noted herein.

EXCEPTIONS TO 4-DAY CURING

Description	Required Curing
Upper Surfaces of Bridge Slabs and	8 curing days (Type I or III) cement
Top Slabs of Direct Traffic Culverts	10 curing days (Type II cement)
Concrete Piling (non-prestressed)	6 curing days

When the air temperature is expected to drop below 35 degrees F, the water curing mats shall be covered with polyethylene sheeting, burlap-polyethylene blankets, or other material to provide the protection required by Article "Placing Concrete in Cold Weather" of these specifications.

A curing day is defined as a calendar day when the temperature, taken in the shade away from artificial heat, is above 50 degrees F for at least 19 hours (colder days if satisfactory provisions are made to maintain the temperature of all surfaces of the concrete above 40 degrees F for the entire 24 hours). The required curing period shall begin when all concrete therein has attained its initial set.

The following methods are permitted for curing concrete subject to the restrictions of Table I and the following requirements for each method of curing.

(1) Form Curing. When forms are left in contact with the concrete, other curing methods will not be required except for cold weather protection.

(2) Water Curing. All exposed surfaces of the concrete shall be kept wet continuously for the required curing time. The water used for curing shall meet the requirements for concrete mixing water as specified in the specification Section 030020 "Portland Cement Concrete". Seawater will not be permitted. Water which stains or leaves an unsightly residue shall not be used.

(a) Wet Mat. Cotton mats shall be used for this curing method. They shall be placed as soon as possible after the surface has sufficiently hardened to prevent damage to the concrete. (See Article, "Placing Concrete" of this specification.) Damp burlap blankets made from nine-ounce stock may be placed on the damp concrete surface for temporary protection prior to the application of the cotton mats which may be placed dry and wetted down after placement. The mats shall be weighted down adequately to provide continuous contact with all concrete surfaces where possible. The surfaces of the concrete shall be kept wet for the required curing time. Surfaces which cannot be cured by contact shall be enclosed with mats and anchored positively to the forms or to the ground so that outside air cannot

enter the enclosure. Sufficient moisture shall be provided inside the enclosure to keep all surfaces of the concrete wet.

(b) Water Spray. This curing method shall consist of overlapping sprays or sprinklers that keep all unformed surfaces continuously wet.

(c) Ponding. This curing method requires the covering of the surfaces with a minimum of two inches (2") of clean granular material, always kept wet, or a minimum of one inch (1") depth of water. Satisfactory provisions shall be made to provide a dam to retain the water or saturated granular material.

(3) Membrane Curing. This consists of curing concrete pavement, concrete pavement (base), curbs, gutters, retards, sidewalks, driveways, medians, islands, concrete riprap, cement-stabilized riprap, concrete structures, and other concrete as indicated on the plans by impervious membrane method.

Unless otherwise provided herein or shown on the plans, either Type I-D or Type 2 membrane curing compound may be used where permitted except that Type I-D (Resin Base Only) will be required for slab concrete in bridge decks and top slabs of direct traffic culverts.

TABLE I

		REQUIRED		PERMITTED	
	STRUCTURE UNIT DESCRIPTION	WATER FOR CURING	MEMBRANE FOR INTERIM CURING	WATER FOR CURING	MEMBRANE FOR INTERIM CURING
1	Top slabs of direct traffic culverts	X	X		
2	Top surface of any concrete unit upon which concrete is to be placed and bonded at a later interval (Stub walls, risers, et.). Other superstructure concrete (wing walls, parapet walls, etc.)	X			

3	Concrete pavement (base), curbs, gutters, retards, sidewalks, driveways, medians, islands, concrete structures, concrete riprap, etc.			X*	X*
4	All substructure concrete, culverts, box sewers. Inlets, manholes, retaining walls			X*	X*

*Polyethylene sheeting, burlap-polyethylene mats, or laminated mats to prevent outside air from entering will be considered equivalent to water or membrane curing for items 3 and 4.

Membrane curing shall not be applied to dry surfaces but shall be applied just after free moisture has disappeared. Formed surfaces and surfaces which have been given a first rub shall be dampened and shall be moist at the time of application of the membrane.

When the membrane is used for complete curing, the film shall remain unbroken for the minimum curing period specified. Membrane which is damaged shall be corrected immediately by reapplication of membrane. Unless otherwise noted herein or on the plans, the choice of membrane type shall be at the option of the Contractor. Only one type of curing compound will be permitted on any one structure.

The membrane curing compound shall be applied after the surface finishing has been completed, and immediately after the free surface moisture has disappeared. The surface shall be sealed with a single uniform coating of curing compound applied at the rate of coverage recommended by the manufacturer and directed by the Engineer, but not less than 1 gallon per 180 square feet of area. The Contractor shall provide satisfactory means and facilities to properly control and check the rate of application of the compound.

The compound shall be thoroughly agitated during its use and shall be applied by means of approved mechanical power pressure sprayers. The sprayers used to apply the membrane to concrete pavement or concrete pavement (base) shall travel at uniform speed along the forms and be mechanically driven. The equipment shall be of such design that it will insure uniform and even application of the membrane material. The sprayers shall be equipped with satisfactory atomizing nozzles. Only on small miscellaneous items will the Contractor be permitted to use hand-powered spray equipment. For all spraying equipment, the Contractor shall provide facilities to prevent the loss of the compound between the nozzle and the concrete surface during the spraying operations.

The compounds shall not be applied to a dry surface. If the surface of the concrete has become dry, it shall be moistened prior to application of membrane by fogging or mist application. Sprinkling or coarse spraying will not be allowed.

At locations where the coating shows discontinuities, pinholes, or other defects, or if rain falls on the newly coated surface before the film has dried sufficiently to resist damage, an additional coat of the compound shall be applied immediately at the same rate of coverage specified herein.

To ensure proper coverage, the Engineer shall inspect all treated areas after application of the compound for the period designated in the governing specification for curing, either for membrane curing or for other methods. Should the foregoing indicate that any area during the curing period is not protected, an additional coat or coats of the compound shall be applied immediately, and the rate of application of the membrane compound shall be increased until all areas are uniformly covered.

When temperatures are such as to warrant protection against freezing, curing by this method shall be supplemented with an approved insulating material capable of protecting the concrete for the specified curing period.

If at any time there is reason to believe that this method of curing is unsatisfactory or is detrimental to the work, the Contractor, when notified, shall immediately cease the use of this method, and shall change to curing by one of the other methods specified under this contract.

15. REMOVAL OF FORMS

Except as herein provided, forms for vertical surfaces may be removed when the concrete has aged not less than one day (24 hours) when Type I and Type II cement is used, and not less than one-half day (12 hours) when Type III cement is used, provided it can be done without damage to the concrete.

Forms for inside curb faces may be removed in approximately three hours provided it can be done without damage to the curb.

16. FINISHING EXPOSED SURFACES

Concrete shall be finished as required in the specification Section for the respective item or as otherwise specified on the plans.

An ordinary surface finish shall be applied to all concrete surfaces either as a final finish or preparatory to a higher finish.

Ordinary Surface Finish shall be as follows:

After form removal, all porous or honey-combed areas and spalled areas shall be corrected by chipping away all loose or broken material to sound concrete..

Feather edges shall be eliminated by cutting a face perpendicular to the surface. Shallow cavities shall be repaired using adhesive grout or epoxy grout. If judged repairable by the Engineer, large defective areas shall be corrected using concrete or other material approved by the Engineer.

Holes and spalls caused by removal of metal ties, etc., shall be cleaned and filled with adhesive grout or epoxy grout. Exposed parts of metal chairs on surfaces to be finished by rubbing, shall be chipped out to a depth of one-half inch (1/2") and the surface repaired.

All fins, runs, drips or mortar shall be removed from surfaces which remain exposed. Form marks and chamfer edges shall be smoothed by grinding and/or dry rubbing.

Grease, oil, dirt, curing compound, etc., shall be removed from surfaces requiring a higher grade of finish. Discolorations resulting from spillage or splashing of asphalt, paint or other similar material shall be removed.

Repairs shall be dense, well bonded, and properly cured, and when made on surfaces which remain exposed and do not require a higher finish, shall be finished to blend with the surrounding concrete.

17. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, no direct measurement or payment will be made for the work to be done or the equipment to be furnished under this specification, but it shall be considered subsidiary to the items required by the plans and the contract documents.

END OF SECTION

SECTION 055420
FRAMES, GRATES, RINGS AND COVERS

1. DESCRIPTION

This specification shall govern for the furnishing and installation of frames, grates, rings, and covers for inlets, manholes and other structures in accordance with those details. Steel shall conform to the requirements of ASTM Designation: A36 "Standard Specification for Carbon Structural Steel".

2. MATERIALS

Welded steel grates and frames shall conform to the member size, dimensions and details shown on the plans and shall be welded into an assemble in accordance with those details. Steel shall conform to the requirements of ASTM Designation: A36.

Castings, whether Carbon-Steel, Gray Cast Iron or Ductile Iron shall conform to the shape and dimensions shown in the plans and shall be clean substantial castings, free from burnt-on sand and shall be reasonable smooth. Runners, risers, fins, and other cast-on pieces shall be removed from the castings and such areas ground smoothly. Bearing surfaces between manhole rings and covers or grades and frames shall be cast or machined with such precision that uniform bearing shall be provided throughout the perimeter of the contact area. Pairs of machined castings shall be matchmarked to facilitate subsequent identification at installation.

Steel castings shall conform to the requirements of ASTM Designation: A27 "Standard Specification for Steel Castings, Carbon, for General Application." Grade 70-36 shall be furnished unless otherwise specified.

Cast Iron castings shall conform to the requirements of ASTM Designation: A 48, "Standard Specification for Gray Iron Castings", Class 30.

Ductile iron castings shall conform to the requirements of ASTM Designation: A 536. "Standard Specification for Ductile Iron Castings", 60-40-18 shall be used otherwise specified.

3. CONSTRUCTION METHODS

Frames, grates, rings, and covers shall be constructed of the materials as specified and in accordance with the details shown on the plans and shall be placed carefully to the lines and grades indicated on the plans or as directed by the Engineer.

All welding shall conform to the requirements of the applicable section of the latest American Welding Society Specifications. Frames, grates, rings, and covers shall be given one coat of commercial grade red lead and oil paint and two coats of commercial grade aluminum paint. Painting on gray iron castings will not be required, except when used in conjunction with

structural steel shapes. Commercial grade galvanized bolts and nuts shall be used. The zinc coating shall be uniform inthickness, smooth and continuous.

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, frames, grates, rings, and covers shall not be measured for payment, but shall be considered subsidiary to other bid items.

END OF SECTION

CITY OF KINGSVILLE

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

PROJECT LOCATION 2
N. WELLS ST. FROM
W. I AVE. TO
W. H AVE.

PROJECT LOCATION 1
N. 2ND ST. FROM
W. C AVE. TO
W. B AVE.

PROJECT LOCATION 8
E. YOAKUM AVE. FROM
N. 7TH ST. TO
N. 8TH ST.

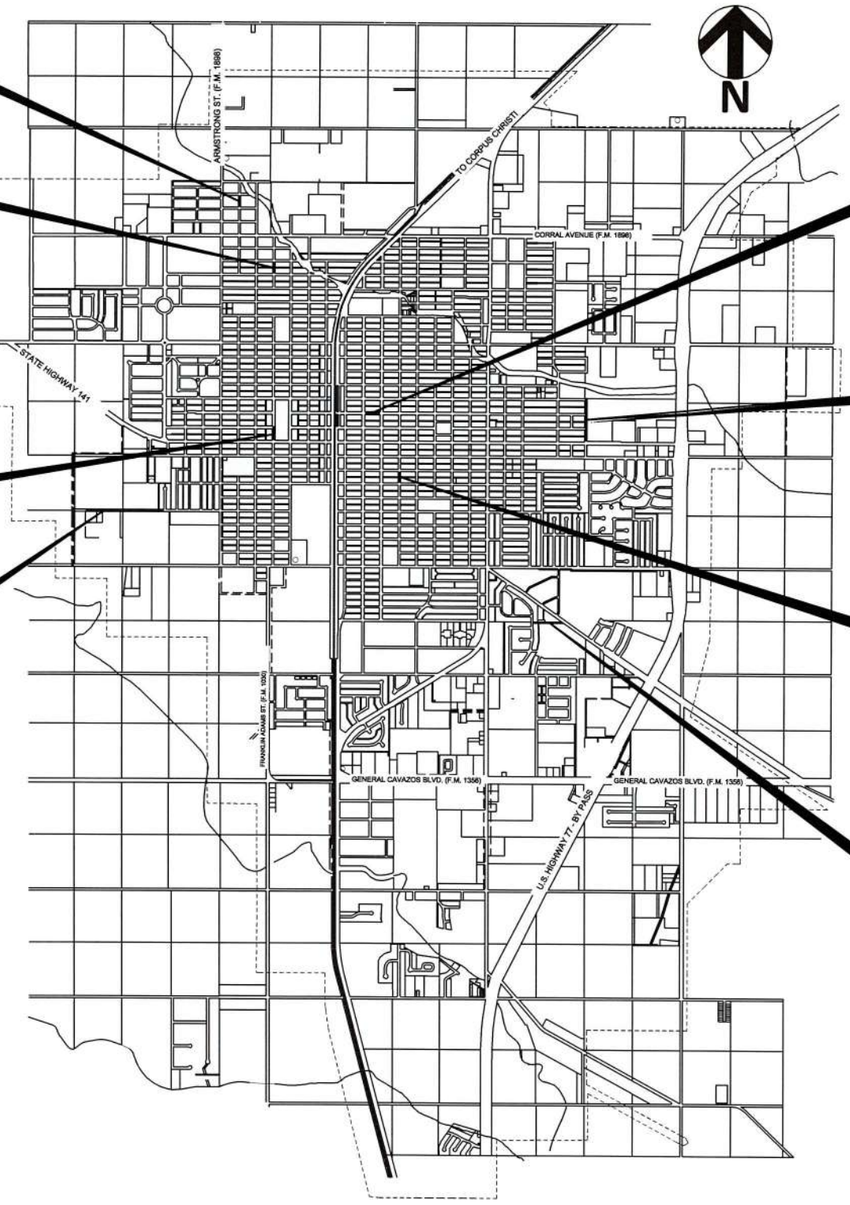
PROJECT LOCATION 6
N. 19TH ST. FROM
E. KING AVE. TO
E. HENRIETTA AVE.
(ALTERNATE BID 2)

PROJECT LOCATION 4
S. 2ND ST. FROM
W. KING AVE. TO
W. KLEBERG AVE.

PROJECT LOCATION 7
W. JOHNSTON AVE. FROM
ROLLING W MOBILE HOME RANCH
TO COLLEGE PLACE
NOT USED

PROJECT LOCATION 5
S. 9TH ST. FROM
E. LOTT AVE. TO
E. HUISACHE AVE.

PROJECT LOCATION 3
DRAINAGE EASEMENT FLUME BETWEEN
E. LAWNDALE DR. TO
E. SEN. CARLOS TRUAN BLVD.
(ALTERNATE BID 1)



LOCATION MAP
NOT TO SCALE
JULY-2024

MAYOR
SAM FUGATE

CITY MANAGER
MARK MCLAUGHLIN

CITY COMMISSIONERS
HECTOR M. HINOJOSA
NORMA NELDA ALVAREZ
ANN MARIE TORRES
EDNA LOPEZ

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUTILIO P. MORA JR, P.E. NO. 111588 ON 07-01-2024. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

STATE OF TEXAS
RUTILIO P. MORA JR
111588
LICENSED PROFESSIONAL ENGINEER

Rutilio P. Mora Jr. P.E. 7/1/2024
RUTILIO P. MORA JR, P.E. NO. 111588

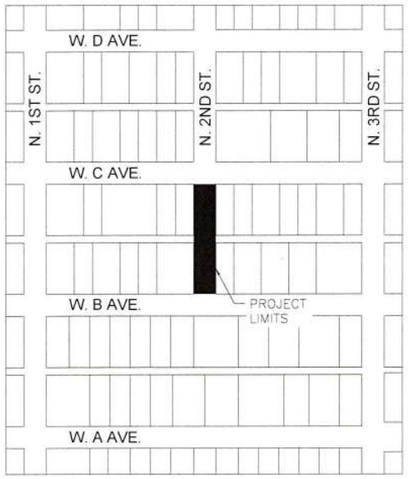
CITY OF KINGSVILLE
ENGINEERING DEPARTMENT
400 West King
Kingsville, Texas 78363
Office 361.595.8007
Fax 361.595.8035

Drawn by: A. REYES
Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

COVER SHEET

SHEET
1



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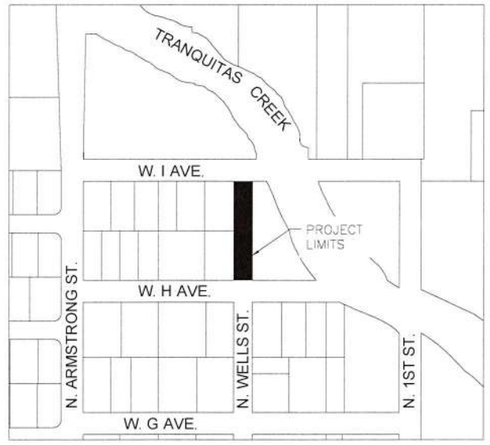
1/2 SCALE: 1:200

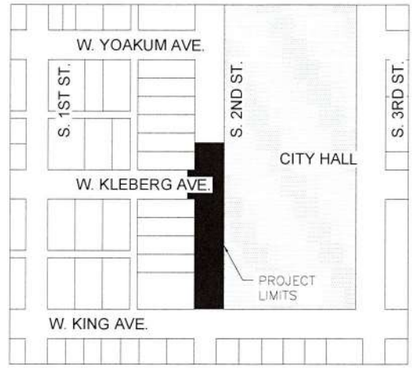


N. WELLS ST. FROM W. I AVE. TO W. H AVE.

2/2 SCALE: 1:200

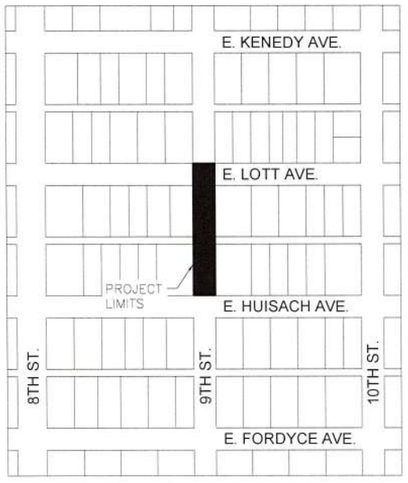
CONCRETE DRAINAGE FLUME BETWEEN E. LAWNDALE DR. TO E. SEN. CARLOS TRUAN BLVD.

3/2 SCALE: 1:200



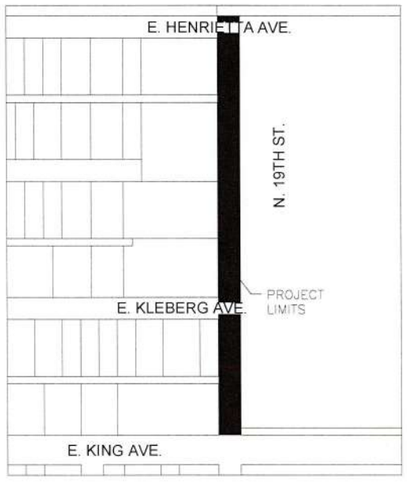
S. 2ND ST. FROM W. KING AVE. TO W. KLEBERG AVE.

4/2 SCALE: 1:200



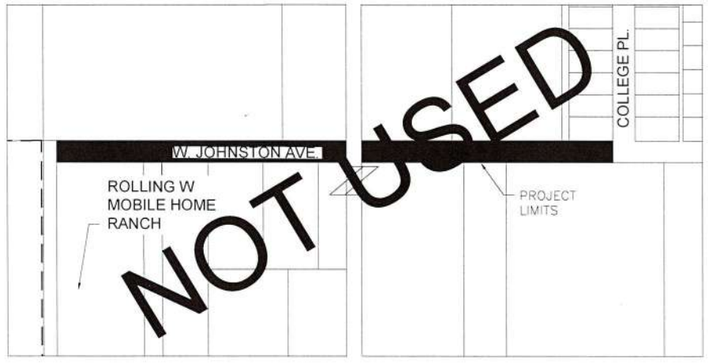
S. 9TH ST. FROM E. LOTT AVE. TO E. HUISACHE AVE.

5/2 SCALE: 1:200



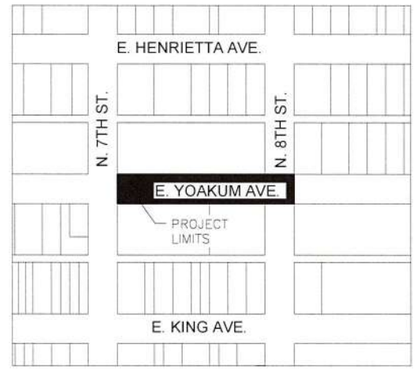
N. 19TH ST. FROM E. KING AVE. TO E. HENRIETTA AVE.

6/2 SCALE: 1:200



W. JOHNSTON AVE. FROM ROLLING W MOBILE HOME RANCH TO COLLEGE PLACE

7/2 SCALE: 1:200



E. YOAKUM AVE. FROM N. 7TH ST. TO N. 8TH ST.

7/2 SCALE: 1:200

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STATE OF TEXAS
RUTILIO P. MORA JR
111588
LICENSED
PROFESSIONAL ENGINEER

Rutilio P. Mora Jr. P.E. 7/1/2024

RUTILIO P. MORA JR, P.E. NO. 111588

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Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

PROJECT LOCATION

GENERAL CONSTRUCTION NOTES:

1. ALL IMPROVEMENTS TO BE IN ACCORDANCE WITH CITY OF KINGSVILLE CODES.
2. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO PLAN AND PERFORM HIS WORK IN A MANNER THAT WILL PERMIT SAFE PUBLIC TRAFFIC MOVEMENT ON ALL STREETS.
4. TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION TO BE IN ACCORDANCE WITH SPECIFICATIONS.
5. CONTRACTOR SHALL PROVIDE PROTECTIVE DEVICES SUCH AS SIGNS, LIGHTS, AND SIGNALS FOR THE SAFETY OF THE PUBLIC AND WORKERS, AS REQUIRED, AND AS DIRECTED BY CITY INSPECTOR.
6. CONTRACTOR TO BE RESPONSIBLE FOR PROTECTION AND/OR SAFETY OF THE WORK SITE, WORKERS, SUBCONTRACTORS, MATERIALS AND/OR EQUIPMENT.
7. CONSTRUCTION STAKING SHALL BE PROVIDED BY THE CONTRACTOR AND AT CONTRACTOR'S EXPENSE. BASE LINES ARE STAKED AS SHOWN ON PLANS. ALL DIMENSIONS ARE TO BACK OF CURBS UNLESS SHOWN OTHERWISE.
8. MATERIAL TESTING SHALL BE PROVIDED BY THE CITY OF KINGSVILLE. RE-TEST DUE TO FAILURES TO BE AT CONTRACTOR'S EXPENSE.
9. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL BY THE CITY ENGINEERING OFFICE PRIOR TO CONSTRUCTION. CONTRACTOR MAY CLOSE STREETS TO THRU TRAFFIC IN 1000' INCREMENTS AS LONG AS ACCESS IS MAINTAINED TO ALL RESIDENCES, BUSINESSES, & ADJOINING STREETS. TRAFFIC CONTROL PLAN WILL BE IN ACCORDANCE WITH TXDOT'S B & C SHEETS 18 THROUGH 24 AND THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND AT CONTRACTOR'S EXPENSE.
11. ANY DAMAGE TO EXISTING PAVEMENT, DRAINAGE OR EXISTING STRUCTURES SHALL BE REPAIRED TO PRE-CONSTRUCTION CONDITION AT CONTRACTOR'S EXPENSE.
12. THESE PLANS, PREPARED BY THE CITY OF KINGSVILLE ENGINEERING DEPARTMENT DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF CITY OF KINGSVILLE'S REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS, INCLUDING THE PLANS AND SPECIFICATIONS REQUIRED BY THE HOUSE BILLS 662 AND 665 ENACTED BY THE TEXAS LEGISLATURE IN THE 70TH LEGISLATURE REGULAR SESSION."
13. CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES AFFECTED BY HIS OPERATIONS PRIOR TO COMMENCEMENT OF WORK. NOTIFY TEXAS ONE CALL FOR UTILITY LOCATIONS PRIOR TO ANY & ALL EXCAVATIONS. COORDINATION OF ALL RELOCATION OF UTILITY POLES, ETC. TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
14. CONTRACTOR TO COORDINATE WITH THE CITY OF KINGSVILLE ON WORK SCHEDULES, TESTING, GENERAL INSPECTION, AND EXISTING LINES.
15. CONTRACTOR TO EXERCISE CAUTION WHEN WORKING NEAR EXISTING FACILITIES AND/OR UTILITIES. ALL DAMAGE TO BE REPAIRED AT CONTRACTOR'S EXPENSE. ALL COSTS FOR INTERRUPTION OF GAS, ELECTRICAL, COMMUNICATIONS AND/OR WATER SERVICE DUE TO CONTRACTOR'S WORK SHALL BE BORNE BY THE CONTRACTOR.
16. INFORMATION ON EXISTING UTILITIES IS FROM BEST AVAILABLE INFORMATION OF RECORD AND SPOT FIELD LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATION OF THESE UNDERGROUND UTILITIES AS REQUIRED AT NO SEPARATE PAY. CITY OF KINGSVILLE PERSONNEL WILL BE AVAILABLE FOR ASSISTANCE AND OPERATION OF VALVES AS REQUIRED. CONTRACTOR TO COORDINATE WITH OTHER UTILITY COMPANIES, INCLUDING AEP ON ELECTRICAL UTILITIES, CENTERPOINT ENERGY ON GAS UTILITIES AND AT&T ON TELEPHONE UTILITIES.
17. ALL SPOIL MATERIAL AND DEBRIS SHALL BE DISPOSED OF BY CONTRACTOR. FURNISHING AND TRANSPORTATION OF ALL OFFSITE MATERIAL TO BE AT CONTRACTOR'S EXPENSE. SOIL SHALL BE PROPERTY OF THE CITY AND WILL BE TRANSPORTED TO THE CITY LANDFILL BY THE CONTRACTOR. (NO SEPARATE PAY)
18. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL RETURN THE SITE TO ORIGINAL CONTOURS UNLESS DIFFERENT FINISHED ELEVATIONS ARE SHOWN ON PLANS. CONTRACTOR TO INSURE NO AREAS OF PONDING ARE PRESENT.
19. CONTRACTOR TO INSURE SAME DAY ACCESS TO SCHOOL, ALL RESIDENCES AND BUSINESSES ADJACENT TO CONSTRUCTION.
20. DEMOLITION, REMOVAL & DISPOSAL OF ALL EXCESS CONCRETE, CURBS, RUBBLE, ETC. TO BE AT CONTRACTOR'S EXPENSE.
21. CONCRETE NOTES:
    a. ALL CONCRETE WORK TO BE FORMED, UNLESS OTHERWISE APPROVED.
    b. ALL CONCRETE TO BE 3000 PSI MINIMUM AT 28 DAYS, UNLESS OTHERWISE SHOWN. STRENGTH TO BE DETERMINED BY CYLINDER BREAK TEST.
    c. ALL REINFORCING STEEL TO BE ASTM A-615, GRADE 60, UNLESS OTHERWISE SHOWN.
    d. ALL EXPOSED CONCRETE WORK TO BE CHAMFERED.
22. CONTRACTOR TO VERIFY THAT ALL CONCRETE SURFACES MEET THE FOLLOWING SLOPE CRITERIA PRIOR TO PLACEMENT OF CONCRETE.
    a. RAMP SLOPE 12:1 (8.33%) (MAX.)
    b. RUNNING SLOPE 20:1 (5%) (MAX.)
    c. CROSS SLOPE 50:1 (2%) (MAX.)
    (CROSS SLOPE IS SLOPE PERPENDICULAR TO THE DIRECTION OF TRAVEL.
23. CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING SILT FENCE IN AREAS OF DISTURBED SOIL TO PREVENT EROSION FROM ENTERING DRIVEWAYS AND STORM DRAINAGE SYSTEMS.

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GENERAL NOTES

SHEET INDEX

NOT USED

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SHEET INDEX

LEGEND

EXISTING		PROPOSED	
	CURB & GUTTER		CURB & GUTTER
ROW	RIGHT-OF-WAY		
OHE	OVERHEAD ELECTRIC		DEMO
WW	WASTEWATER		ASPHALT
W	WATER		CONCRETE
G	GAS		LIMESTONE
X	CHAIN LINK FENCE		
WW	WASTEWATER MANHOLE		
	POWER POLE		
	LIGHT POLE		
	SIGN		
	GUY WIRE ANCHOR		
	CONCRETE		
	ASPHALT		

ABBREVIATIONS

MAX.	MAXIMUM
MIN.	MINIMUM
O.C.E.W.	ON CENTER EACH WAY
LG.	LONG
TYP.	TYPICAL
DET.	DETAIL
SHT.	SHEET
SW.	SIDEWALK
DW	DRIVEWAY
SF	SQUARE FEET
SY	SQUARE YARD
ROW	RIGHT-OF-WAY
FL.	FLOW LINE
NG	NATURAL GROUND
TC.	TOP OF CURB
BC.	BACK OF CURB
PROP.	PROPOSED
EX.	EXISTING
EOA	EDGE OF ASPHALT
CONC.	CONCRETE
VPI.	VERTICAL POINT OF INTERSECTION

TESTING SCHEDULE

DESCRIPTION	RATE	QTY.
SOILS:		
STANDARD PROCTOR – SUBGRADE	PER STREET	1
DENSITIES – SUBGRADE (PAVEMENT)	PER 325 SY	1
DENSITIES – SUBGRADE (DRIVEWAY)	PER 5 DRIVEWAYS	1
DENSITIES – SUBGRADE (DITCH BACKFILL)	PER 500 LF PIPE	1
BASE MATERIAL:		
SIEVE ANALYSIS	PER 3000 CY	1
ATTERBURG LIMITS	PER 3000 CY	1
MODIFIED PROCTOR	PER 3000 CY	1
L.A. ABRASION	PER 3000 CY	1
CBR (STANDARD)	PER MATERIAL SOURCE	1
DENSITIES OF COMPACTED BASE (PAVEMENT)	PER 325 SY	1
WET BALL MILL TEST	PER MATERIAL SOURCE	1
TRIAXIAL TEST	PER MATERIAL SOURCE	1
HOT-MIX ASPHALT CONCRETE (HMAC)		
EXTRACTION, SIEVE ANALYSIS	PER 500 TONS OR DAY	1
LAB DENSITY & STABILITY	PER 500 TONS OR DAY	1
THEORETICAL DENSITY (RICE METHOD)	PER 500 TONS OR DAY	1
TEMPERATURE – DURING LAYDOWN	CONTINUOUS AS NEEDED	1
THICKNESS – IN PLACE (CORE)	PER 1000 LF	1
% AIR VOIDS – IN PLACE (CORE)	PER 1000 LF	1
% THEORETICAL DENSITY – IN PLACE (CORE)	PER 1000 LF	1
CONCRETE:		
(UNCONFINED COMPRESSION: 7, 14, & 28 DAY)	PER 4000 LF	1

NOTE: CONTRACTOR TO COORDINATE WITH ENGINEER FOR MATERIAL TESTING AND LOCATION.

CALL BEFORE YOU DIG!

Texas 811 Know what's below. Call before you dig.

PARTICIPANTS REQUEST 48 HOURS NOTICE BEFORE YOU DIG, DRILL OR BLAST – STOP AND CALL

811

THE LONE STAR NOTIFICATION COMPANY AT 1-800-344-8377

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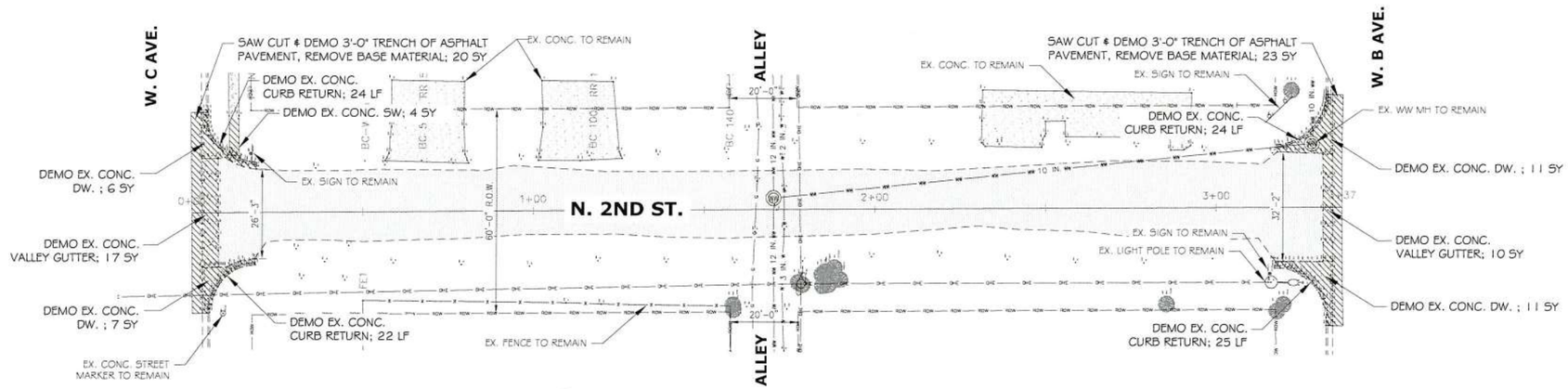
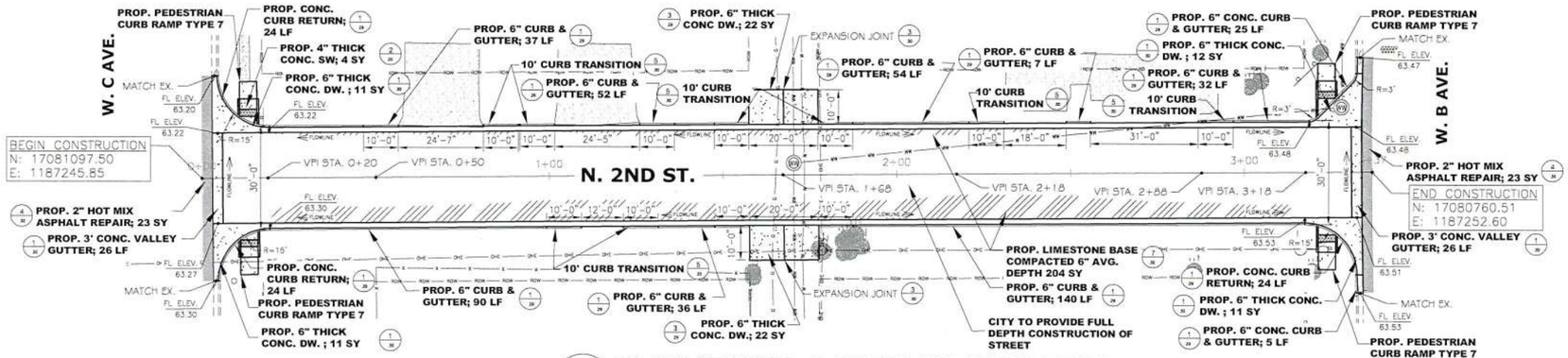
LEGEND - TESTING SCHEDULE & QUANTITIES



N

1/6 PLAN VIEW STA. 0+00 TO END (EXISTING)

SCALE: 1:20



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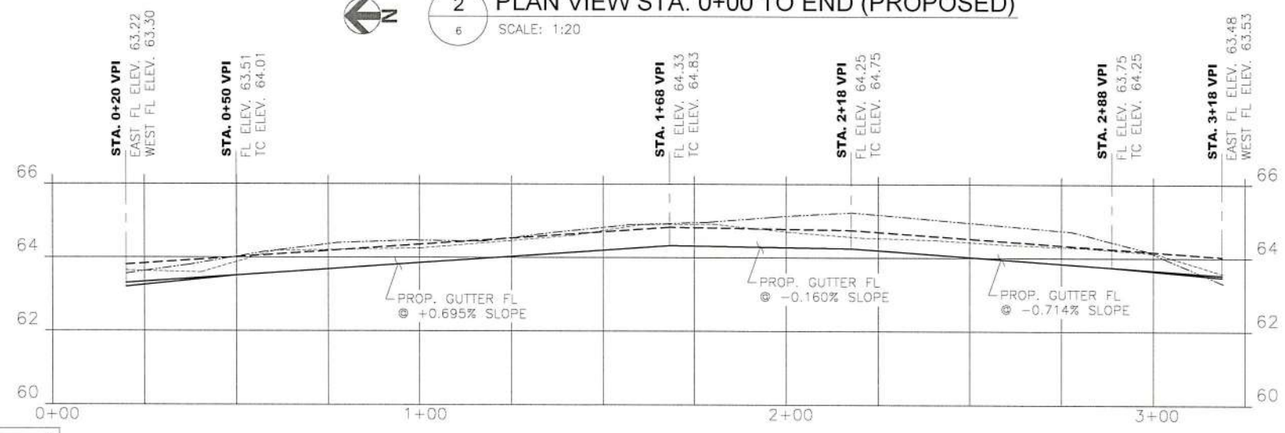
2/6 PLAN VIEW STA. 0+00 TO END (PROPOSED)

SCALE: 1:20



PROFILE LEGEND

- EXISTING EAST NG PROFILE
- EXISTING WEST NG PROFILE
- PROPOSED FL PROFILE
- PROPOSED TC PROFILE

A/6 PROFILE VIEW STA. 0+00 TO END

HORIZONTAL SCALE: 1:20
VERTICAL SCALE: 1:2

SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
SY	35	DEMO CONC. DRIVEWAY
LF	95	DEMO CONC. CURB & GUTTER
LF	27	DEMO CONC. VALLEY GUTTER
SY	43	DEMO ASPHALT & BASE
SY	4	DEMO CONC. SIDEWALK
LF	550	6" CONC. CURB & GUTTER
LF	120	2' CONC. VALLEY GUTTER
LF	52	3' CONC. VALLEY GUTTER
SY	27	4" THICK CONC. SIDEWALK
SY	89	6" THICK CONC. DRIVEWAY
SY	46	2" HOT MIX ASPHALT REPAIR
SY	204	LIMESTONE FILL (6" AVG. DEPTH)
EA	4	PEDESTRIAN CURB RAMP TYPE 7

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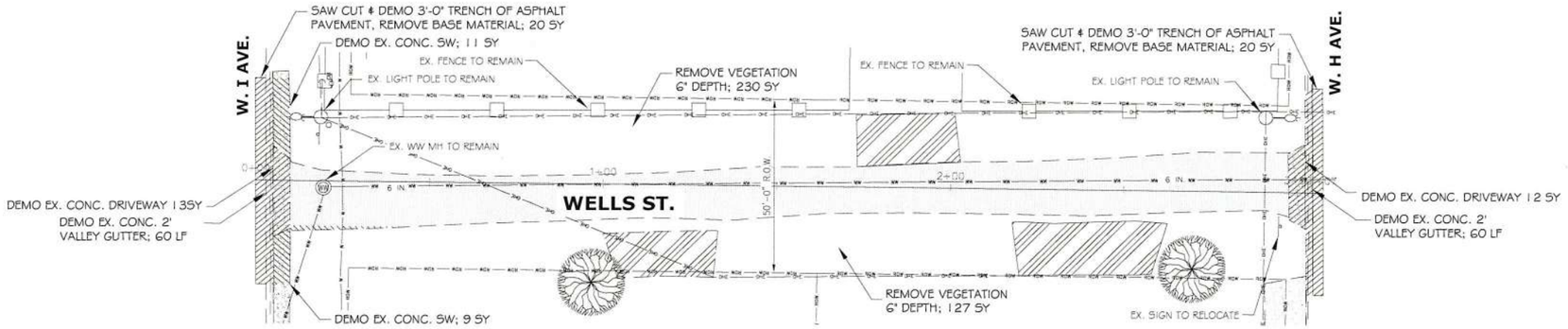
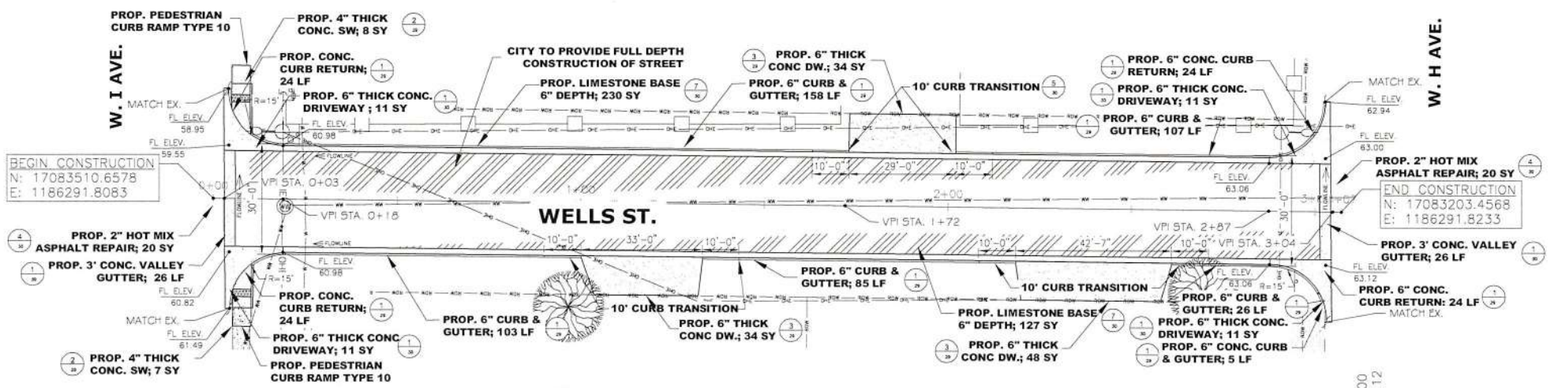
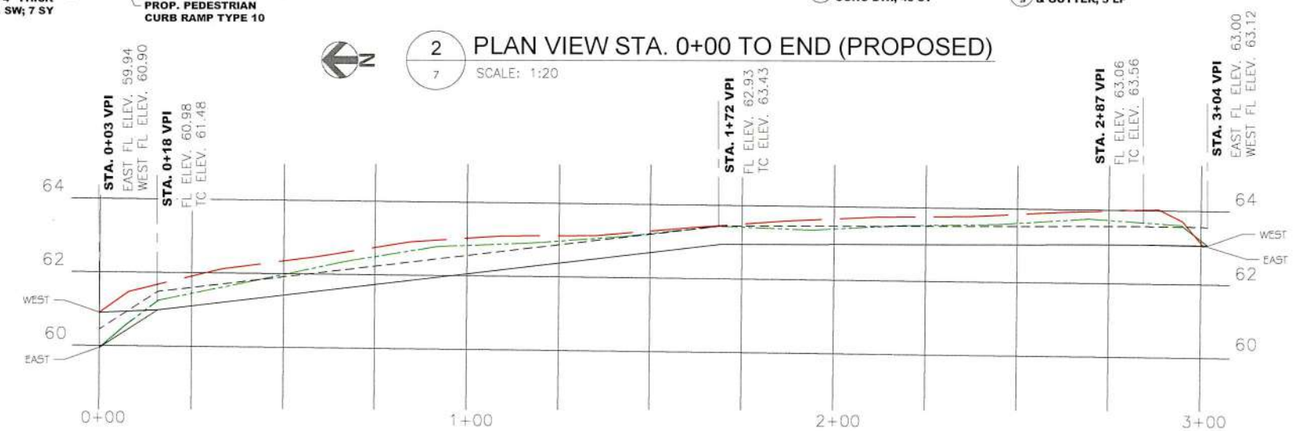
N. 2ND ST. FROM W. C AVE. TO W. B AVE. PLAN AND PROFILE - STA. 0+00 TO END



1/7 PLAN VIEW STA. 0+00 TO END (EXISTING)
SCALE: 1:20



2/7 PLAN VIEW STA. 0+00 TO END (PROPOSED)
SCALE: 1:20



A/7 PROFILE VIEW STA. 0+00 TO END
HORIZONTAL SCALE: 1:20
VERTICAL SCALE: 1:2

PROFILE LEGEND
- EXISTING EAST NG PROFILE
- EXISTING WEST NG PROFILE
- PROPOSED FL PROFILE
- PROPOSED TC PROFILE

SHEET QUANTITIES

UNIT	QTY.	DESCRIPTION
SY	25	DEMO CONC. DRIVEWAY
LF	120	DEMO CONC. VALLEY GUTTER
SY	40	DEMO ASPHALT & BASE
SY	20	DEMO CONC. SIDEWALK
SY	357	REMOVE VEGETATION
LF	580	6" CONC. CURB & GUTTER
LF	60	2' CONC. VALLEY GUTTER
LF	52	3' CONC. VALLEY GUTTER
SY	15	4" THICK CONC. SIDEWALK
LF	160	CONC. DRIVEWAY
SY	40	2" HOT MIX ASPHALT REPAIR
SY	357	LIMESTONE FILL (6" AVG. DEPTH)
EA	2	PEDESTRIAN CURB RAMP TYPE 10

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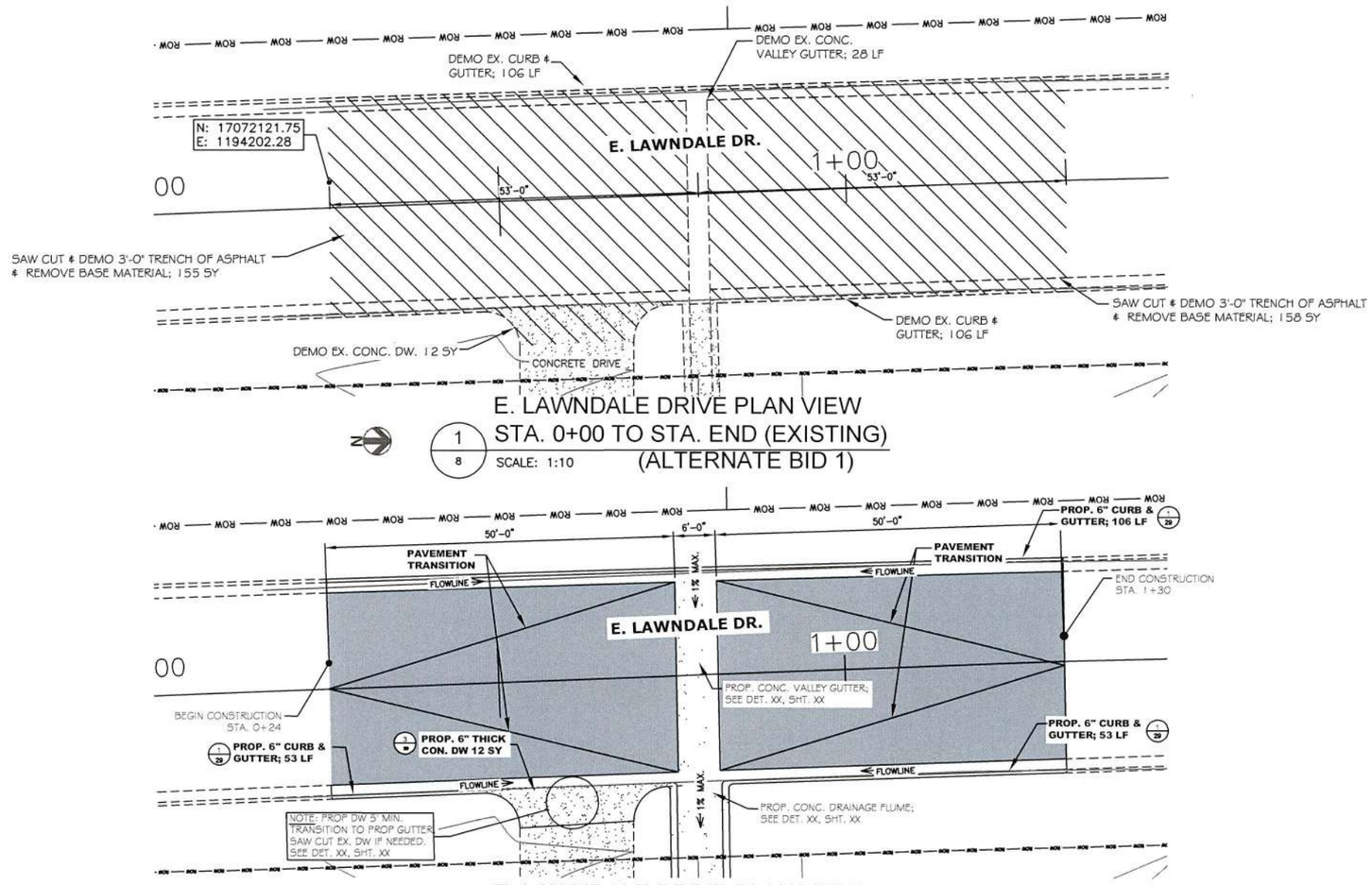
WELLS ST. FROM W. I AVE. TO W. B AVE.
PLAN AND PROFILE VIEWS - STA. 0+00 TO END

SHEET 7

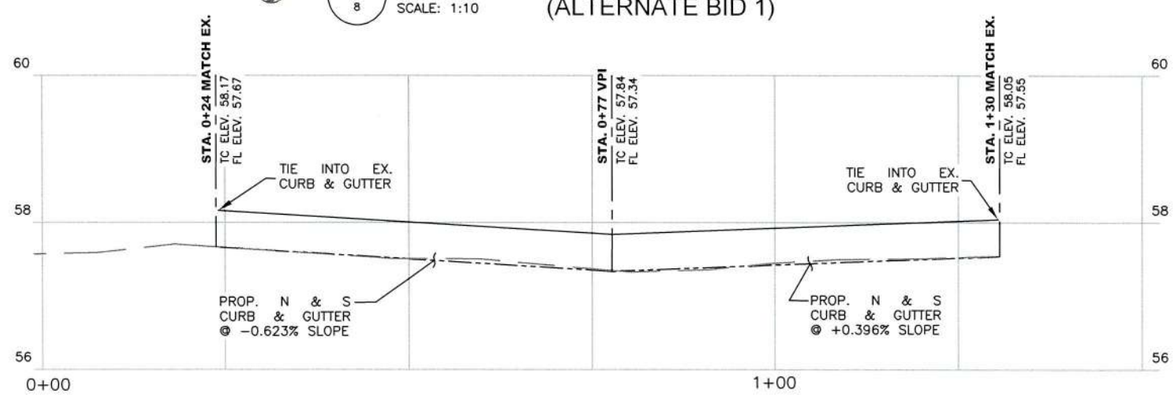


E. LAWNDALE DRIVE PLAN VIEW
STA. 0+00 TO STA. END (EXISTING)
(ALTERNATE BID 1)

1/8 SCALE: 1:10

E. LAWNDALE DRIVE PLAN VIEW
STA. 0+00 TO STA. END (PROPOSED)
(ALTERNATE BID 1)

2/8 SCALE: 1:10



E. LAWNDALE DRIVE PROFILE VIEW STA. 0+00 TO STA. END
(ALTERNATE BID 1)

A/8 HORIZONTAL SCALE: 1":10'
VERTICAL SCALE: 1":1'

PROFILE LEGEND

- EXISTING FL PROFILE
- PROPOSED TC PROFILE
- PROPOSED FL PROFILE

(ALTERNATE BID 1)
SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
SY	12	DEMO CONC. DRIVEWAY
LF	212	DEMO CONC. CURB & GUTTER
LF	28	DEMO CONC. VALLEY GUTTER
SY	313	DEMO ASPHALT & BASE
LF	206	6" CONC. CURB & GUTTER
LF	6.5	2' CONC. VALLEY GUTTER
LF	28	3' CONC. VALLEY GUTTER
SY	12	6" THICK CONC. DRIVEWAY
SY	320	2" HOT MIX ASPHALT REPAIR

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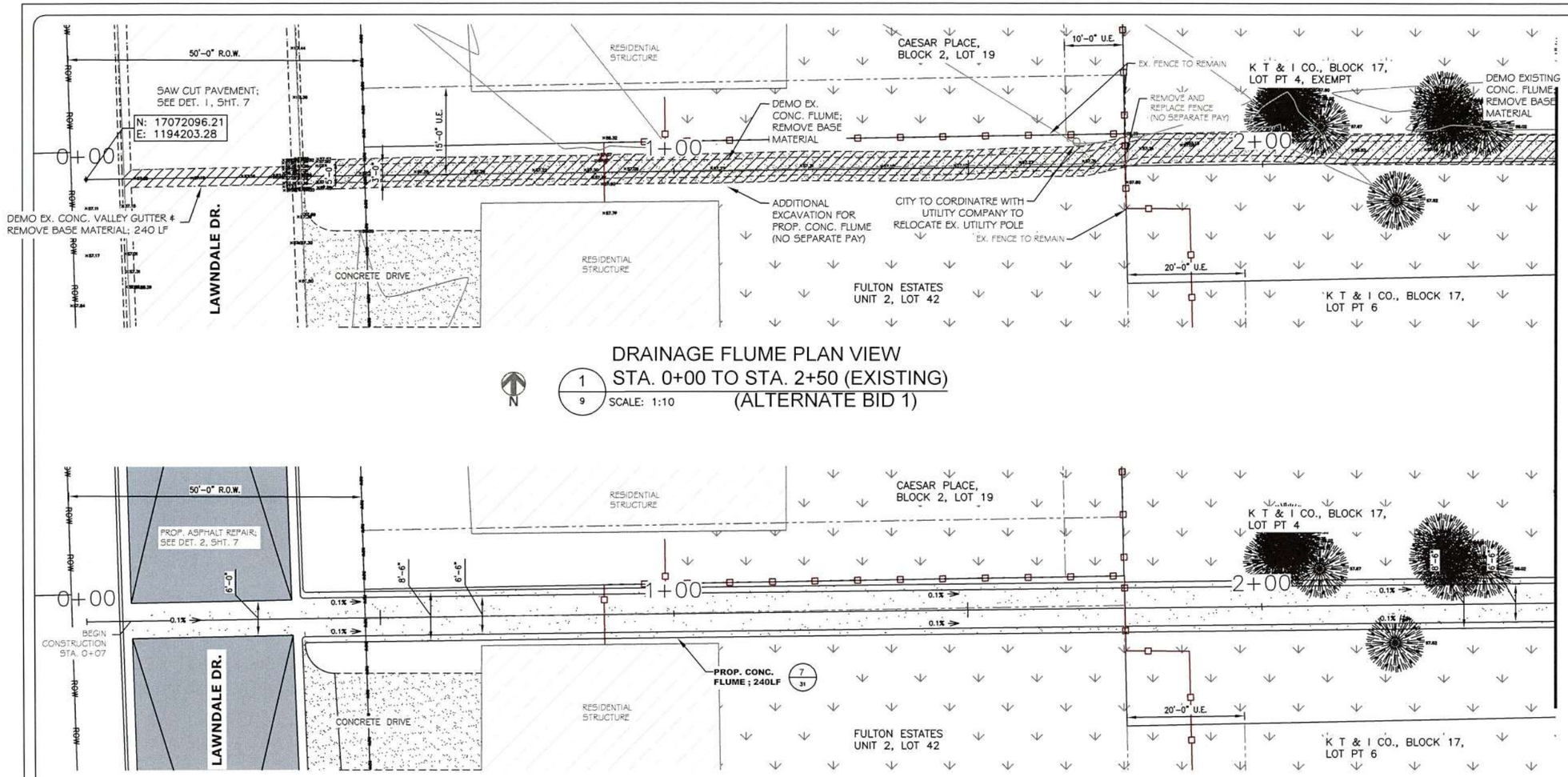
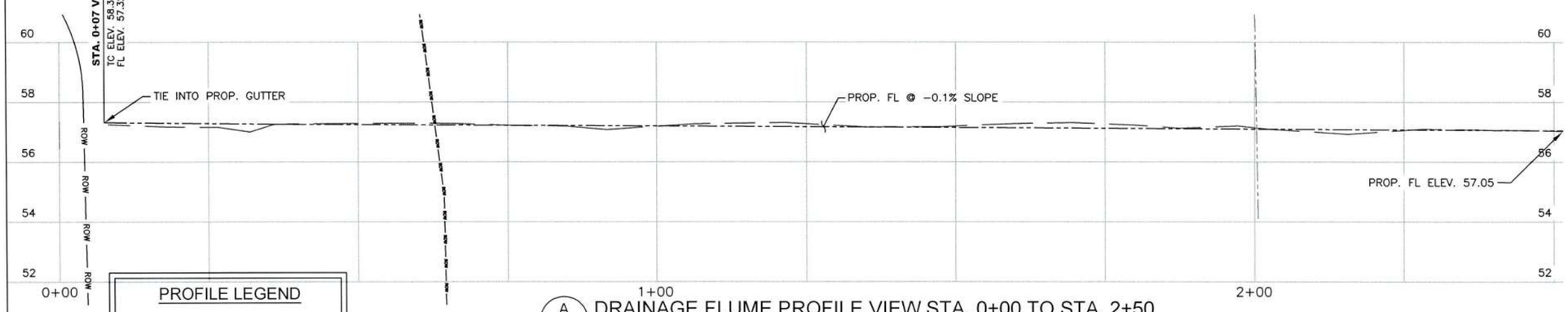
DRAINAGE FLUME AND E. LAWNDALE DR. INTERSECTION



(ALTERNATE BID 1)
SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
LF	241	DEMO CONC. FLUME
LF	241	CONC. FLUME



A/9 DRAINAGE FLUME PROFILE VIEW STA. 0+00 TO STA. 2+50 (ALTERNATE BID 1)
HORIZONTAL SCALE: 1":10'
VERTICAL SCALE: 1":2'

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CITY OF Kingsville TEXAS

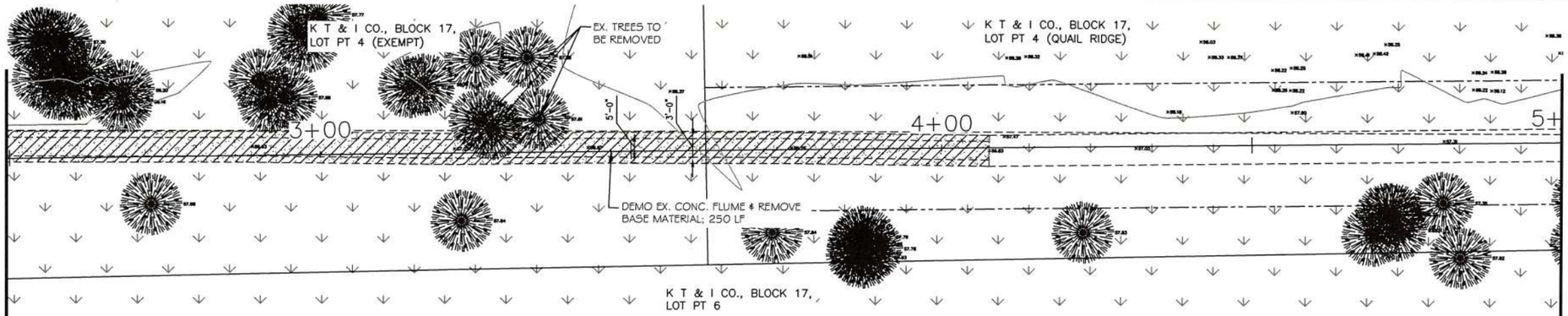
Drawn by: A. REYES
Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

DRAINAGE FLUME FROM E. LAWNDALE DR. TO E. SEN. CARLOS TRUAN BLVD. PLAN AND PROFILE - STA 0+00 TO 2+50

SHEET 9

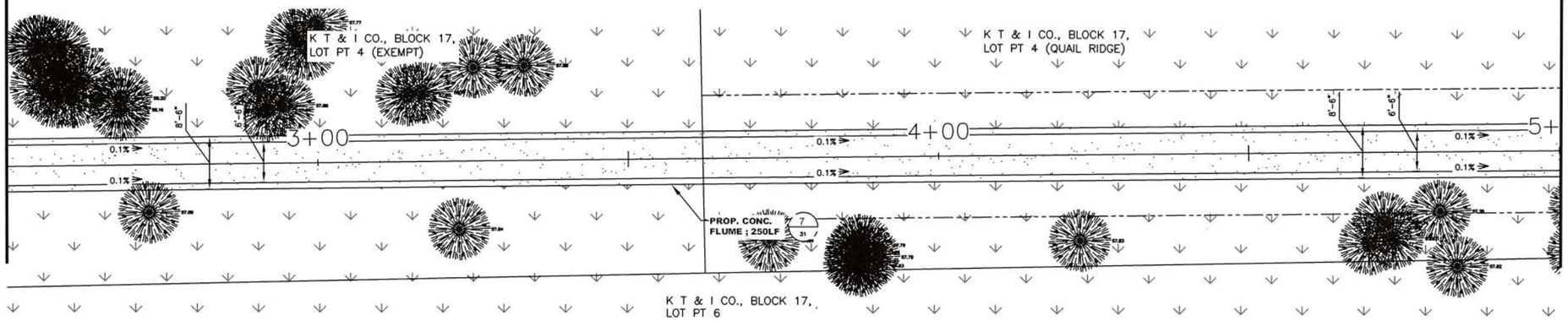
MATCHLINE STA. 2 + 5 0



DRAINAGE FLUME PLAN VIEW
STA. 2+50 TO STA. 5+00 (EXISTING)
(ALTERNATE BID 1)

1/10 SCALE: 1:10

MATCHLINE STA. 5 + 0 0

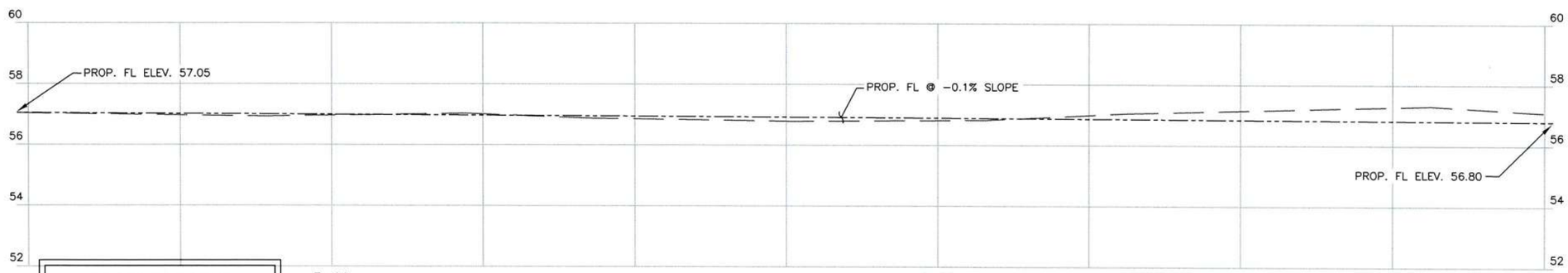


DRAINAGE FLUME PLAN VIEW
STA. 2+50 TO STA. 5+00 (PROPOSED)
(ALTERNATE BID 1)

2/10 SCALE: 1:10

(ALTERNATE BID 1)
SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
LF	250	DEMO CONC. FLUME
LF	250	CONC. FLUME



A/10 DRAINAGE FLUME PROFILE VIEW STA. 2+50 TO STA. 5+00
(ALTERNATE BID 1)
HORIZONTAL SCALE: 1":10'
VERTICAL SCALE: 1":2'

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STATE OF TEXAS
RUTILIO P. MORA JR
111588
LICENSED PROFESSIONAL ENGINEER

Rutilio P. Mora Jr. P.E. 7/1/2024
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Date: 08/23/2023
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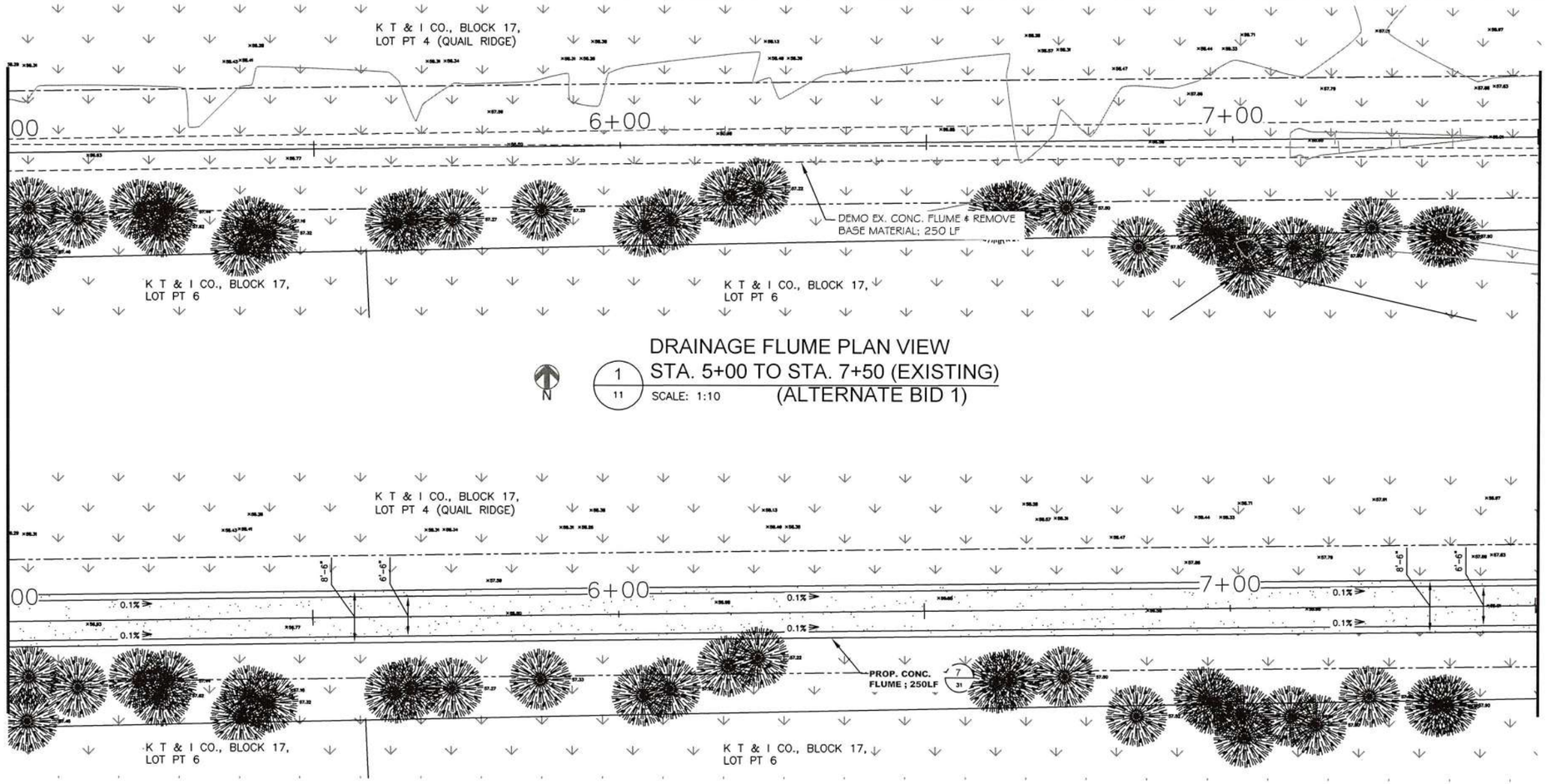
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

DRAINAGE FLUME BETWEEN E. LAWNDALE DR. TO E. SEN. CARLOS TRUAN BLVD. PLAN AND PROFILE - STA 2+50 TO 5+00

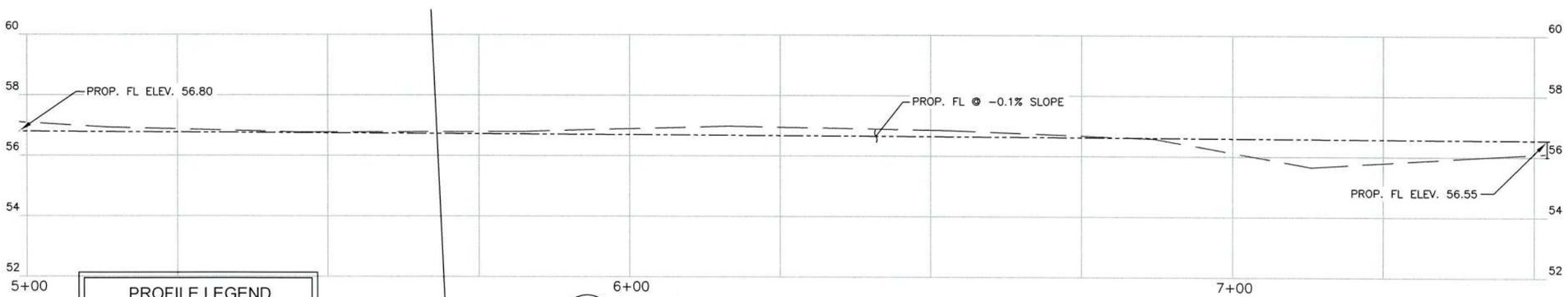


DRAINAGE FLUME PLAN VIEW
1/11 STA. 5+00 TO STA. 7+50 (EXISTING)
SCALE: 1:10 (ALTERNATE BID 1)

DRAINAGE FLUME PLAN VIEW
2/11 STA. 5+00 TO STA. 7+50 (PROPOSED)
SCALE: 1:10 (ALTERNATE BID 1)

(ALTERNATE BID 1)
SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
LF	250	DEMO CONC. FLUME
LF	250	CONC. FLUME



A/11 DRAINAGE FLUME PROFILE VIEW STA. 5+00 TO STA. 7+50 (ALTERNATE BID 1)
HORIZONTAL SCALE: 1":10'
VERTICAL SCALE: 1":2'

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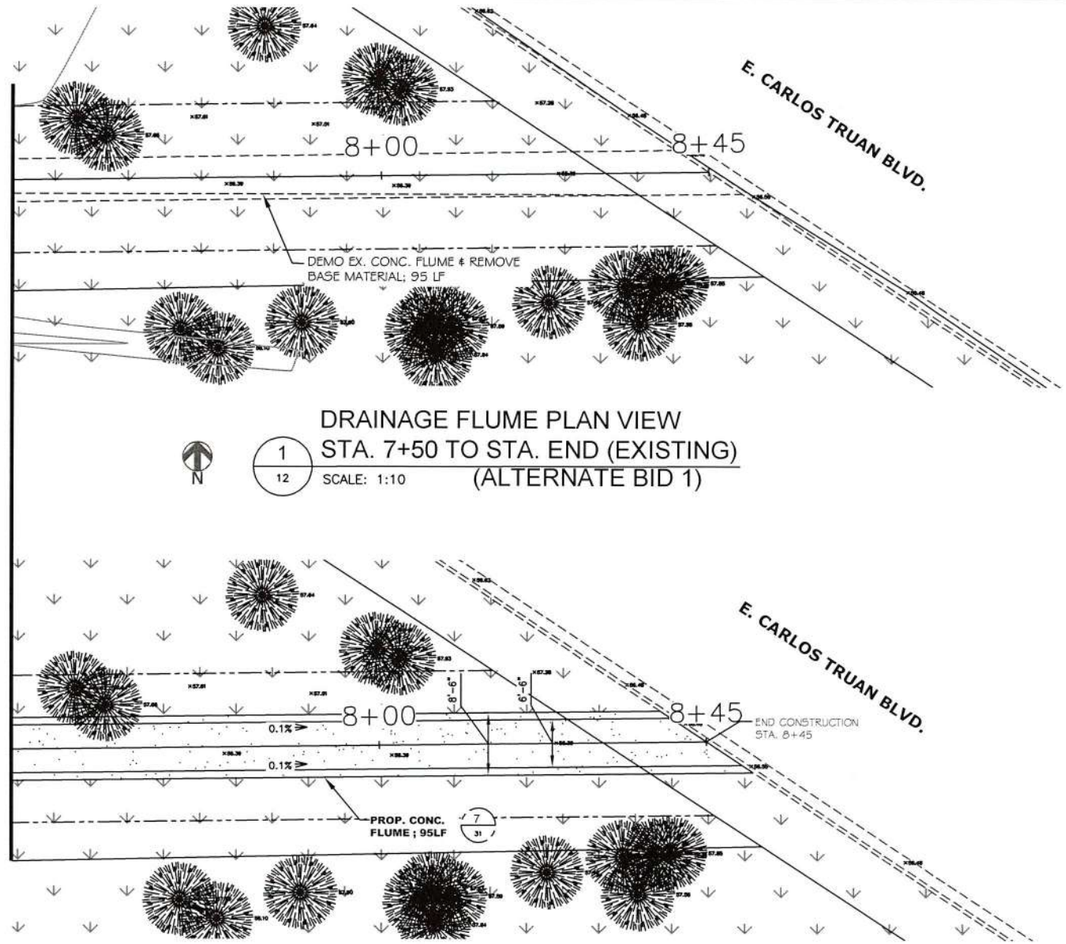
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

DRAINAGE FLUME BETWEEN E. LAWNDALE DR. TO E. SEN. CARLOS TRUAN BLVD. PLAN AND PROFILE - STA 5+00 TO 7+50

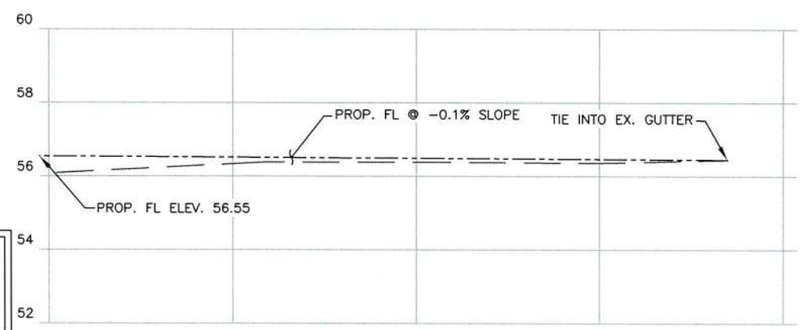
SHEET 11

MATCHLINE STA. 7 + 5 0



DRAINAGE FLUME PLAN VIEW
STA. 7+50 TO STA. END (EXISTING)
(ALTERNATE BID 1)

DRAINAGE FLUME PLAN VIEW
STA. 7+50 TO STA. END (PROPOSED)
(ALTERNATE BID 1)



PROFILE LEGEND
EXISTING FL PROFILE
PROPOSED FL PROFILE

A
12
DRAINAGE FLUME PROFILE VIEW STA. 7+50 TO END
(ALTERNATE BID 1)
HORIZONTAL SCALE: 1":10'
VERTICAL SCALE: 1":2'

(ALTERNATE BID 1)
SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
LF	95	DEMO CONC. FLUME
LF	95	CONC. FLUME

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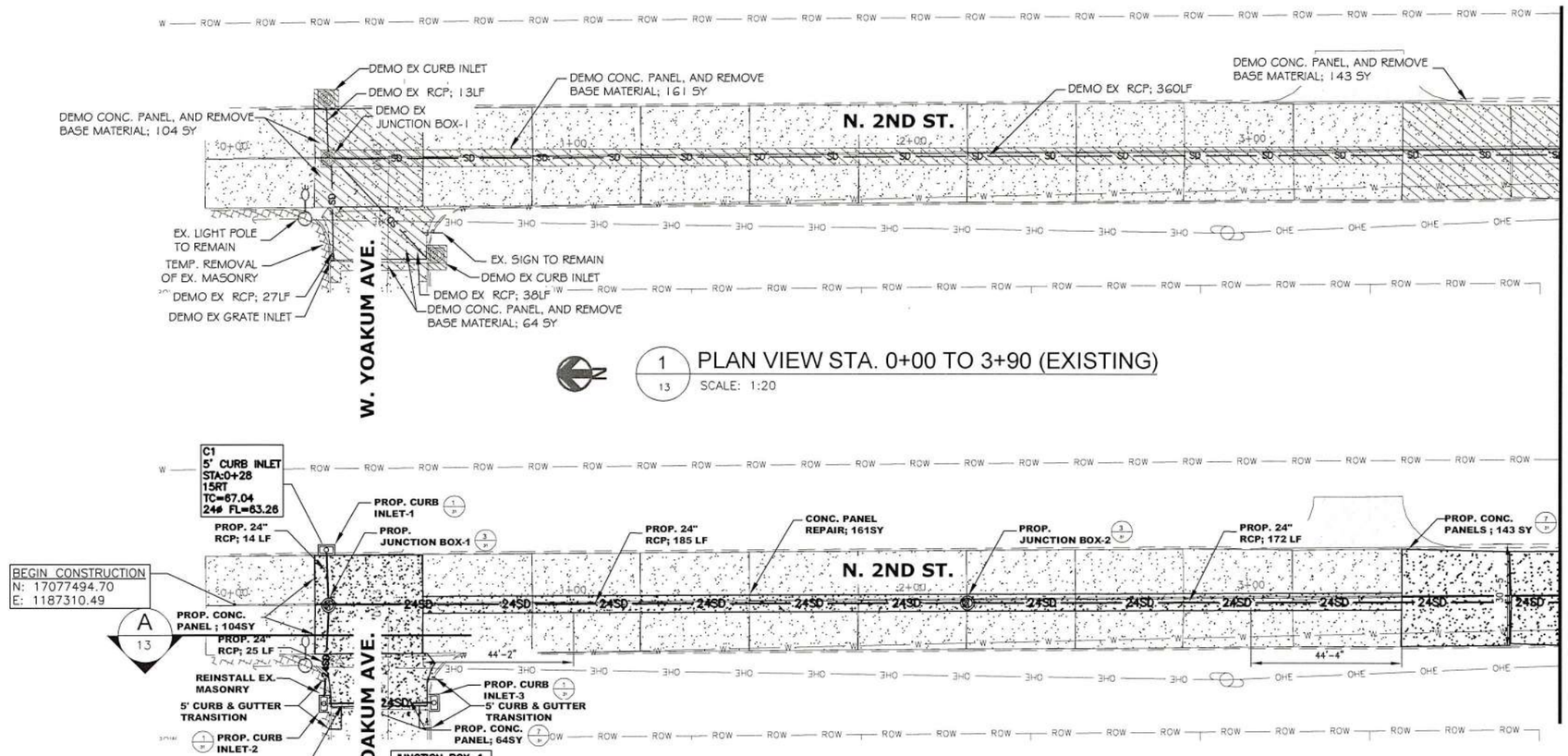
DRAINAGE FLUME BETWEEN E. LAWNDALE DR. TO E. SEN. CARLOS TRUAN BLVD. PLAN AND PROFILE - STA 7+50 TO END



1 / 13 PLAN VIEW STA. 0+00 TO 3+90 (EXISTING)
SCALE: 1:20

MATCHLINE STA. 3 + 9 0

2 / 13 PLAN VIEW STA. 0+00 TO 3+90 (PROPOSED)
SCALE: 1:20

A / 13 PROFILE VIEW STA. 0+00 TO 3+90
HORIZONTAL SCALE: 1:20
VERTICAL SCALE: 1:2

PROFILE LEGEND
- EXISTING EAST NG PROFILE
- EXISTING WEST NG PROFILE

SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
LF	45	DEMO 6" CONC. CURB & GUTTER
SY	472	DEMO CONC. PAVEMENT
EA	1	DEMO JUNCTION BOX
LF	438	DEMO. STORM PIPE
EA	2	DEMO CURB INLET
EA	1	DEMO GRATE INLET
LF	45	6" CONC. CURB & GUTTER
SY	472	LIMESTONE FILL (6" AVG. DEPTH)
SY	311	CONC. PAVEMENT 6" THICK
SY	161	6" THINK CONC. PAVEMENT REPAIR
EA	2	CONC. JUNCTION BOX
LF	426	24" DIA. RCP
EA	3	CURB INLET

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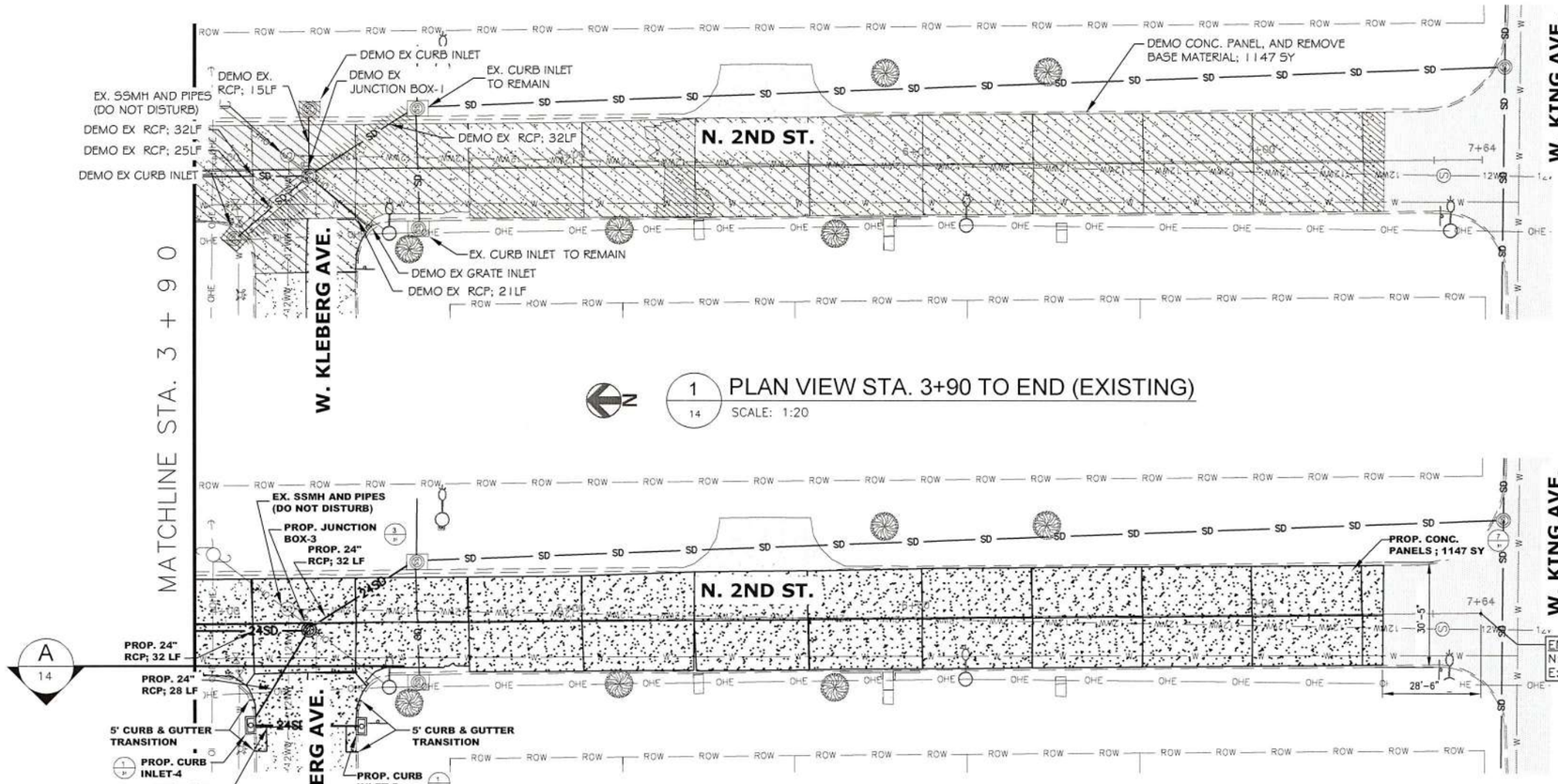
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

S. 2ND ST. FROM W. YOAKUM AVE. TO W. KLEBERG AVE.
PLAN AND PROFILE - STA. 0+00 TO 3+90



SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
LF	60	DEMO 6" CONC. CURB & GUTTER
SY	1147	DEMO CONC. PAVEMENT
EA	1	DEMO JUNCTION BOX
LF	125	DEMO. STORM PIPE
EA	2	DEMO CURB INLET
EA	1	DEMO GRATE INLET
LF	60	6" CONC. CURB & GUTTER
SY	1147	LIMESTONE FILL (6" AVG. DEPTH)
SY	1147	CONC. PAVEMENT 6" THICK
EA	1	CONC. STORM MANHOLE
LF	122	24" DIA. RCP
EA	2	CON. CURB INLET

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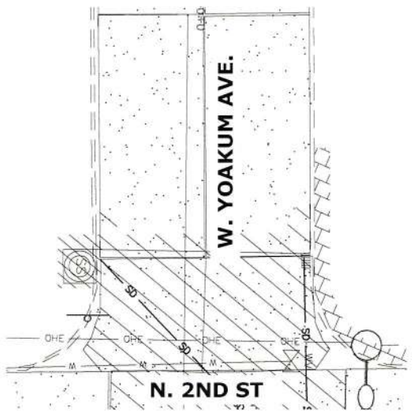
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

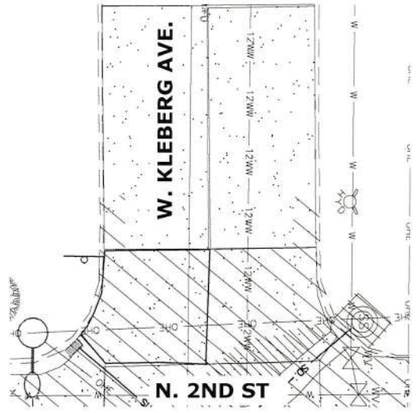
S. 2ND ST. FROM W. KLEBERG AVE. TO W. KING AVE.

PLAN AND PROFILE - STA. 3+90 TO END

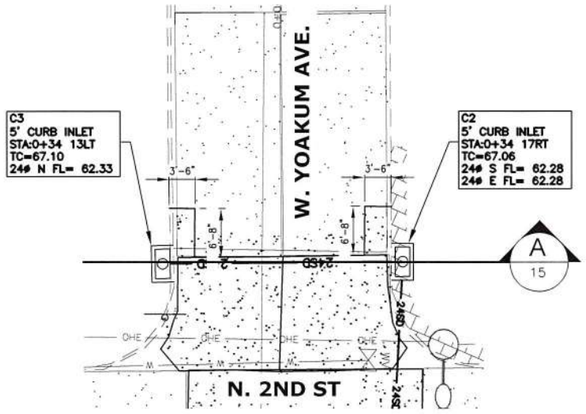
SHEET 14



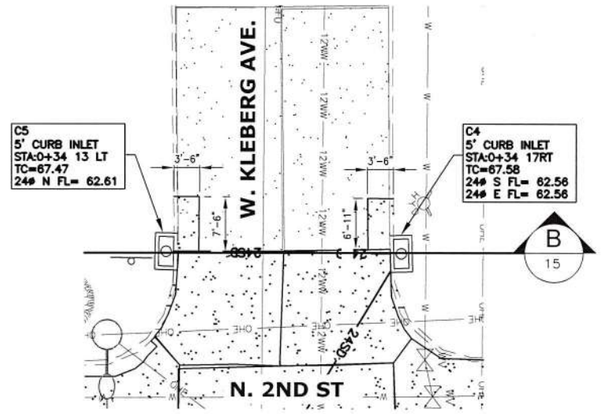
1 / 15 PLAN VIEW STA. 0+00 TO 0+54 (EXISTING)
SCALE: 1:10



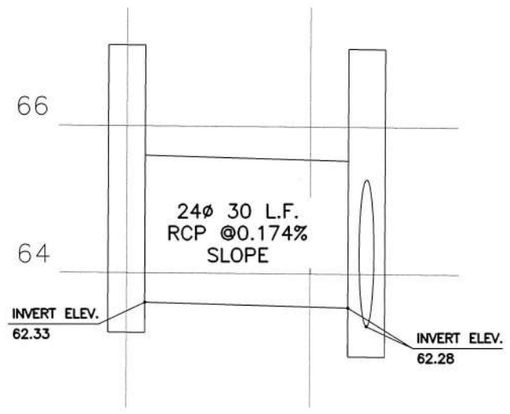
3 / 15 PLAN VIEW STA. 0+00 TO 0+54 (EXISTING)
SCALE: 1:10



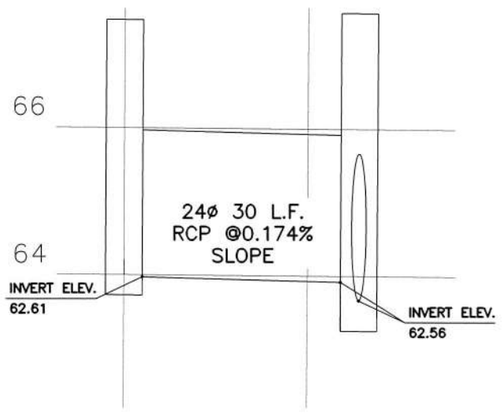
2 / 15 PLAN VIEW STA. 0+00 TO 0+54 (PROPOSED)
SCALE: 1:10



4 / 15 PLAN VIEW STA. 0+00 TO 0+54 (PROPOSED)
SCALE: 1:10



A / 15 PROFILE VIEW STA. 0+00 TO 2+50
HORIZONTAL SCALE: 1:10
VERTICAL SCALE: 1:2



B / 15 PROFILE VIEW STA. 0+00 TO 2+50
HORIZONTAL SCALE: 1:10
VERTICAL SCALE: 1:2

PROFILE LEGEND
EXISTING NORTH NG PROFILE
EXISTING SOUTH NG PROFILE

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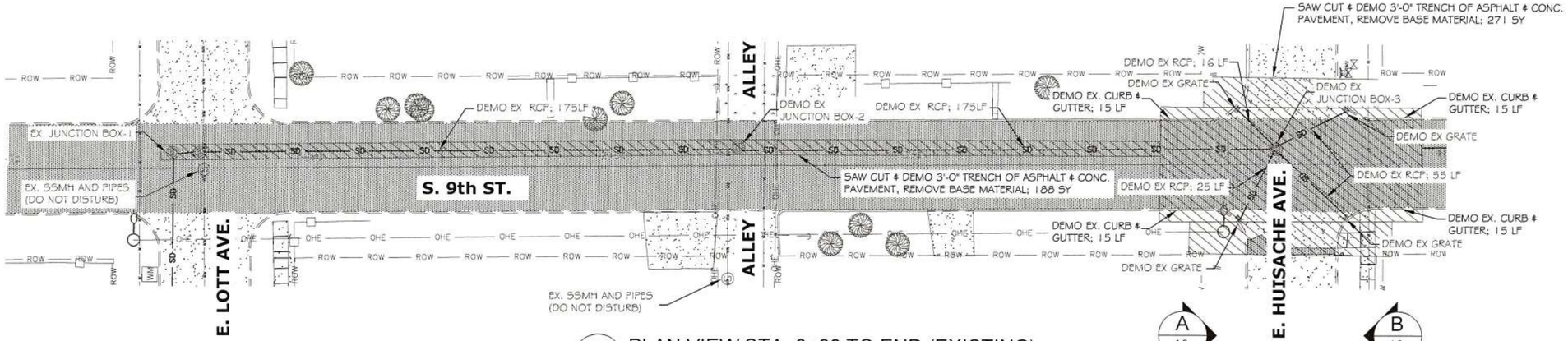
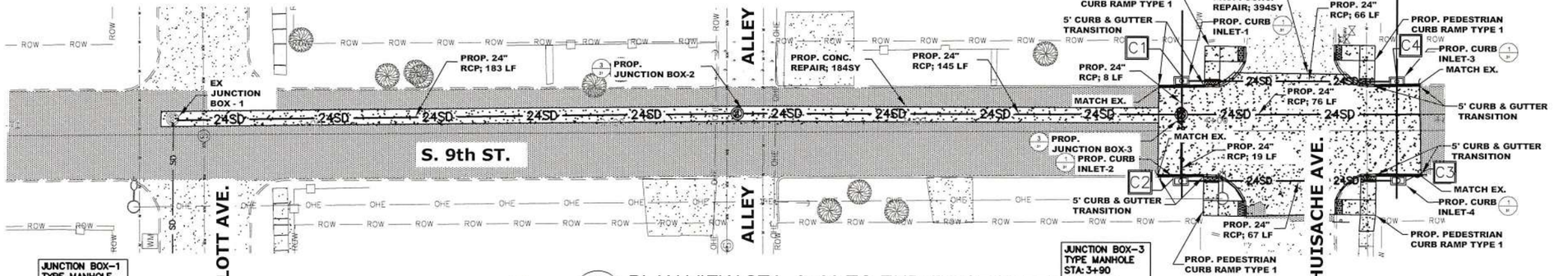
W. YOAKUM AVE. / N. 2ND ST. AND W. KLEBERG AVE. / S. 2ND ST. PLAN AND PROFILE



1/16 PLAN VIEW STA. 0+00 TO END (EXISTING)
SCALE: 1:20



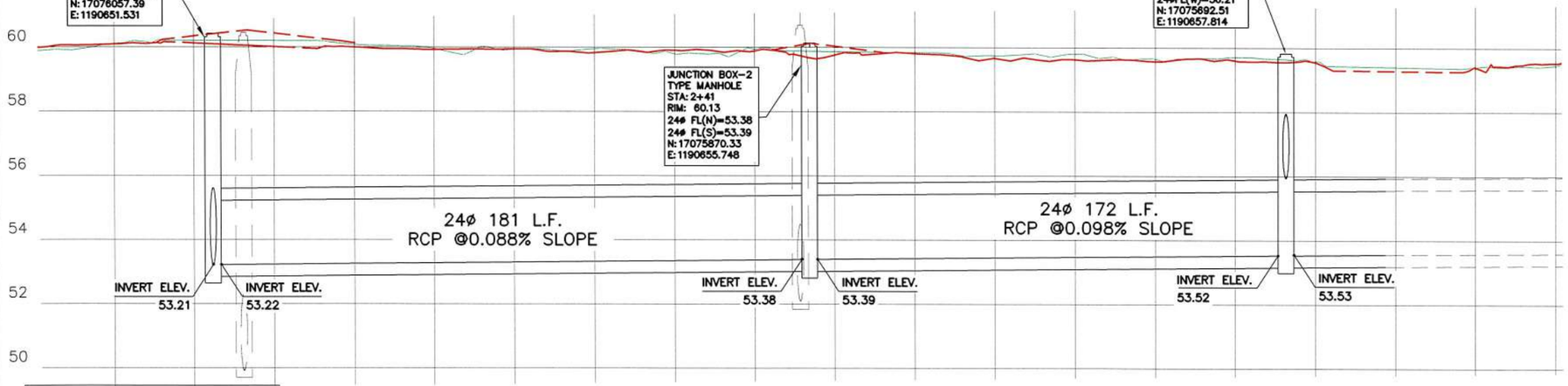
2/16 PLAN VIEW STA. 0+00 TO END (PROPOSED)
SCALE: 1:20

C1
5' CURB INLET
STA:3+89 16.45RT
TC=60.00
24ø S FL= 56.20
24ø W FL= 56.20

C2
5' CURB INLET
STA:3+91 16.66LT
TC=59.92
24ø S FL= 56.25
24ø E FL= 56.25

C3
5' CURB INLET
STA:4+60 16.67LT
TC=59.87
24ø N FL= 56.37

C4
5' CURB INLET
STA:4+58 16.05RT
TC=59.82
24ø N FL= 56.32



PROFILE LEGEND
EXISTING EAST NG PROFILE
EXISTING WEST NG PROFILE

A/16 PROFILE VIEW STA. 0+00 TO END
HORIZONTAL SCALE: 1:20
VERTICAL SCALE: 1:2

SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
LF	60	DEMO 6" CONC. CURB & GUTTER
SY	583	DEMO CONC. PAVEMENT
EA	2	DEMO STORM MANHOLE
LF	446	DEMO STORM PIPE
EA	4	DEMO GRATE INLET
LF	60	6" CONC. CURB & GUTTER
SY	40	4" THICK CONC. SIDEWALK
SY	583	CONC. PAVEMENT 6" THICK
EA	2	CONC. STORM MANHOLE
LF	564	24" DIA. RCP
EA	4	CON. CURB INLET
EA	8	PEDESTRIAN CURB RAMP TYPE 1
EA	4	ADA SHARED LANDING 5X5

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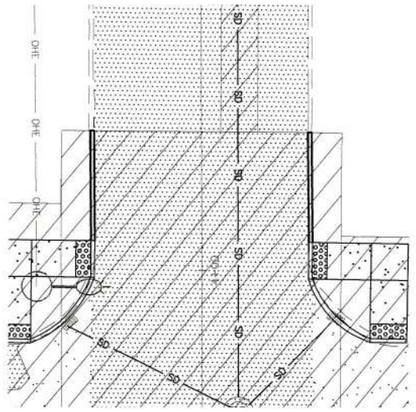
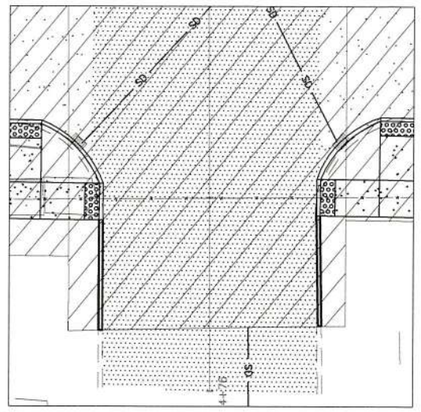
S. 9TH ST. FROM E. LOTT AVE. TO E. HUISACHE AVE. PLAN AND PROFILE - STA. 0+00 TO END



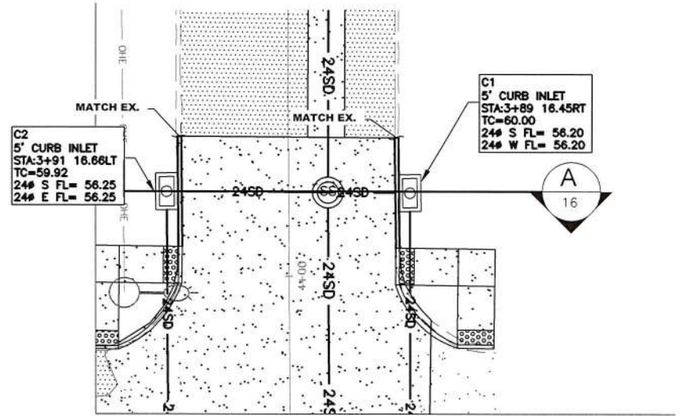
1 / 16 PLAN VIEW STA. 0+00 TO 0+54 (EXISTING)

SCALE: 1:10



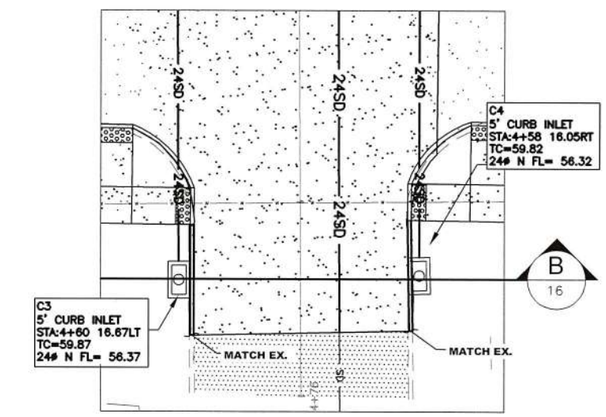
3 / 16 PLAN VIEW STA. 0+00 TO 0+54 (EXISTING)

SCALE: 1:10



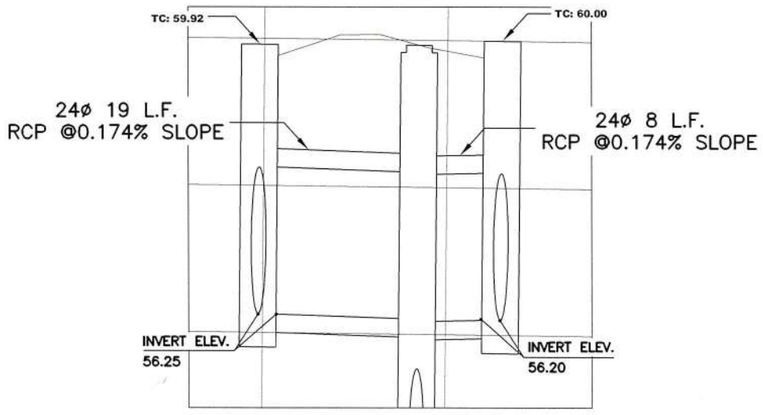
2 / 16 PLAN VIEW STA. 0+00 TO 0+54 (PROPOSED)

SCALE: 1:10



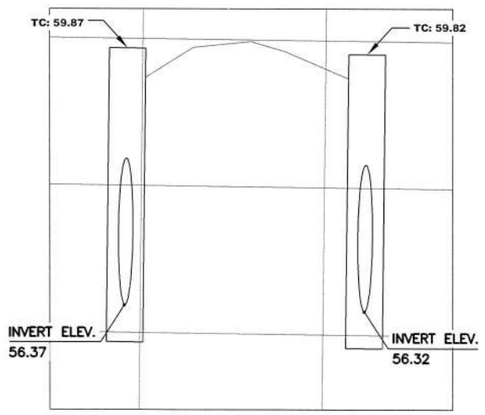
4 / 16 PLAN VIEW STA. 0+00 TO 0+54 (PROPOSED)

SCALE: 1:10



A / 16 PROFILE VIEW STA. 0+00 TO 2+50

HORIZONTAL SCALE: 1:10
VERTICAL SCALE: 1:2



B / 16 PROFILE VIEW STA. 0+00 TO 2+50

HORIZONTAL SCALE: 1:10
VERTICAL SCALE: 1:2

PROFILE LEGEND

EXISTING NORTH NG PROFILE

EXISTING SOUTH NG PROFILE

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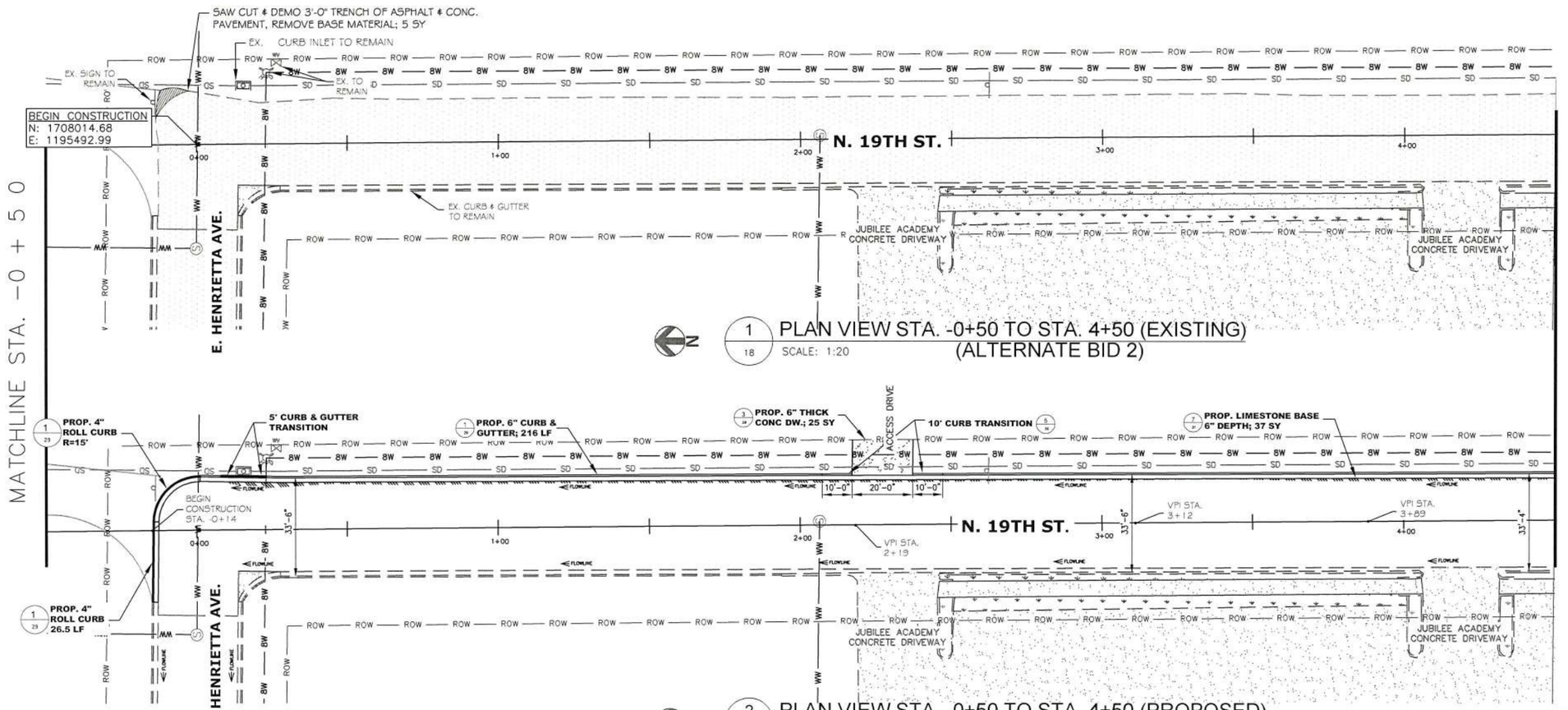
CITY OF Kingsville TEXAS

Drawn by: A. REYES
Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

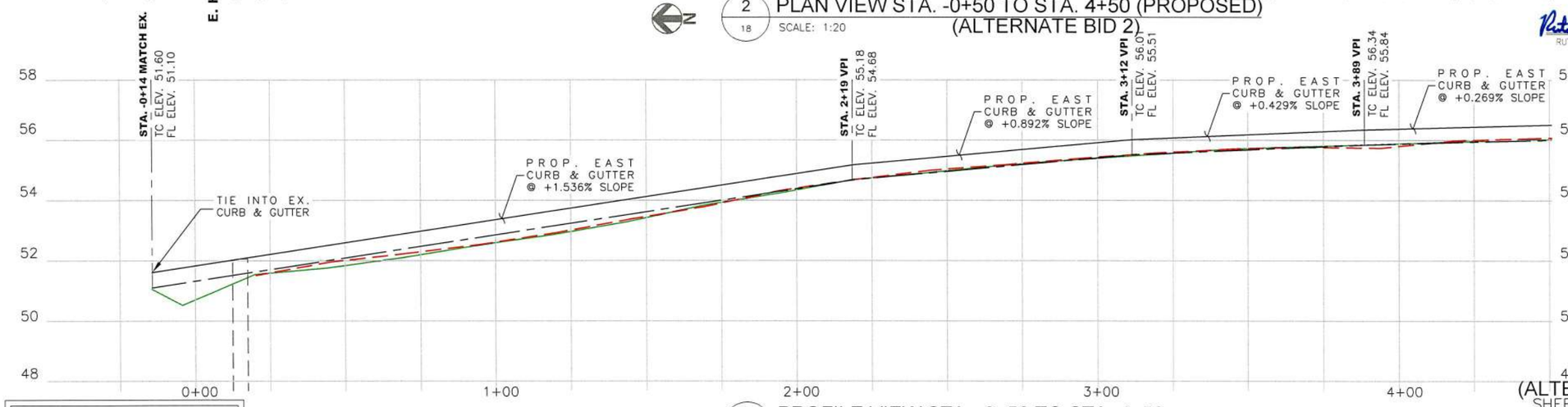
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

S. 9TH ST. / E. HUISACHE AVE. PLAN AND PROFILE



1 / 18 PLAN VIEW STA. -0+50 TO STA. 4+50 (EXISTING) (ALTERNATE BID 2)
SCALE: 1:20

1 / 18 PLAN VIEW STA. -0+50 TO STA. 4+50 (PROPOSED) (ALTERNATE BID 2)
SCALE: 1:20



PROFILE LEGEND
- EXISTING EAST NG PROFILE
- EXISTING WEST NG PROFILE
- PROPOSED TOC PROFILE
- PROPOSED FL PROFILE

A / 18 PROFILE VIEW STA. -0+50 TO STA. 4+50 (ALTERNATE BID 2)
HORIZONTAL SCALE: 1":20'
VERTICAL SCALE: 1":2'

(ALTERNATE BID 2)
SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
SY	5	DEMO ASPHALT & BASE
LF	51	4" CONC. ROLL CURB & GUTTER
LF	216	6" CONC. CURB & GUTTER
LF	20	2' CONC. VALLEY GUTTER
SY	25	6" THICK CONC. DRIVEWAY
SY	37	LIMESTONE FILL (6" AVG. DEPTH)

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Rutilio P. Mora P.E. 7/1/2024

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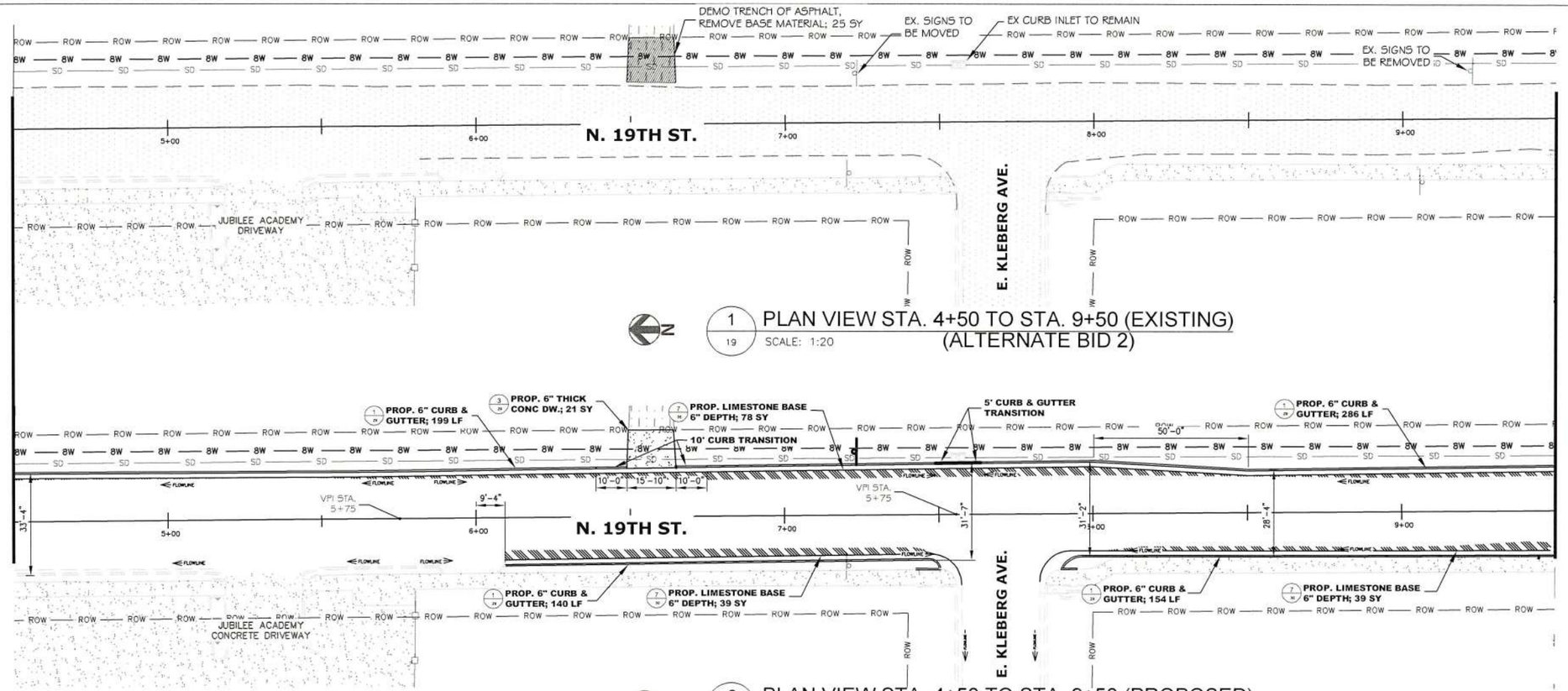
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

N. 19TH ST. FROM E. HENRIETTA AVE. TO SCHOOL

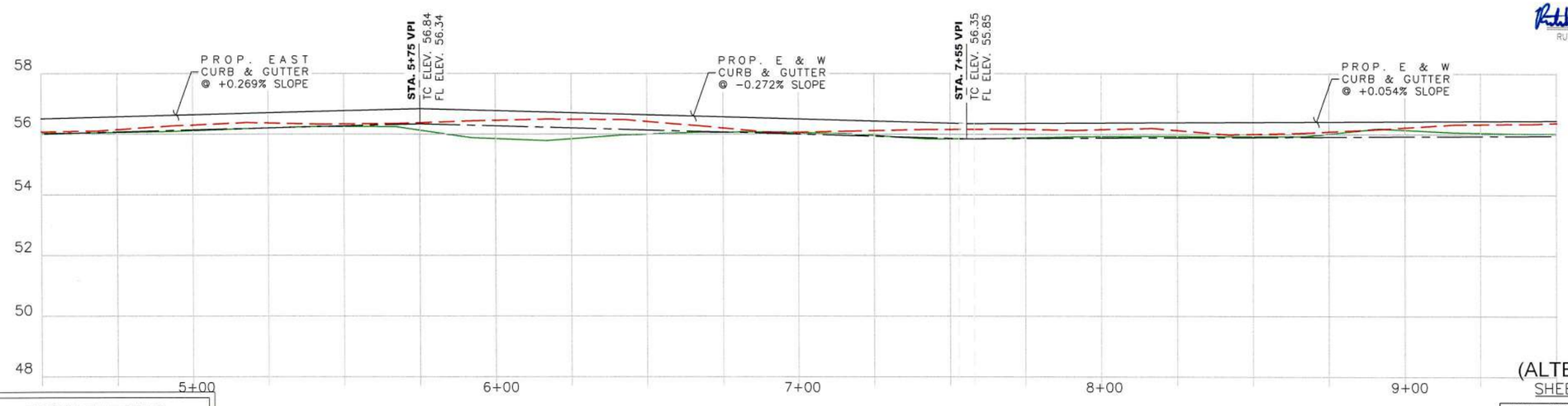
PLAN AND PROFILE - STA. -0+50 TO STA. 4+50

SHEET 18



1/19 PLAN VIEW STA. 4+50 TO STA. 9+50 (EXISTING) (ALTERNATE BID 2)
SCALE: 1:20

2/19 PLAN VIEW STA. 4+50 TO STA. 9+50 (PROPOSED) (ALTERNATE BID 2)
SCALE: 1:20



A/19 PROFILE VIEW STA. 4+50 TO STA. 9+50 (ALTERNATE BID 2)
HORIZONTAL SCALE: 1":20'
VERTICAL SCALE: 1":2'

PROFILE LEGEND
- EXISTING EAST NG PROFILE
- EXISTING WEST NG PROFILE
- PROPOSED TOC PROFILE
- PROPOSED FL PROFILE

(ALTERNATE BID 2)
SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
SY	25	DEMO ASPHALT & BASE
LF	779	6" CONC. CURB & GUTTER
LF	20	2' CONC. VALLEY GUTTER
SY	21	6" THICK CONC. DRIVEWAY
SY	156	LIMESTONE FILL (6" AVG. DEPTH)

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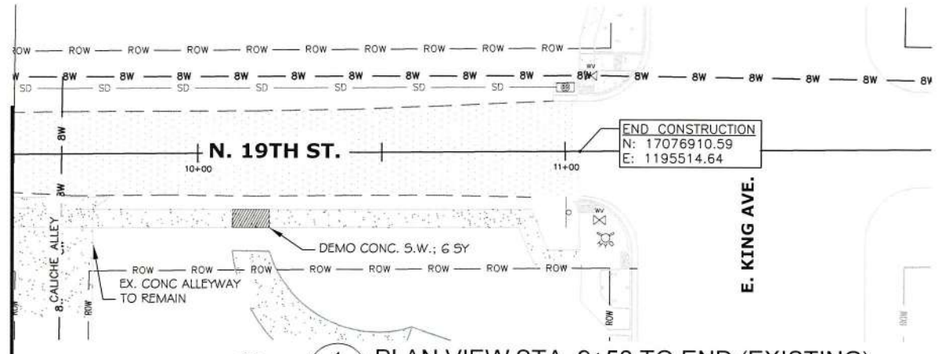
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

N. 19TH ST. FROM SCHOOL TO E. KLEBERG AVE.

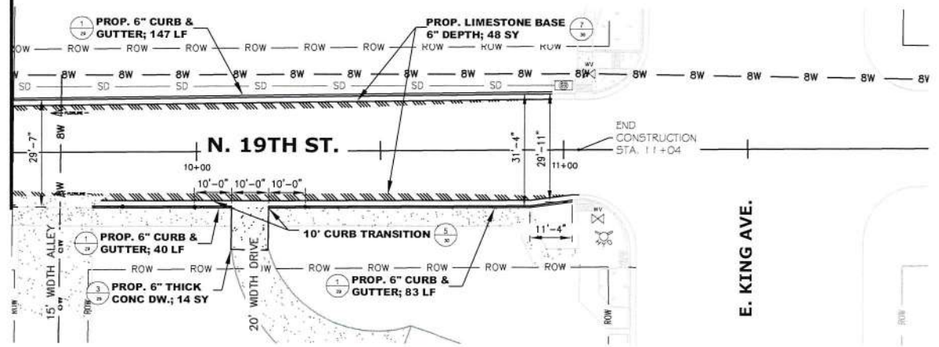
PLAN AND PROFILE - STA. 4+50 TO 9+50

SHEET 19

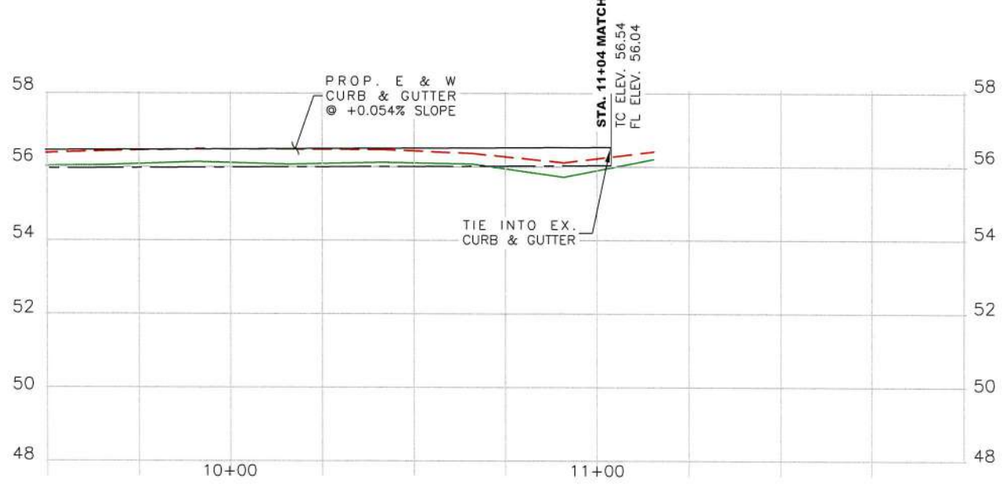
MATCHLINE STA. 9 + 5 0



1/20 PLAN VIEW STA. 9+50 TO END (EXISTING)
SCALE: 1:20 (ALTERNATE BID 2)



2/20 PLAN VIEW STA. 9+50 TO END (PROPOSED)
SCALE: 1:20 (ALTERNATE BID 2)



A/20 PROFILE VIEW STA. 9+50 TO END (ALTERNATE BID 2)
HORIZONTAL SCALE: 1":20'
VERTICAL SCALE: 1":2'

PROFILE LEGEND

- EXISTING EAST NG PROFILE
- EXISTING WEST NG PROFILE
- PROPOSED TOC PROFILE
- PROPOSED FL PROFILE

(ALTERNATE BID 2)
SHEET QUANTITIES

UNIT	QTY	DESCRIPTION
SY	6	DEMO CONC. SIDEWALK
LF	270	6" CONC. CURB & GUTTER
LF	20	2' CONC. VALLEY GUTTER
SY	14	6" THICK CONC. DRIVEWAY
SY	48	LIMESTONE FILL (6" AVG. DEPTH)

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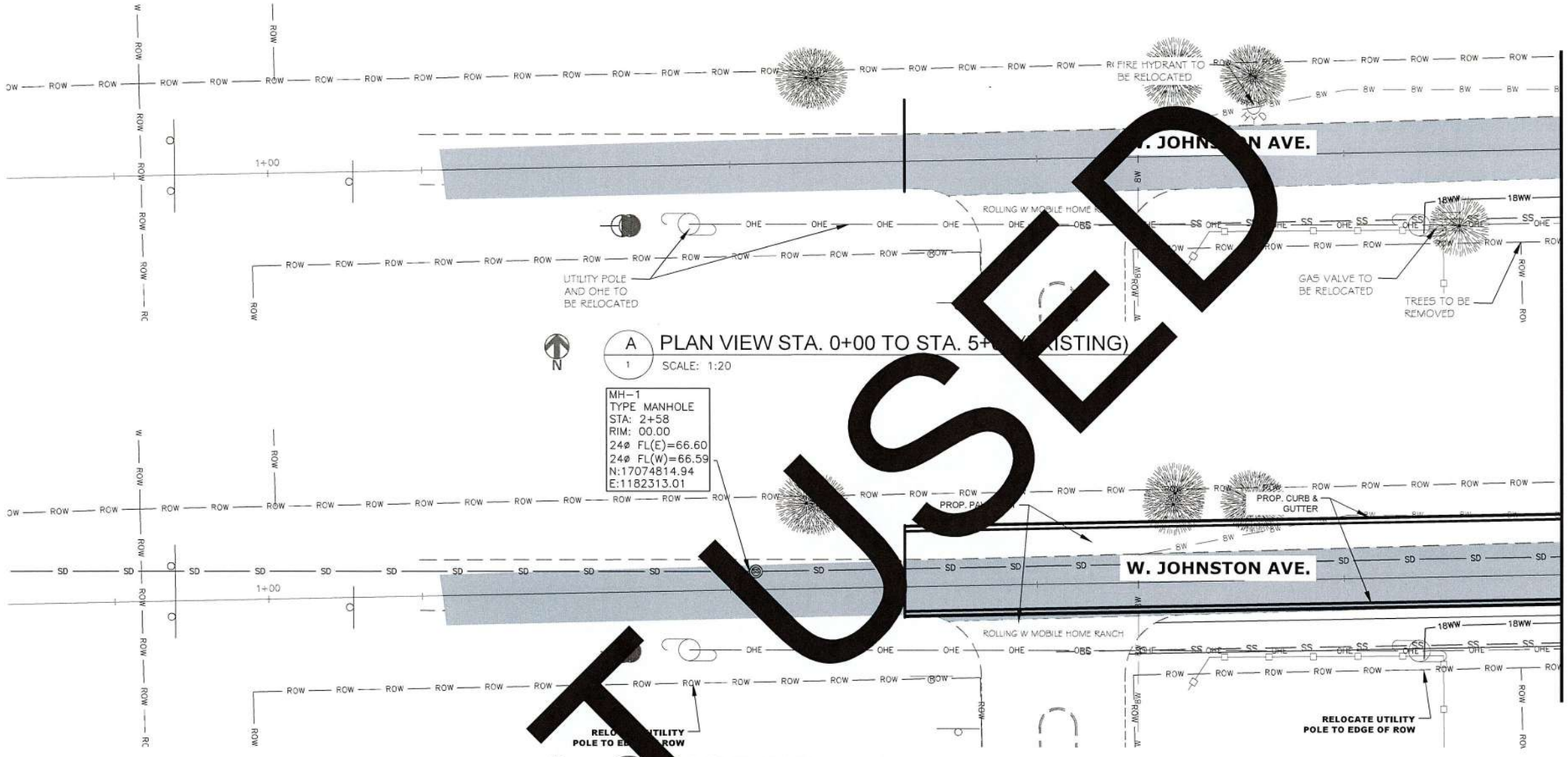
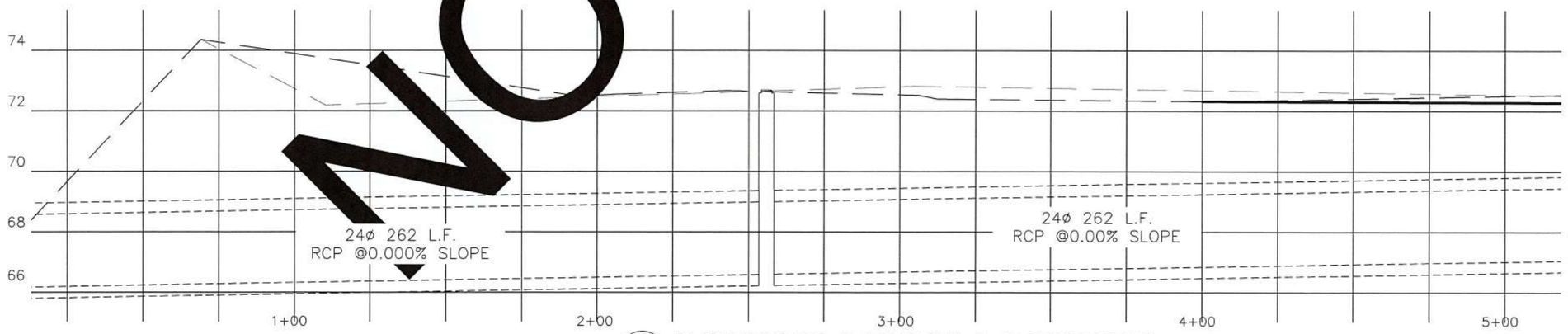
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

N. 19TH ST. FROM E. KLEBERG AVE. TO E. KING AVE.
PLAN AND PROFILE STA. 9+50 TO END



A 1 PLAN VIEW STA. 0+00 TO STA. 5+00 (EXISTING)
SCALE: 1:20

B 1 PLAN VIEW STA. 0+00 TO STA. 5+00 (PROPOSED)
SCALE: 1:20



B 1 PLAN VIEW STA. 0+00 TO STA. 5+00 (PROPOSED)
SCALE: 1:20

NOT USED

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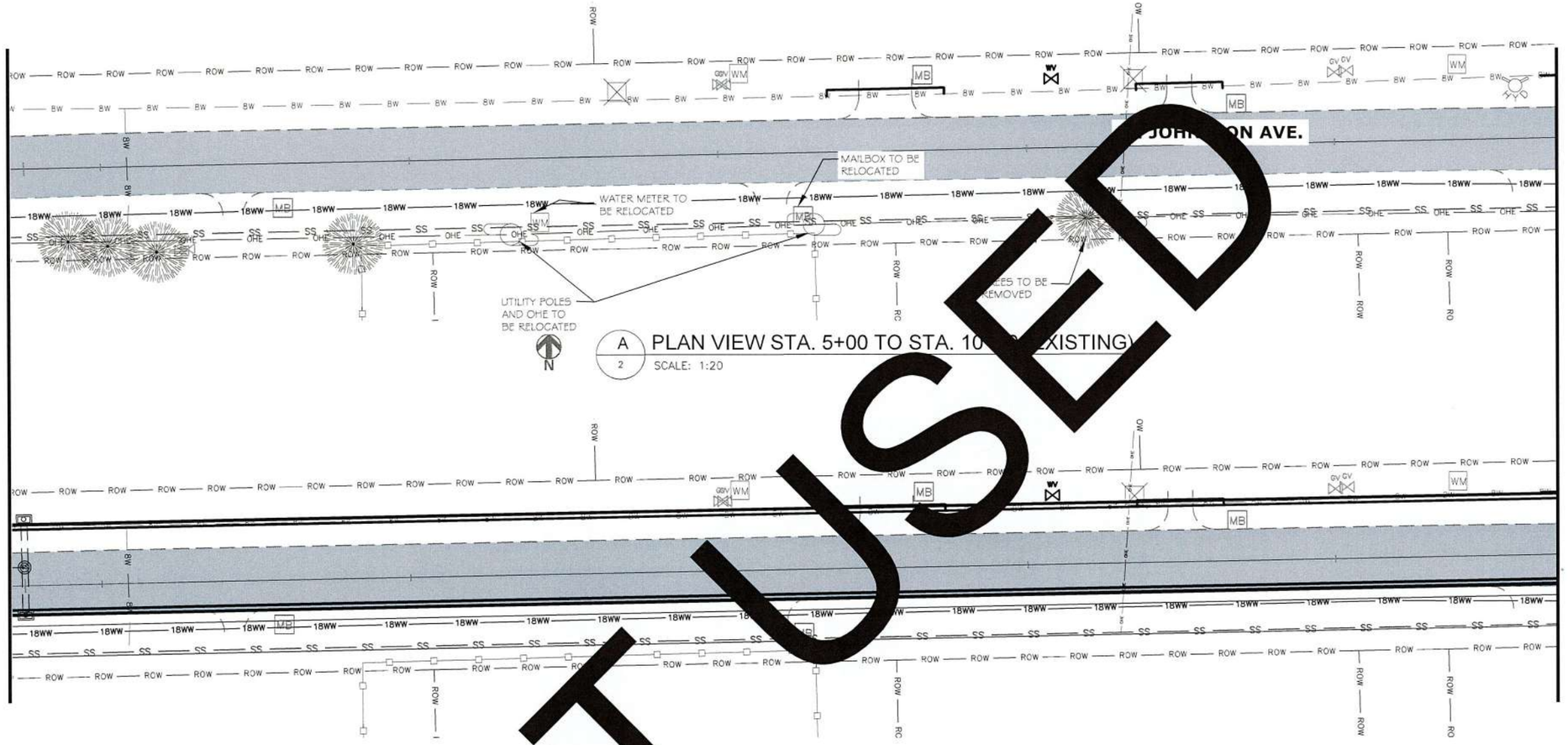
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

W. JOHNSTON AVE. STATION 0+00 TO 5+00

SHEET 21

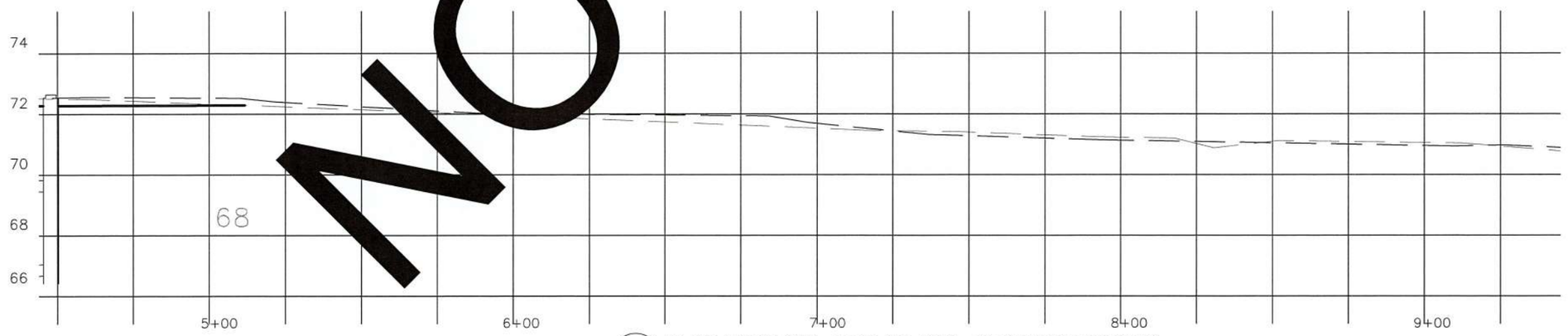
MATCHLINE STA. 5 + 0 0

MATCHLINE STA. 1 0 + 0 0



A 2 PLAN VIEW STA. 5+00 TO STA. 10+00 (EXISTING)
SCALE: 1:20

B 2 PLAN VIEW STA. 5+00 TO STA. 10+00 (PROPOSED)
SCALE: 1:20



B 2 PLAN VIEW STA. 5+00 TO STA. 10+00 (PROPOSED)
SCALE: 1:20

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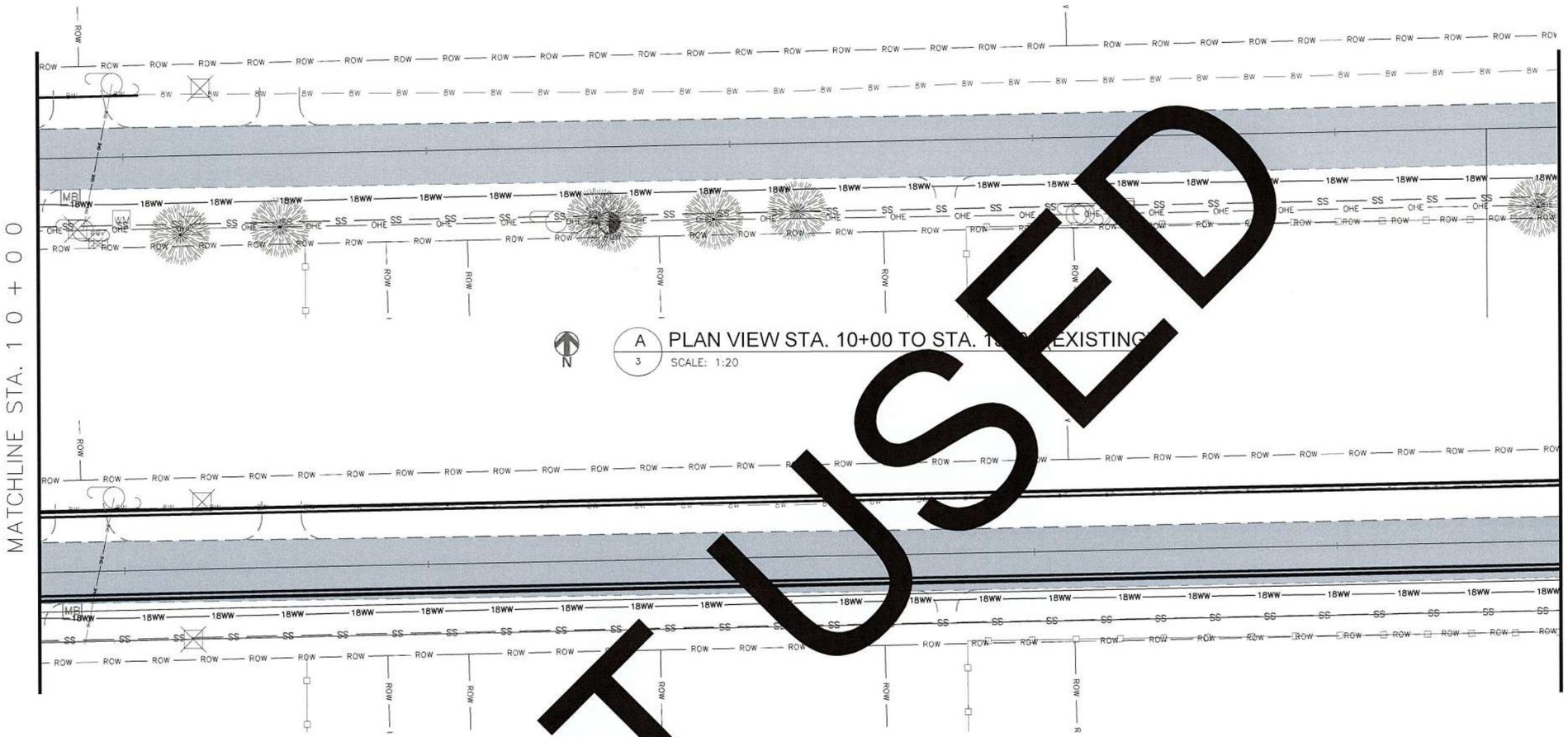
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

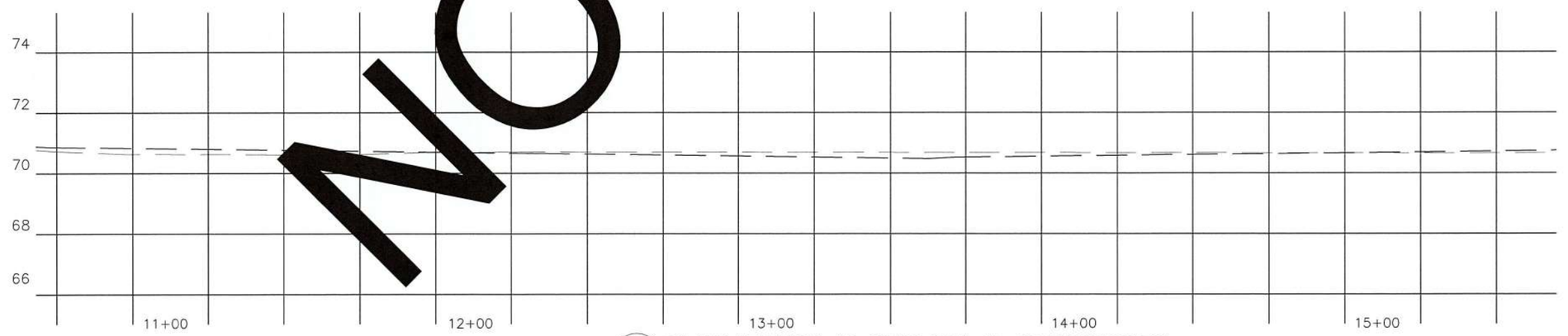
W. JOHNSTON AVE. STATION 5+00 TO 10+00

SHEET
22



A 3 PLAN VIEW STA. 10+00 TO STA. 15+00 (EXISTING)
SCALE: 1:20

B 3 PLAN VIEW STA. 10+00 TO STA. 15+00 (PROPOSED)
SCALE: 1:20



B 3 PLAN VIEW STA. 10+00 TO STA. 15+00 (PROPOSED)
SCALE: 1:20

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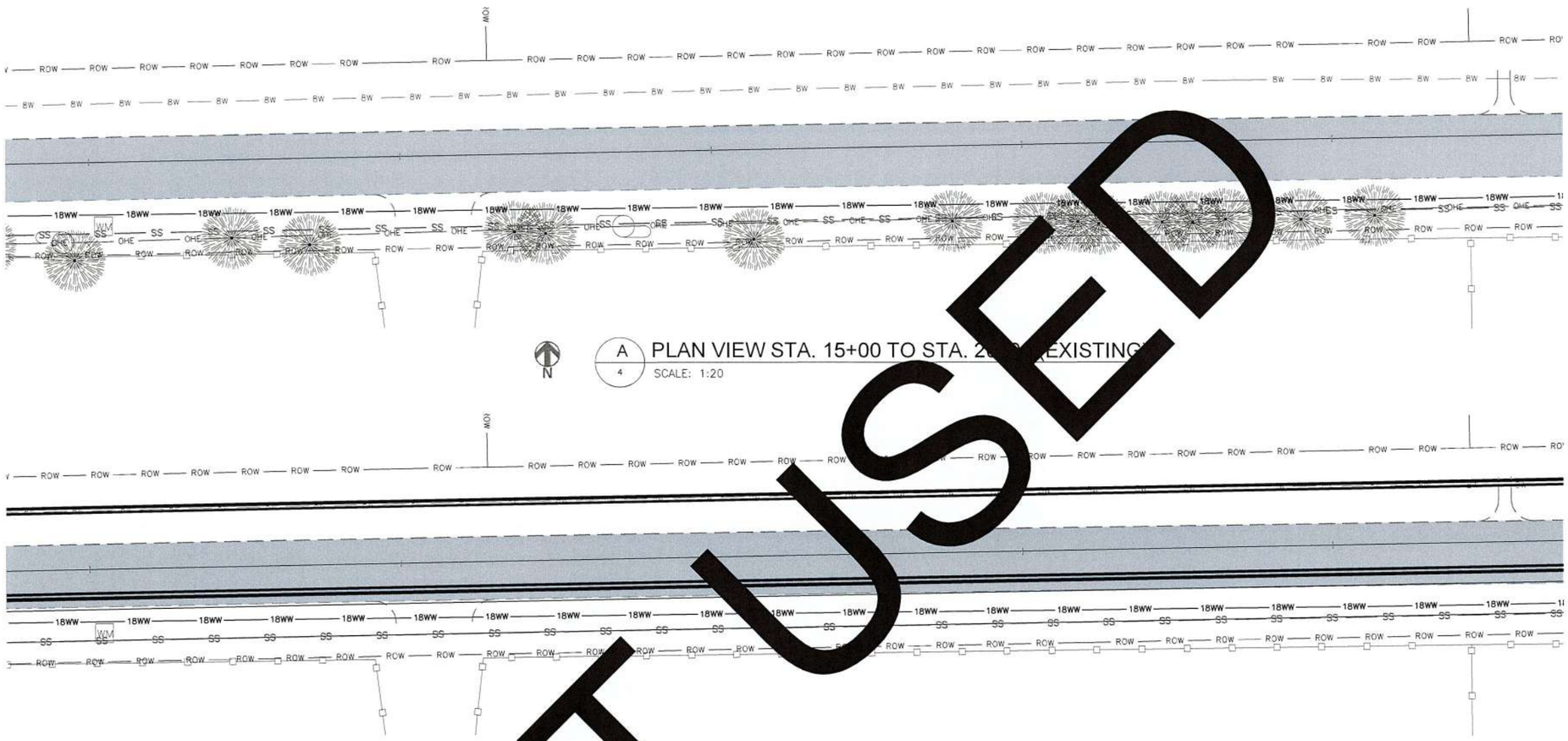
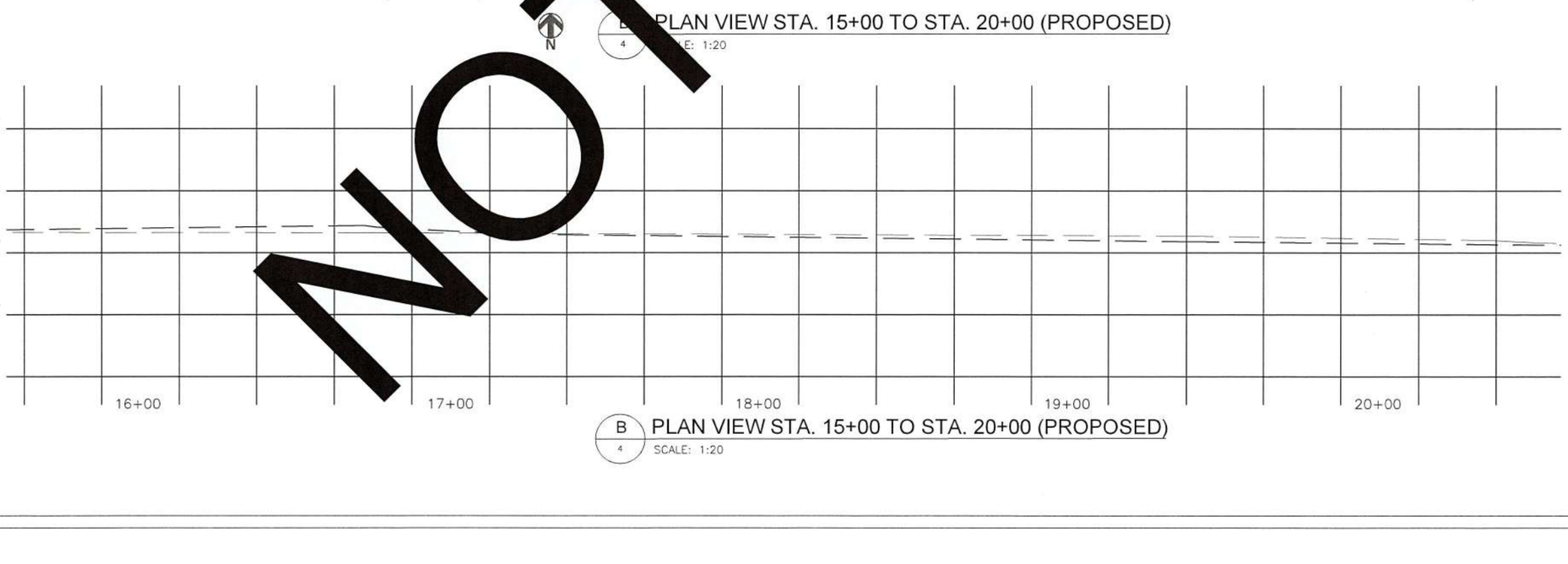
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

W. JOHNSTON AVE. STATION 10+00 TO 15+00



A 4 PLAN VIEW STA. 15+00 TO STA. 20+00 (EXISTING)
SCALE: 1:20



B 4 PLAN VIEW STA. 15+00 TO STA. 20+00 (PROPOSED)
SCALE: 1:20

B 4 PLAN VIEW STA. 15+00 TO STA. 20+00 (PROPOSED)
SCALE: 1:20

NOT USED

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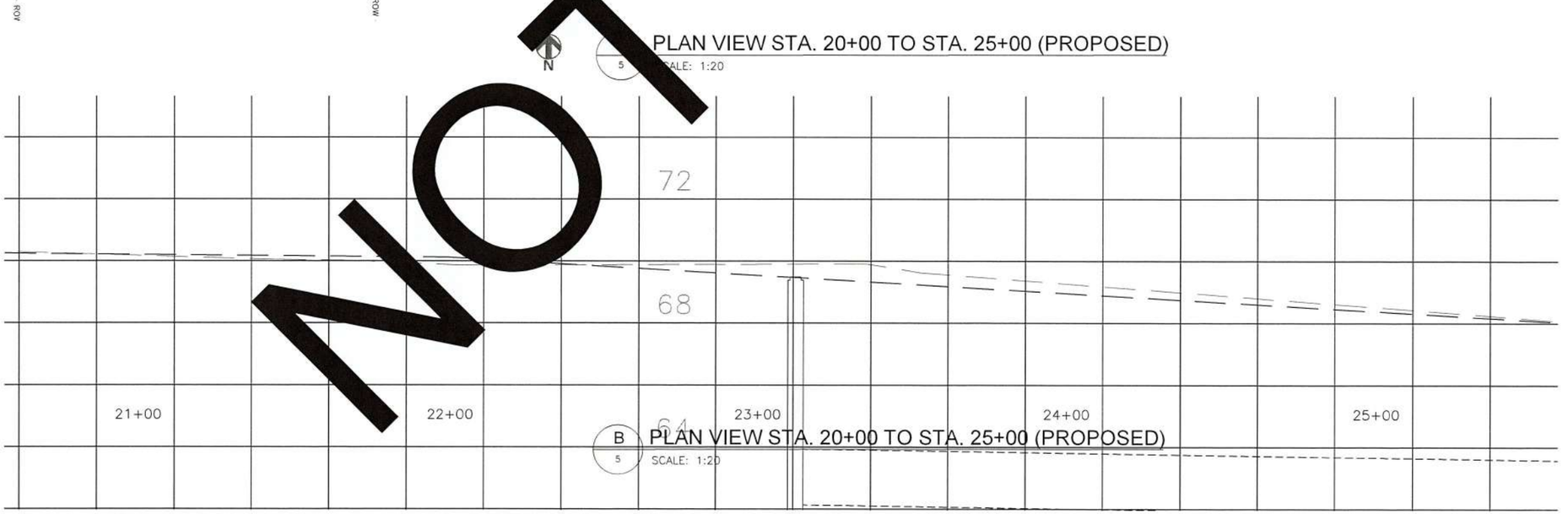
W. JOHNSTON AVE. STATION 15+00 TO 20+00

SHEET
24

A 5 PLAN VIEW STA. 20+00 TO STA. 25+00 (EXISTING)
SCALE: 1:20



N

PLAN VIEW STA. 20+00 TO STA. 25+00 (PROPOSED)
SCALE: 1:20

B 5 PLAN VIEW STA. 20+00 TO STA. 25+00 (PROPOSED)
SCALE: 1:20

NOT USED

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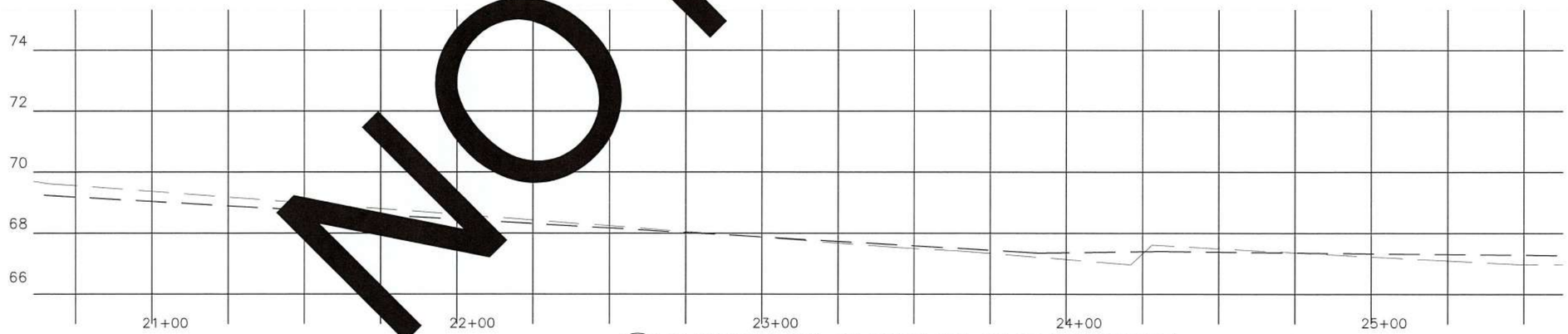
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

W. JOHNSTON AVE. STATION 20+00 TO 25+00

SHEET
25

A 5 PLAN VIEW STA. 20+00 TO STA. 25+00 (EXISTING)
SCALE: 1:20

PLAN VIEW STA. 20+00 TO STA. 25+00 (PROPOSED)
SCALE: 1:20



B 5 PLAN VIEW STA. 20+00 TO STA. 25+00 (PROPOSED)
SCALE: 1:20

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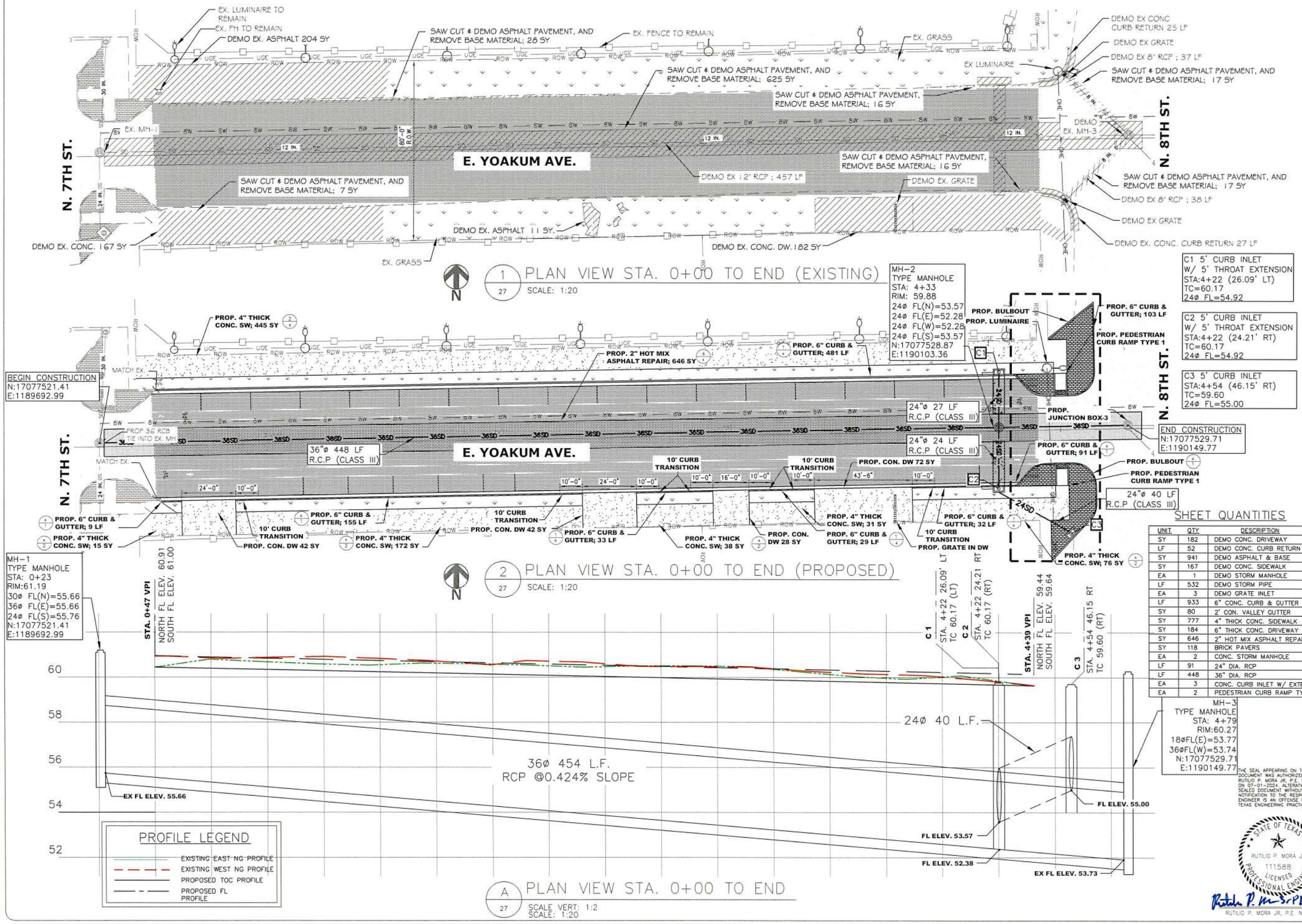
W. JOHNSTON AVE. STATION 20+00 TO 25+00

SHEET
26



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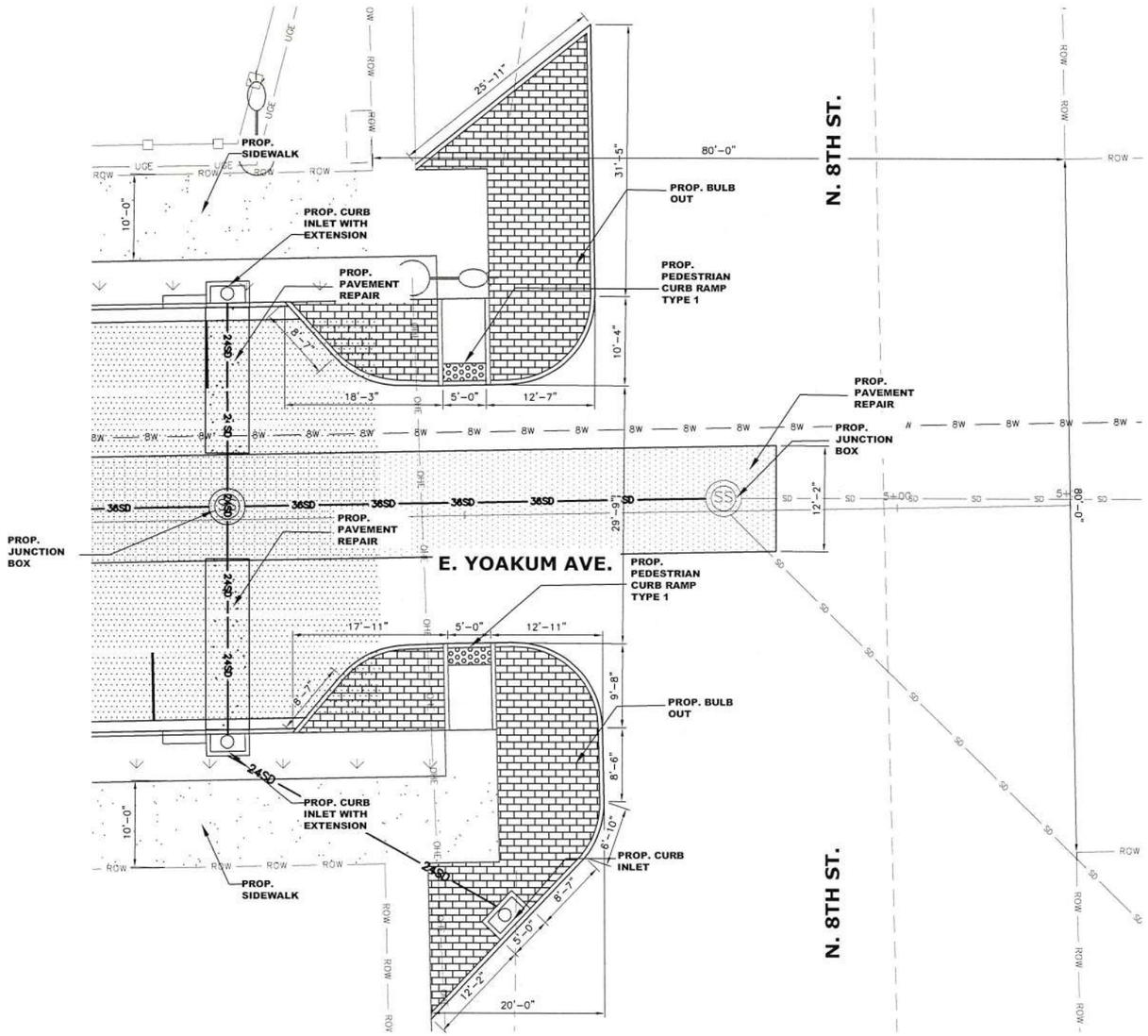
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

E. YOAKUM AVE. FROM N. 7TH ST. TO N. 8TH ST. PLAN AND PROFILE - STA. 0+00 TO END

SHEET 27



N

A / 28 PROPOSED 8TH ST. & YOAKUM AVE. (BULB OUTS)

SCALE: N.T.S.

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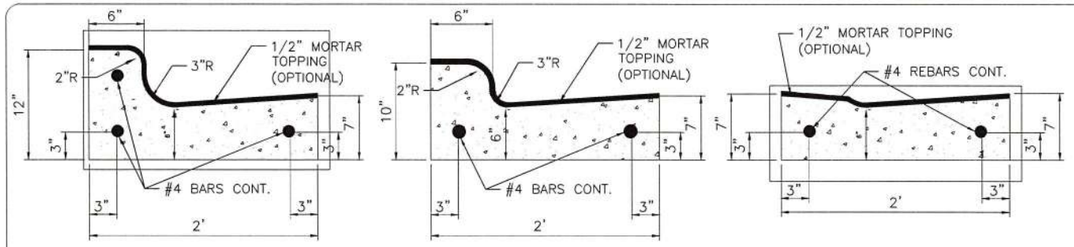
N. 8TH ST. & YOAKUM AVE. PROPOSED (BULB OUTS)

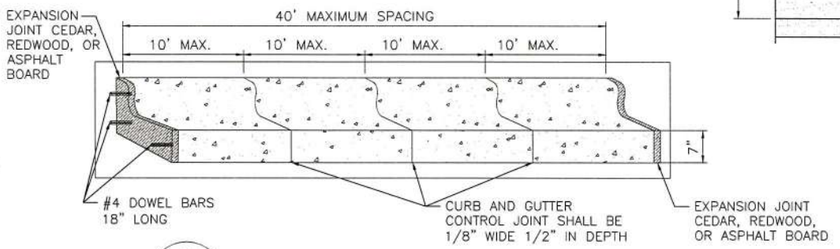


TYPICAL 6" TYPE "L" CURB AND GUTTER

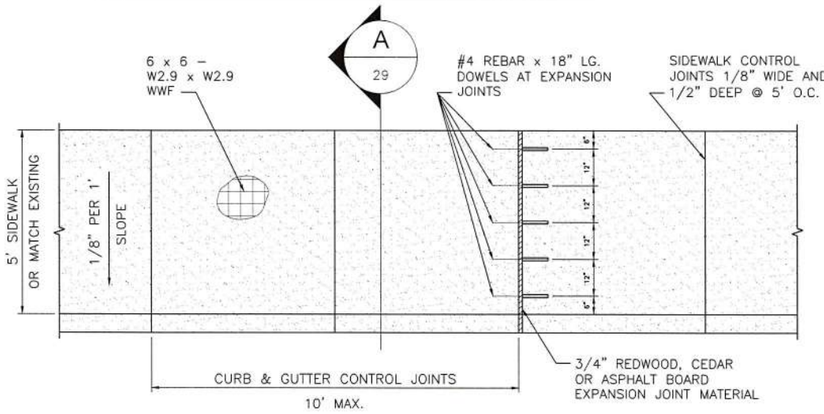
TYPICAL 4" ROLL CURB

LAYDOWN CURB

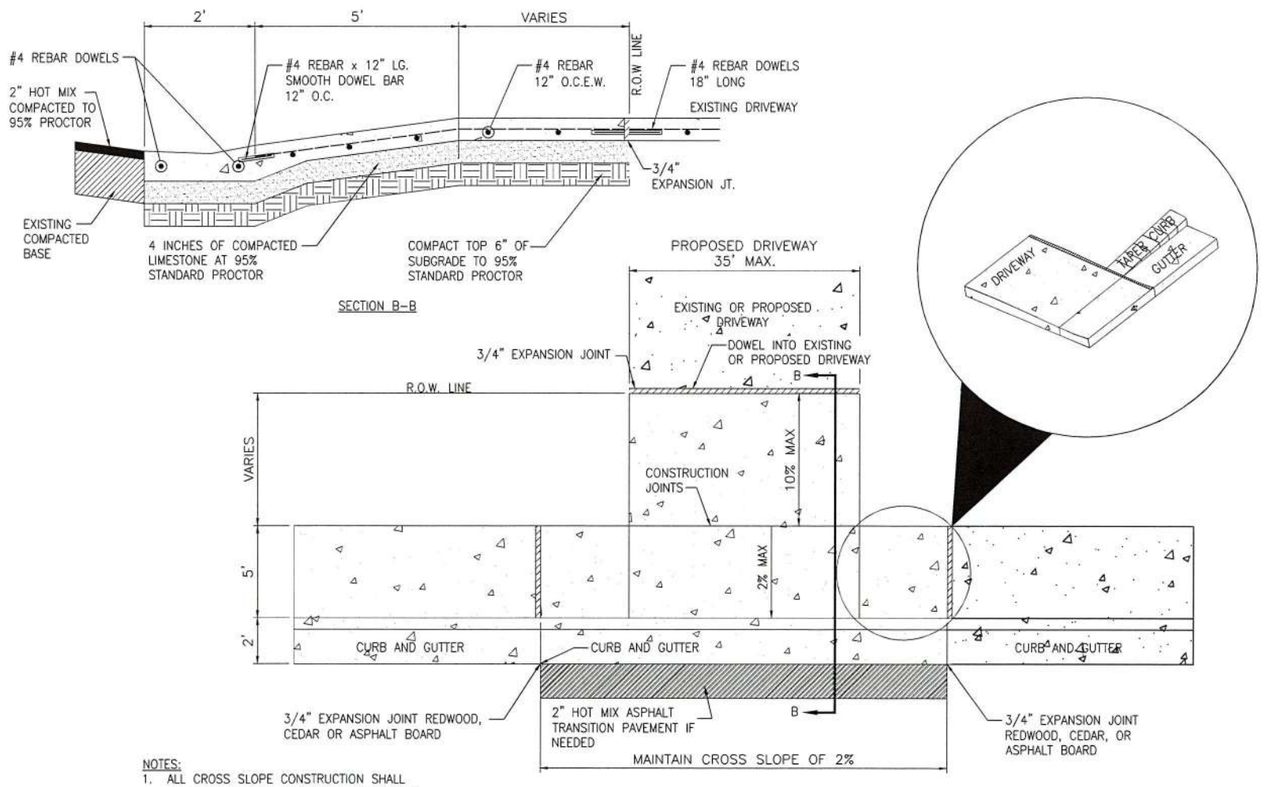
NOTE:
1. EXPANSION JOINTS AND CONTROL JOINTS MUST OCCUR AT SAME LOCATION ON SIDEWALK AS ON CURB AND GUTTER. USE PAVING CAP SEAL #628 OR APPROVED EQUAL OVER EXPANSION JOINTS.
2. ALL CONCRETE TO BE 3000 PSI MINIMUM.
3. DOWELS ON CURB & GUTTER ARE TO BE #4 BAR AND PLACED 3 INCHES FROM THE FRONT AND BACK OF CURB.
4. BACKFILL BACK OF CURB.
5. REPAIR ALL HONEYCOMBING AND CRACKS IN MORTAR OR CONCRETE PRIOR TO BACKFILL AND PAVING.



1 / 29 **CURB & GUTTER DETAILS**
SCALE: 3/8" = 1'-0"

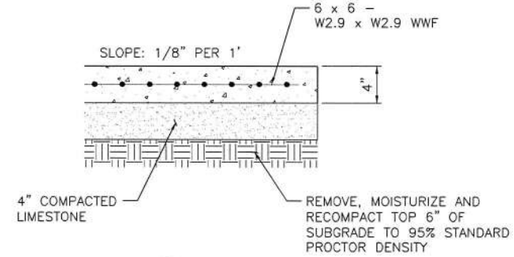


2 / 29 **SIDEWALK DETAIL**
SCALE: N.T.S.

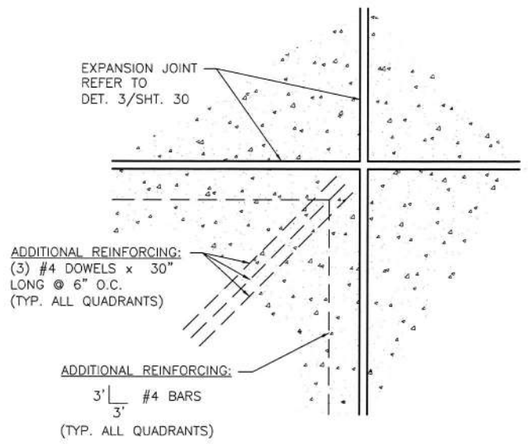


NOTES:
1. ALL CROSS SLOPE CONSTRUCTION SHALL BE IN COMPLIANCE W/ ADA REQUIREMENTS.
2. 3,000 PSI CONCRETE MINIMUM.

3 / 29 **DRIVEWAY DETAIL**
SCALE: N.T.S.



A / 29 **SECTION**
SCALE: N.T.S.



4 / 29 **TYP. REINF. DETAIL AT PROP. CONCRETE PAVEMENT CORNER**
SCALE: N.T.S.

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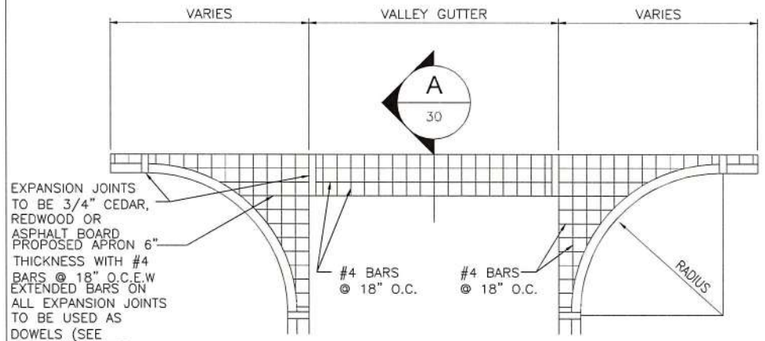
Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

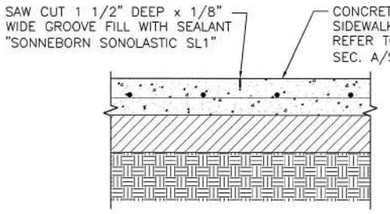
MISCELLANEOUS DETAILS I

SHEET 29



1 / 30 VALLEY GUTTER DETAIL

N.T.S.

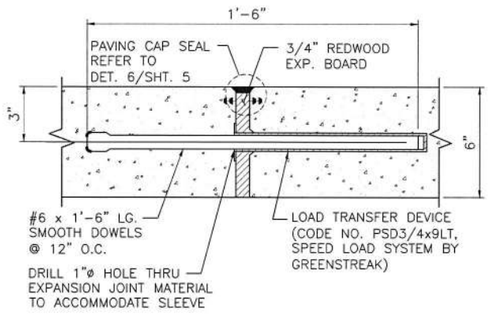


SAW CUT NOTE:

USE CONVENTIONAL SAW TO CUT JOINTS WITHIN 4 TO 12 HOURS AFTER FINISHING AND AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY TO PREVENT AGGREGATES FROM BEING DISLODGED BY THE SAW.

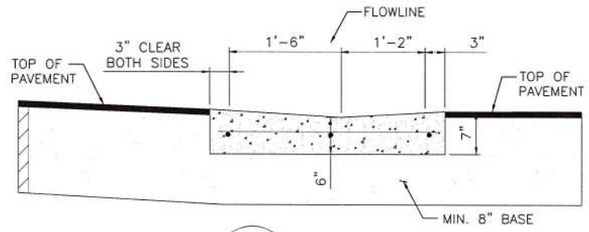
2 / 30 TYP. CONCRETE PAVEMENT CONTROL JOINT DETAIL

SCALE: 1" = 1'-0"



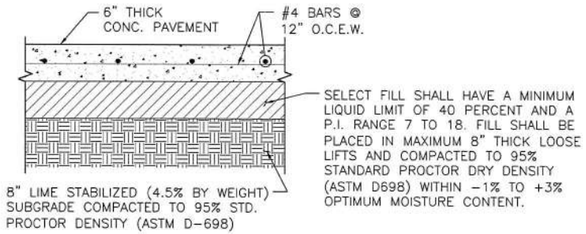
3 / 30 TYP. CONCRETE PAVEMENT EXPANSION JOINT DETAIL

SCALE: 3" = 1'-0"



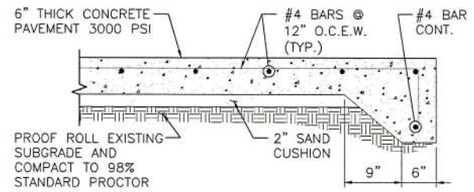
A / 30 SECTION

SCALE: 1" = 1'-0"



C / 30 TYPICAL CONCRETE PAVEMENT SECTION

SCALE: 1" = 1'-0"



B / 30 TYPICAL CONCRETE PAVEMENT EDGE SECTION

SCALE: 1" = 1'-0"

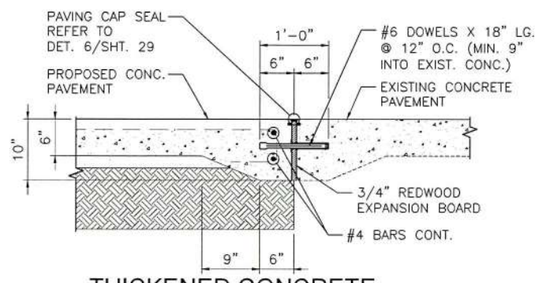
4 / 30 ASPHALT PAVEMENT REPAIR DETAIL

SCALE: 1" = 1'-0"

CURB TRANSITION NOTE:
FIELD CONDITIONS MAY REQUIRE A LONGER OR SHORTER TRANSITION, AND SHALL BE SHOWN ELSEWHERE IN THE PLANS, OR AS DIRECTED BY THE ENGINEER.

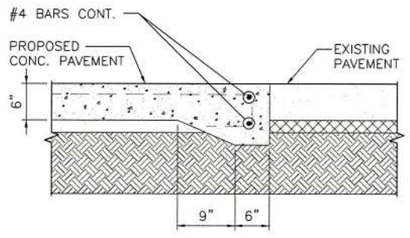
5 / 30 CURB TRANSITION

N.T.S.



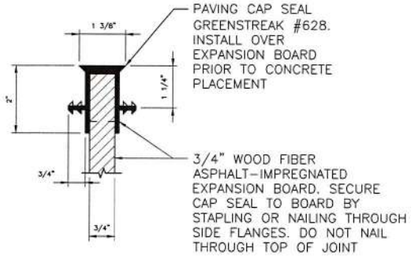
D / 30 THICKENED CONCRETE PAVEMENT

SCALE: 1" = 1'-0"



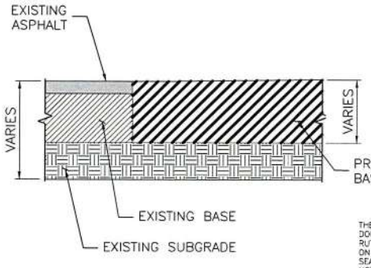
E / 30 PROPOSED CONCRETE PAVEMENT TO EXISTING ASPHALT

SCALE: 1" = 1'-0"



6 / 30 CAP SEAL DETAIL

SCALE: NOT TO SCALE



7 / 30 LIMESTONE BASE FILL DETAIL

SCALE: 1" = 1'-0"

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Checked by: R. MORA
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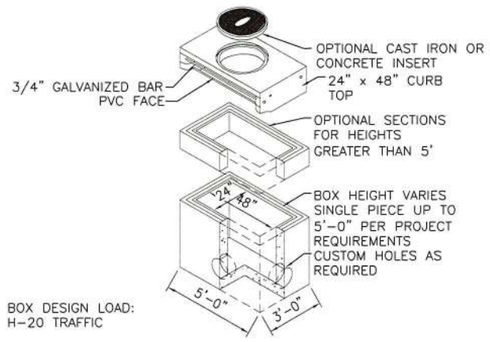
Scale: AS NOTED

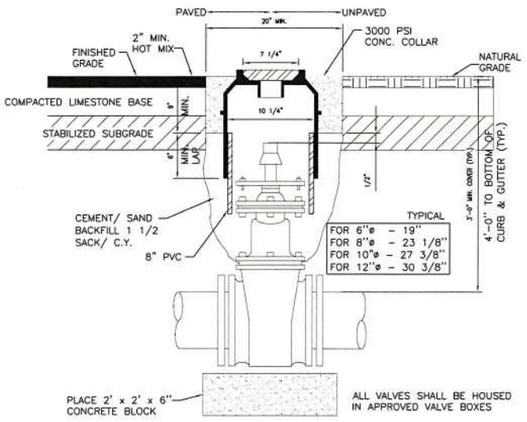
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

MISCELLANEOUS DETAILS II



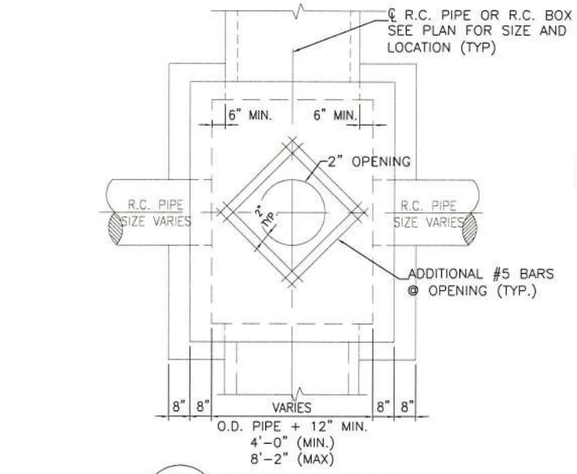
1 31 **CURB INLET & CATCH BASIN DETAIL**

SCALE: N.T.S.



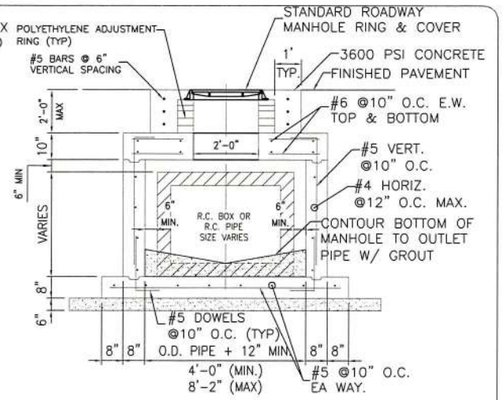
2 31 **VALVE BOX DETAIL**

SCALE: NOT TO SCALE



3 31 **TYPE "C" JUNCTION BOX**

SCALE: NOT TO SCALE



3 31 **TYPE "C" JUNCTION BOX**

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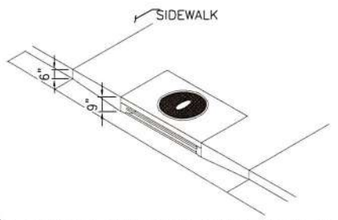
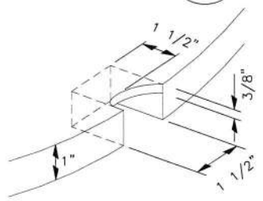
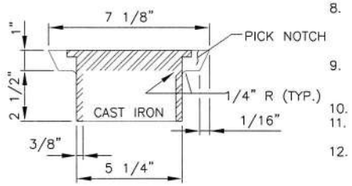


4 31 **CURB INLET & SIDEWALK DETAIL**

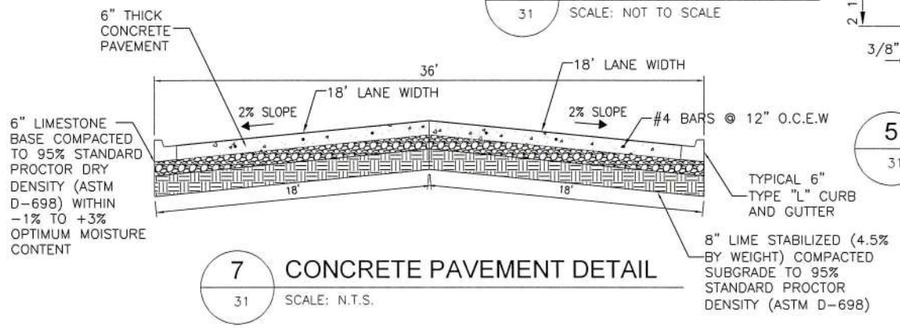
SCALE: N.T.S.





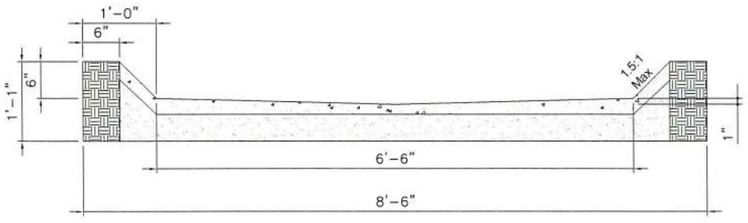
6 31 **PICK NOTCH DETAIL**

SCALE: NOT TO SCALE



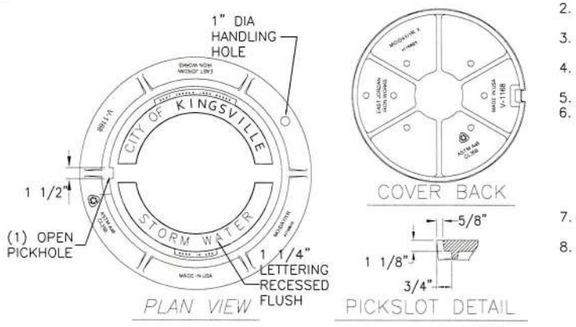
7 31 **CONCRETE PAVEMENT DETAIL**

SCALE: N.T.S.



8 31 **CONCRETE FLUME**

SCALE: NOT TO SCALE



9 31 **JUNCTION BOX RING DETAIL**

SCALE: NOT TO SCALE

GENERAL NOTES FOR CONCRETE DRAINAGE STRUCTURES:

1. ALL CONCRETE SHALL BE CLASS "C" (3600 PSI) EXCEPT STANDARD CURB INLETS AND CONCRETE COLLARS MAY BE CLASS "A".
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. VERTICAL STEEL MAY BE SPLICED (15" MIN. LAP) IN THE LOWER ONE-HALF OF ALL INLET WALLS.
5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
6. CHAMFER ALL EXPOSED EDGES 3/4".
7. PROVIDE STANDARD SIDEWALK MANHOLE RING AND COVER FOR STANDARD CURB INLET. PROVIDE STANDARD ROADWAY STORM WATER MANHOLE RING AND COVER FOR SPECIAL CURB INLET.
8. THE CONTRACTOR MAY PROPOSE ALTERNATE PROCEDURES FOR THE CONSTRUCTION OF INLETS AND MANHOLES, INCLUDING PRECAST UNITS. PLANS FOR SUCH PROPOSED ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE CONSTRUCTION. PRECAST MANHOLE WITHIN THE ROADWAY SHAL BE DESIGNED TO SUPPORT HS 20 TRAFFIC LOADING AND SEALED BY A LICENSED ENGINEER.
9. ALL INLET WALLS SHALL BE FORMED EXCEPT WHERE THE NATURE OF THE SURROUNDING MATERIAL IS SUCH THAT IT CAN BE TRIMMED TO A SMOOTH VERTICAL FACE. WHEN INLET WALLS ARE PLACED TO NEAT EXCAVATION LINES THE WALL THICKNESS SHALL NOT EXCEED 10 INCHES. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB.
10. INVERT OF INLET SHALL BE SLOPED 1:20 WITH GROUT.
11. NO SPLICING OF REINFORCING STEEL SHALL BE PERMITTED EXCEPT WHERE OTHERWISE NOTED ON THE PLANS OR PERMITTED IN WRITING BY THE ENGINEER.
12. IN DEEP EXCAVATIONS (> 20') OR BELOW WATER TABLE, USE CRUSHED STONE OR CRUSHED GRAVEL MEETING GRADATION OF CONCRETE COARSE AGGREGATE; TxDOT ITEM 421; GRADE 2, 3, OR 4.

ROADWAY MANHOLE RING & COVER NOTES

1. MANHOLE RING & COVER SHALL BE SUPER COVER OR APPROVED EQUAL.
2. CASTING SHALL BE TRUE TO PATTERN, FORM, AND DIMENSIONS, FREE FROM CRACKS, SPONGINESS AND BLOWHOLES.
3. MACHINE SURFACES TO YIELD FIT WHICH WILL NOT RATTLE WITH PASSING TRAFFIC LOAD.
4. TRAFFIC SHALL BE RESTRICTED FROM M.H. FOR 36 HOURS AFTER PLACEMENT OF RING.
5. RING AND COVER SHALL BE DIPPED IN COAL TAR OR ASPHALT.
6. OTHER CASTING PATTERNS FOR RING & COVERS MAY BE SUBMITTED FOR APPROVAL PROVIDED THE PLAN PATTERN OF COVER IS THE SAME AS SHOWN ON THIS SHEET AND PROVIDED OTHER CASTINGS SHALL BE COMPLETELY INTERCHANGEABLE, I.E., THE COVERS OF THIS SHEET SHALL FIT PROPERLY, THE RINGS OF OTHER CASTING DETAILS AND THE COVERS OF OTHER CASTINGS SHALL FIT THE RINGS OF THIS SHEET.
7. MINIMUM WEIGHTS OF FINISHED CASTINGS : THE COVER = 160 POUNDS, THE RING = 180 POUNDS.
8. POLYETHYLENE MANHOLE ADJUSTMENT RINGS SHALL BE DESIGNED TO SUPPORT HS 20 TRAFFIC LOADING.

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Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

MISCELLANEOUS DETAILS III

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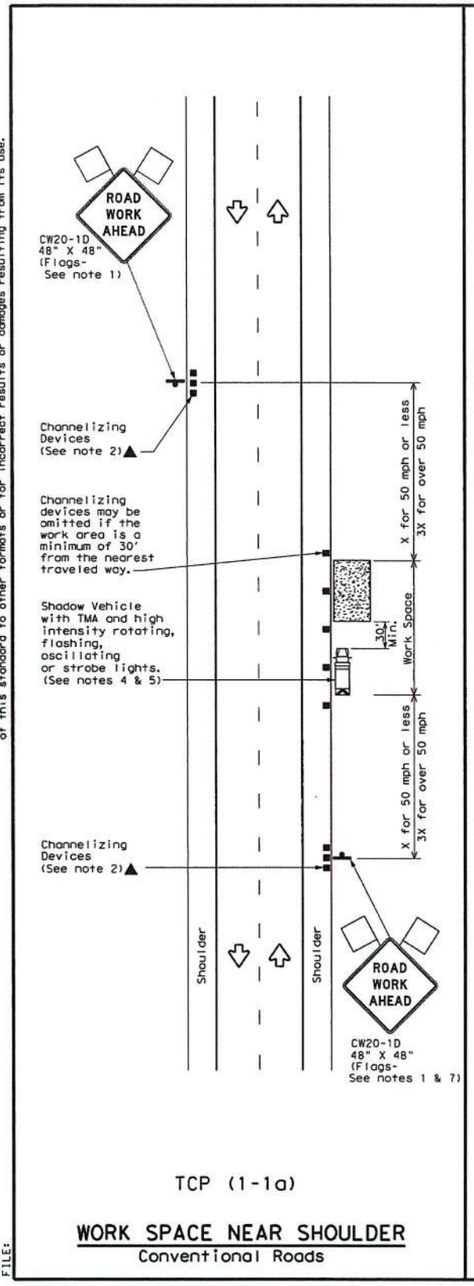
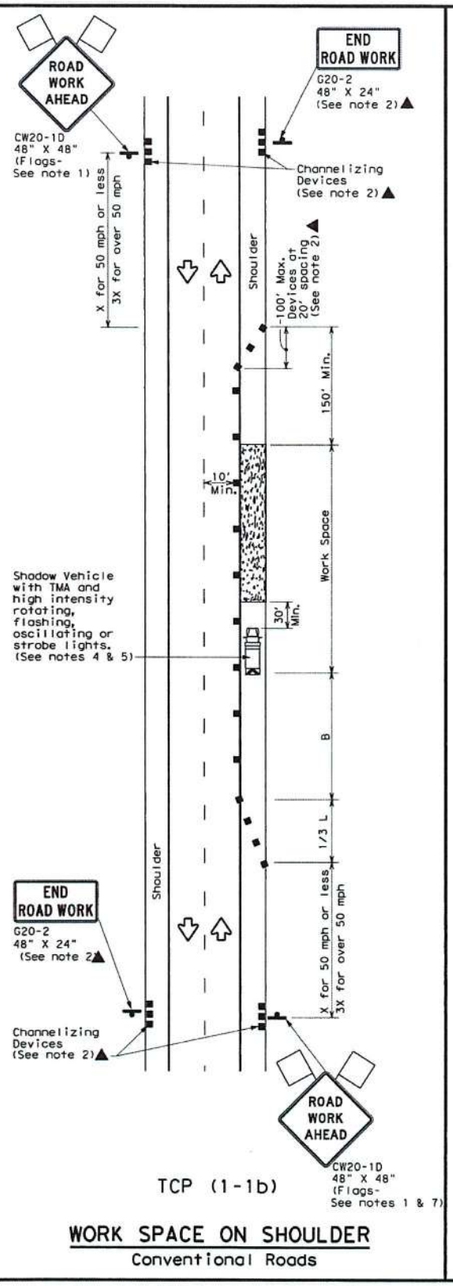


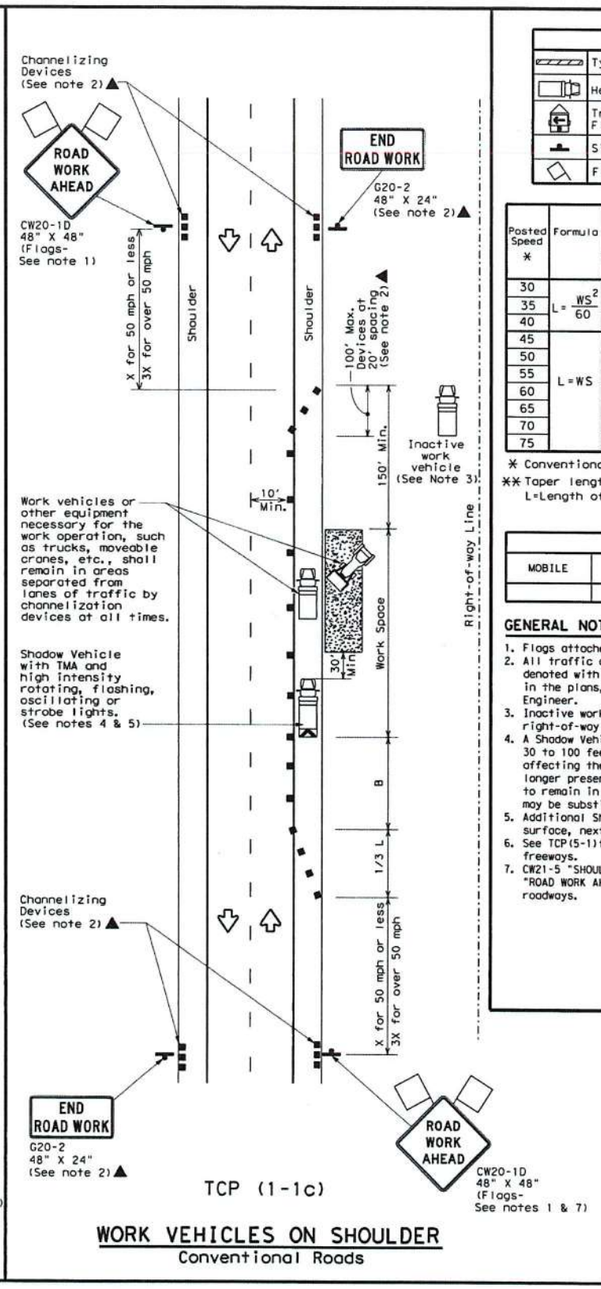
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

DATE:
FILE:

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	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

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
4. 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.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
6. See TCP(5-1)for shoulder work on divided highways, expressways and freeways.
7. 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(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	DIST	COUNTY		SHEET NO.

151

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2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK
TCP (1 - 1) - 18

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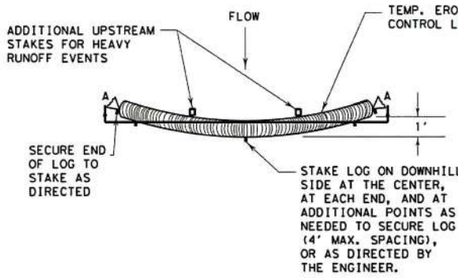
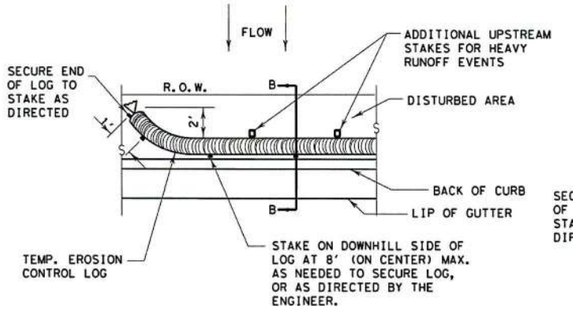
DATE:
FILE:



PLAN VIEW



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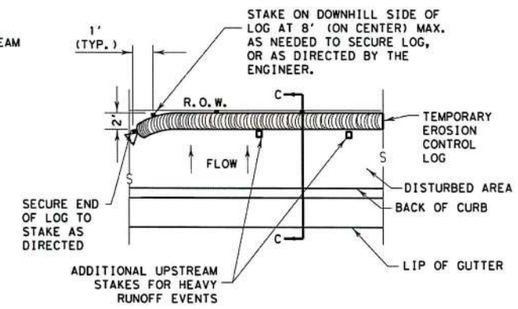
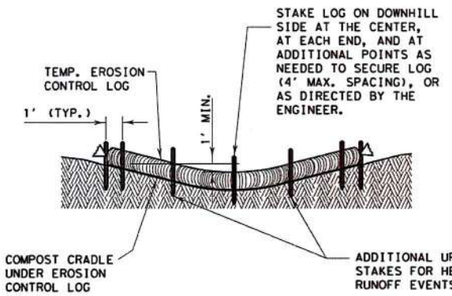


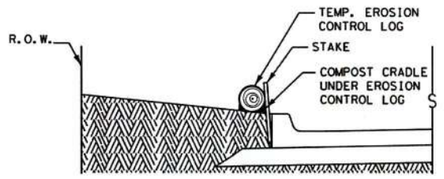
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

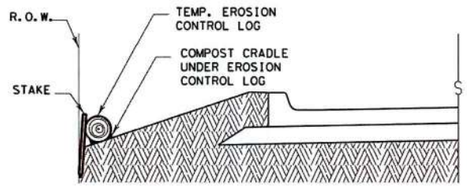
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

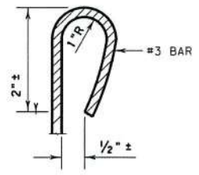
CL-BOC



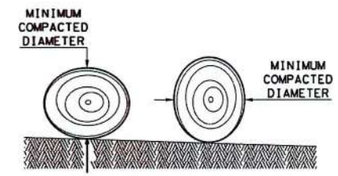
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:
1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

SHEET 1 OF 3

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DW: TxDOT	CK: KM	DW: LS/PT	CK: LS
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Drawn by: A. REYES
Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES - EROSION CONTROL LOG - EC (9) - 16 - SHEET 1 OF 3

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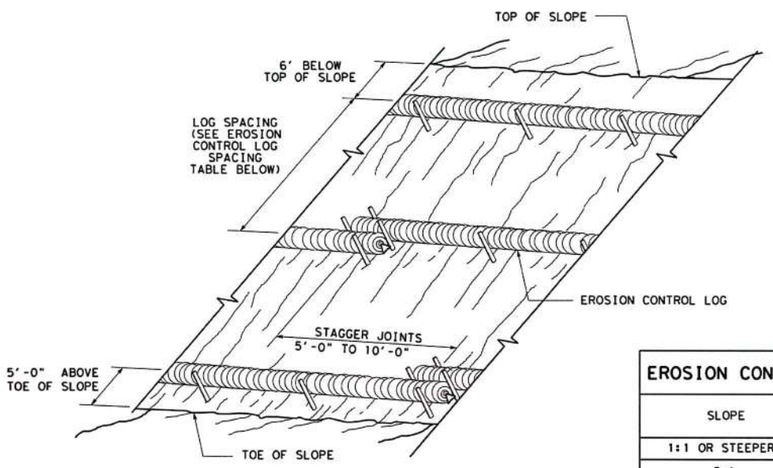
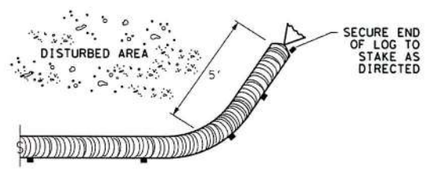


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

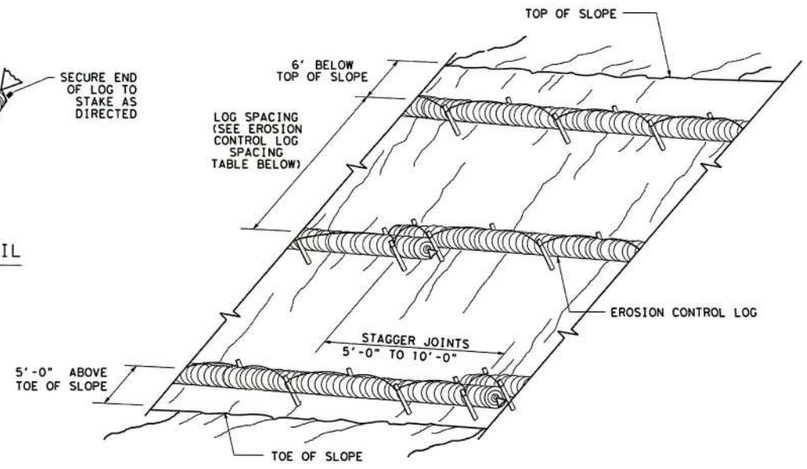
CL-SST



END SECTION RAP DETAIL

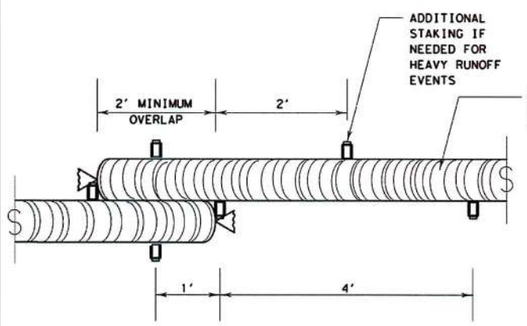
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

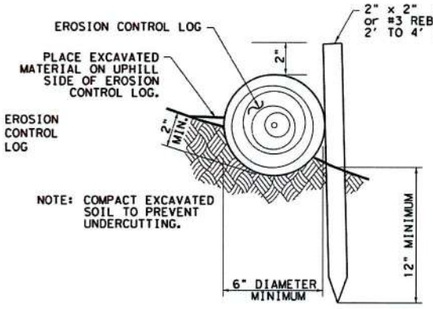
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

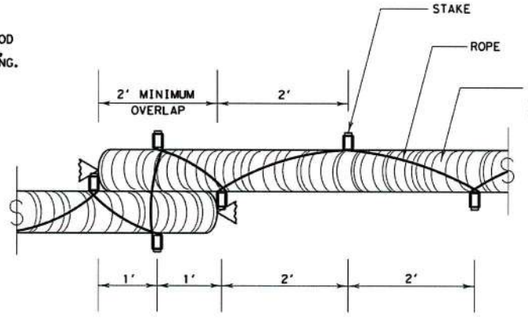




STAKE AND TRENCHING ANCHORING DETAIL

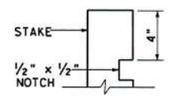
CL-SST

TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"

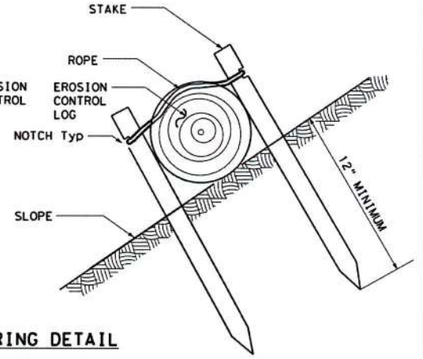


STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL



SHEET 2 OF 3

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
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Drawn by: A. REYES
Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES - EROSION CONTROL LOG - EC(9) - 16 - SHEET 2 OF 3

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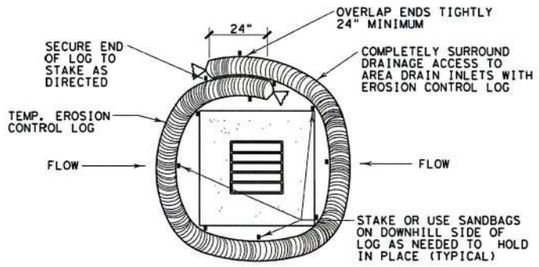
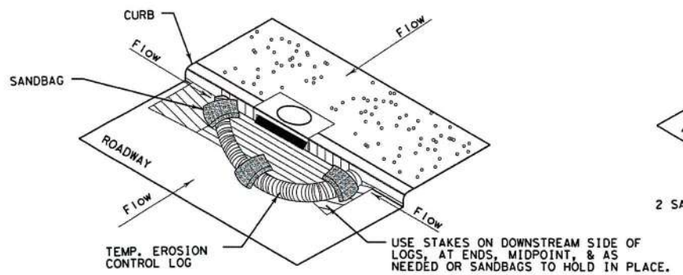


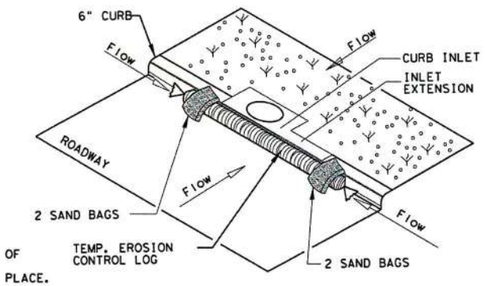
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

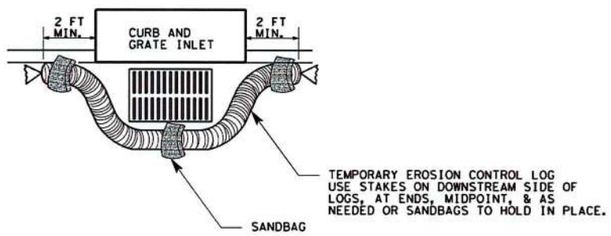
CL-CI



EROSION CONTROL LOG AT CURB INLET

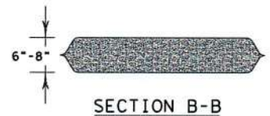
CL-CI

NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.

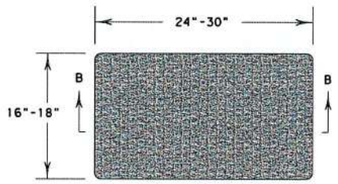


EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

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2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES - EROSION CONTROL LOG - EC (9) - 16 - SHEET 3 OF 3

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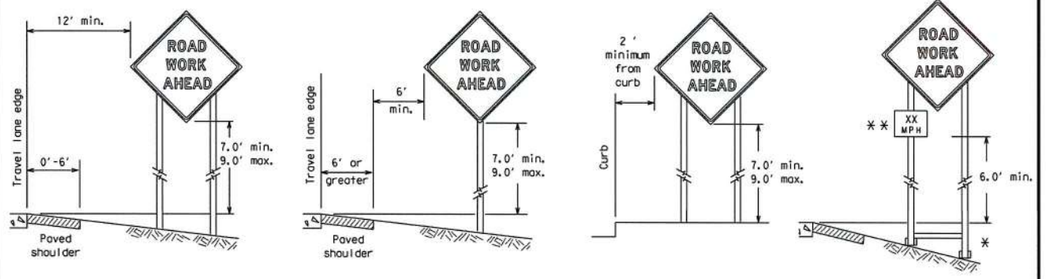
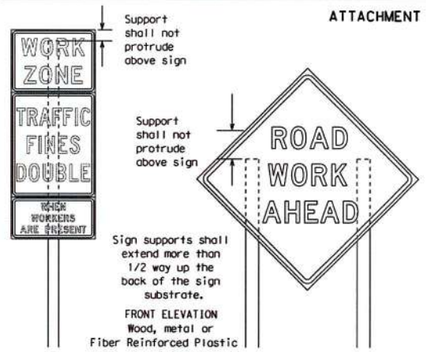
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



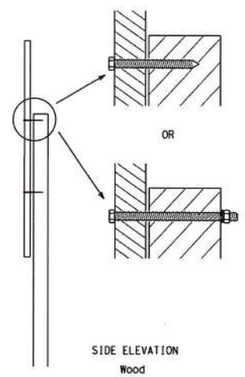
* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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



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 spice 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.

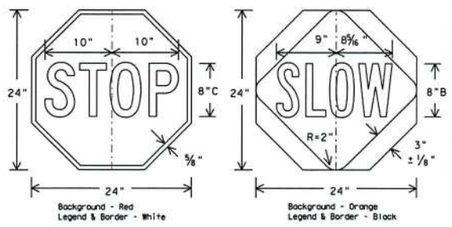


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24" as detailed below.
2. When used at night, the STOP/SLOW paddle shall be retroreflectorized.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. 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

1. 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, 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.
2. 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.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. 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.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC sheets or the CWZTCD. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. 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.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. 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.
5. 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.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD). 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.
7. 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.
8. 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.
9. 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)

1. 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.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. 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.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. 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.
2. 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.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. 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.
5. 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

1. 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

1. 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.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. 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

1. 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).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. 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

1. 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

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. 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.
3. 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.
4. 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.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. 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.
7. 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.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. 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.

SHEET 4 OF 12

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES
BC(4) - 14 - SHEET 4 OF 12

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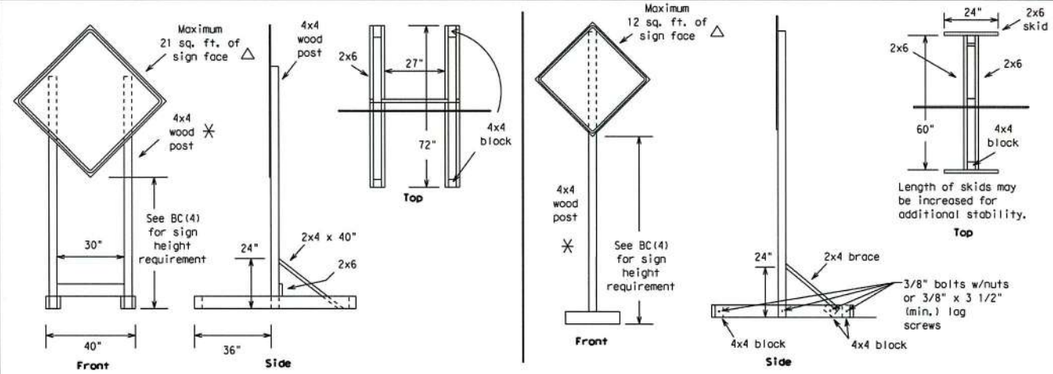
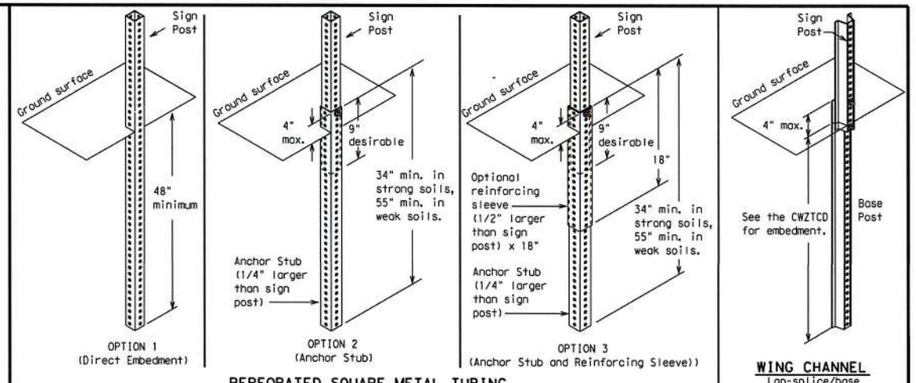


SKID MOUNTED WOOD SIGN SUPPORTS

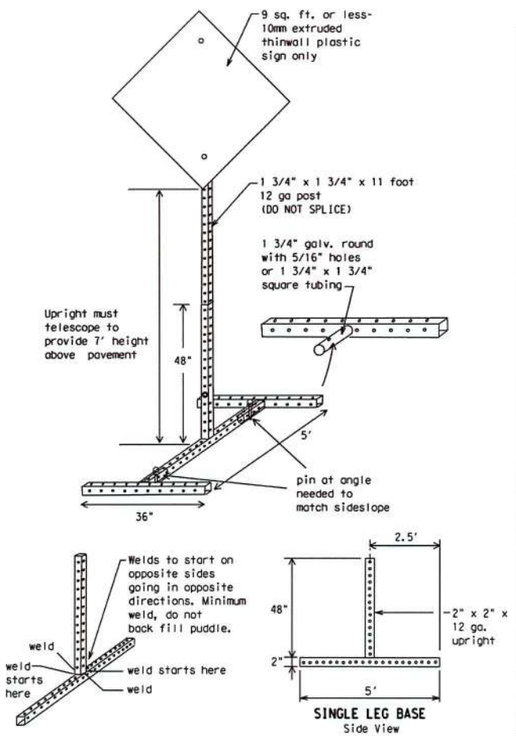
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □

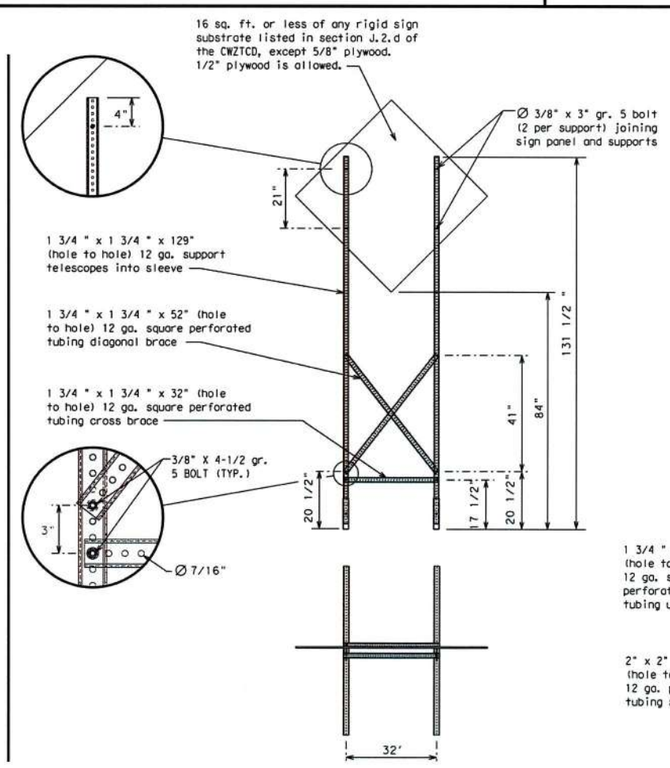


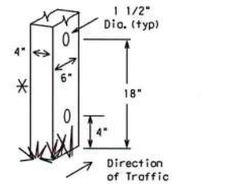
PERFORATED SQUARE METAL TUBING

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.

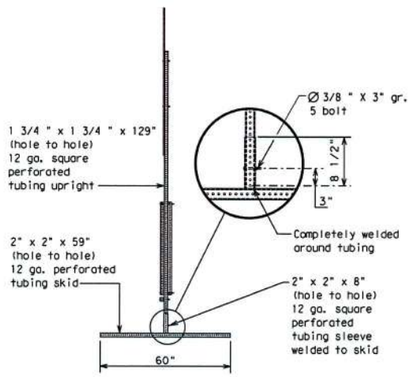






Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

WOOD POST SYSTEM FOR GROUND 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

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
9-07 8-14	DIST	COUNTY		SHEET NO.
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Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT
BC(5) - 14 - SHEET 5 OF 12

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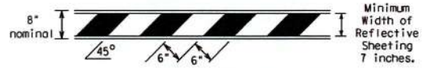
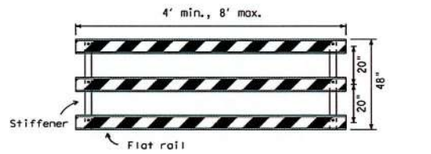
TYPE 3 BARRICADES

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 conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



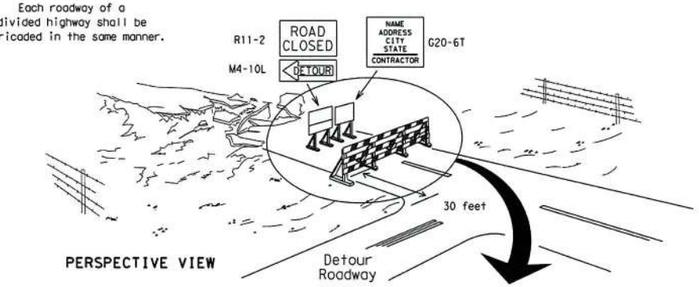
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

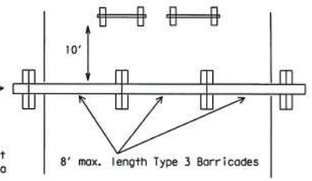
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

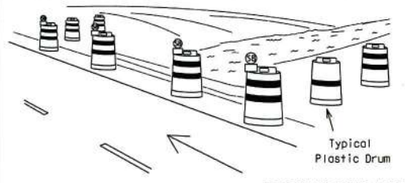
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

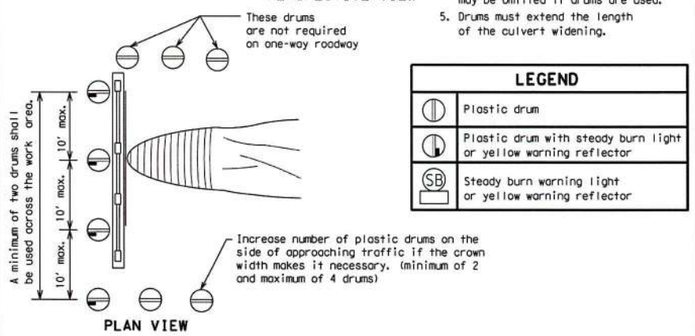
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

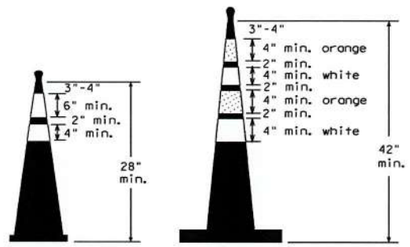
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



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

PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



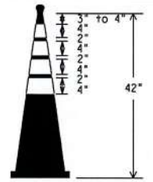
Two-Piece cones | One-Piece cones | Tubular Marker

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.

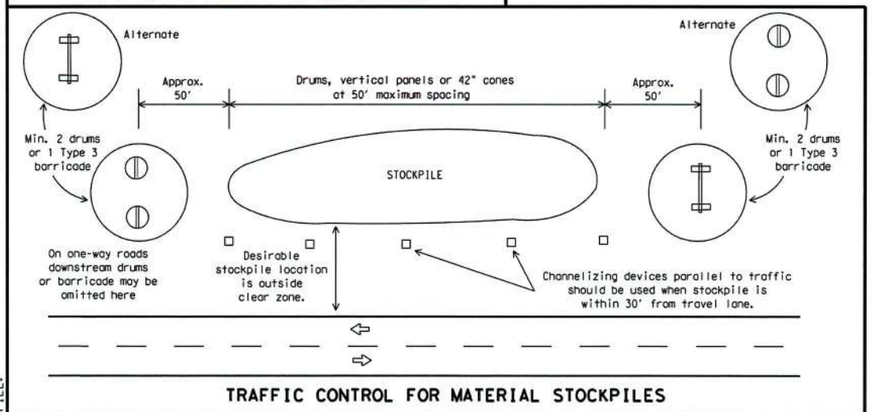
1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added 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 used at night 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.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on 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.

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



EDGELINE CHANNELIZER

1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

DATE:
FILE:

SHEET 10 OF 12

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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104

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Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES
BC(10) - 14 - SHEET 10 OF 12

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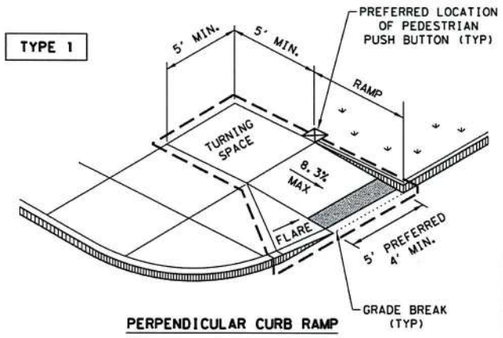
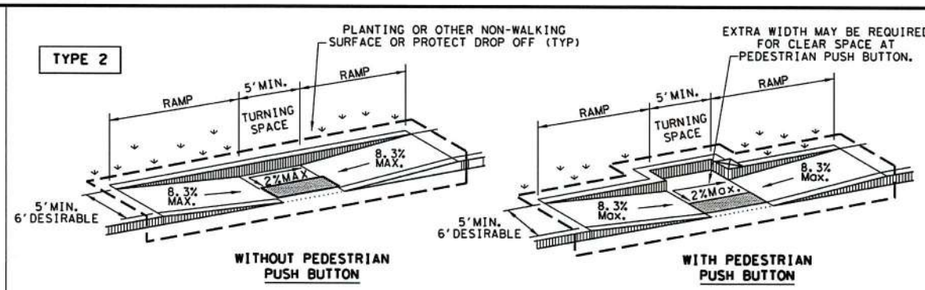
TYPE 1



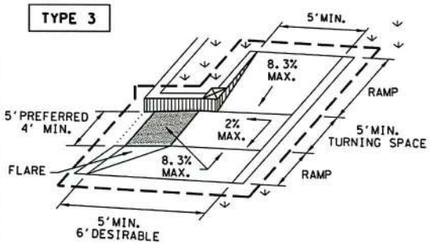
PERPENDICULAR CURB RAMP

TYPE 2

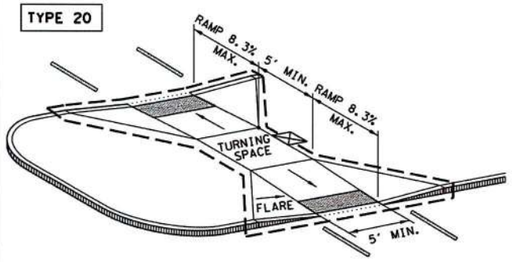


PARALLEL CURB RAMP

TYPE 3

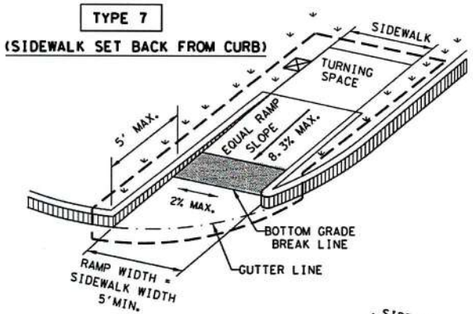


TYPE 20

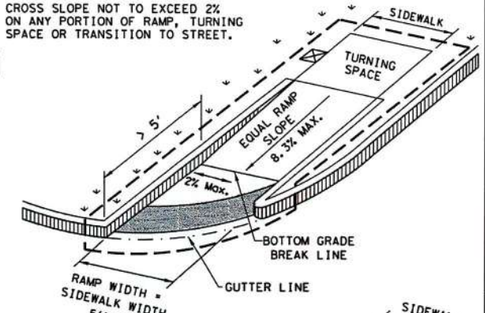


CURB RAMPS AT MEDIAN ISLANDS

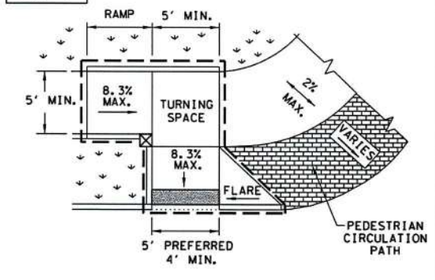
TYPE 7
(SIDEWALK SET BACK FROM CURB)



CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

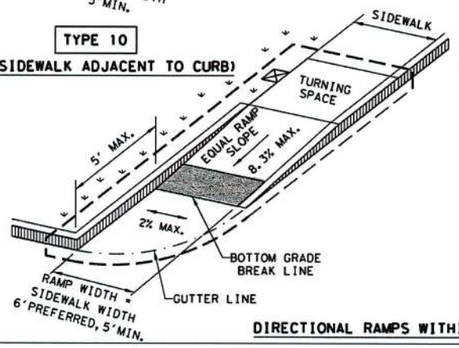


TYPE 6

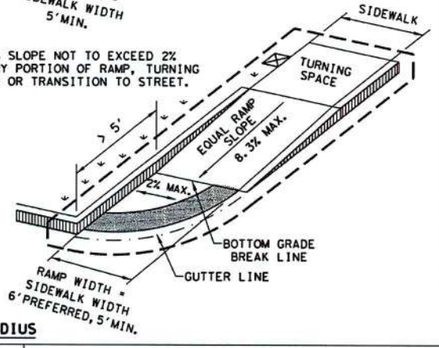


COMBINATION CURB RAMPS

TYPE 10
(SIDEWALK ADJACENT TO CURB)

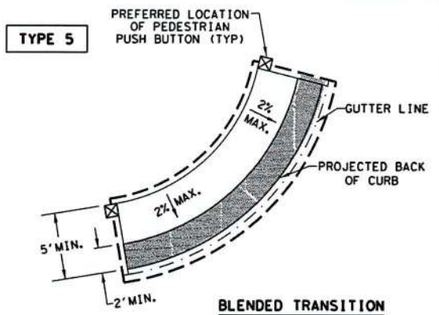


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

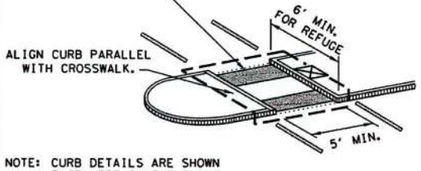
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

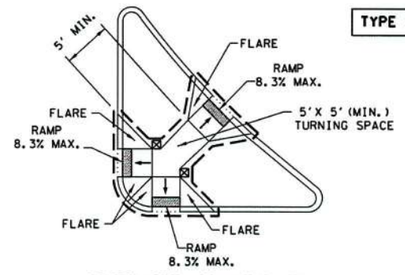
INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.

TYPE 21



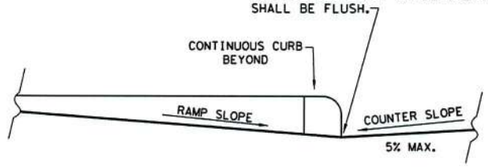
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS

BOTTOM GRADE BREAK OF CURB RAMP WILL NORMALLY BE AT GUTTER LINE. SURFACE SLOPES AT GRADE BREAKS SHALL BE FLUSH.



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DW: TxDOT	DW: VP	CK: KM	CK: PK & JG
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REVISIONS				
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.

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Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

PEDESTRIAN FACILITIES CURB RAMPS
PED-18 (SHEET 1 OF 4)

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DATE:
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GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

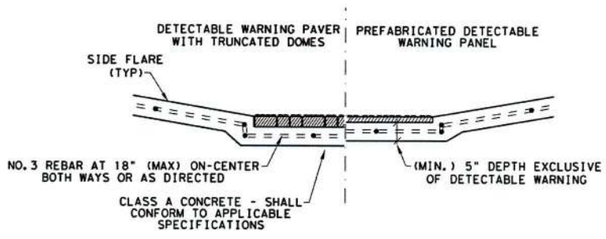
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

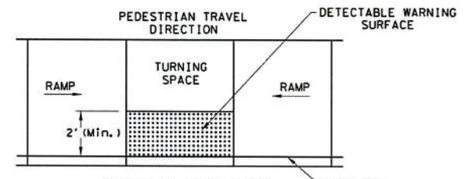
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

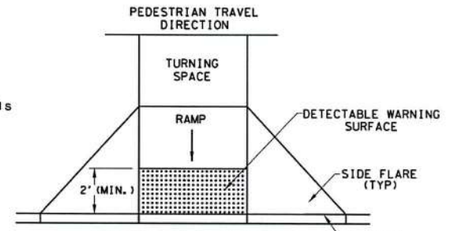


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

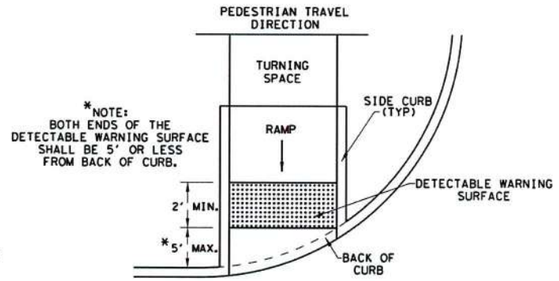
DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

SHEET 2 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS			
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY	SHEET NO.

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Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

PEDESTRIAN FACILITIES CURB RAMPS
PED-18 (SHEET 2 OF 4)

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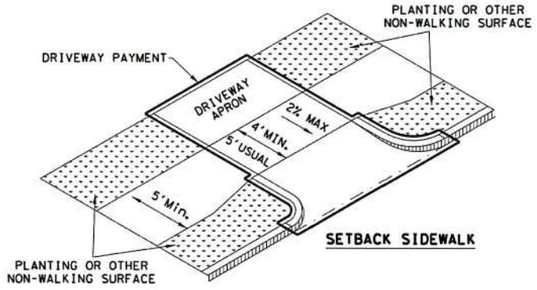
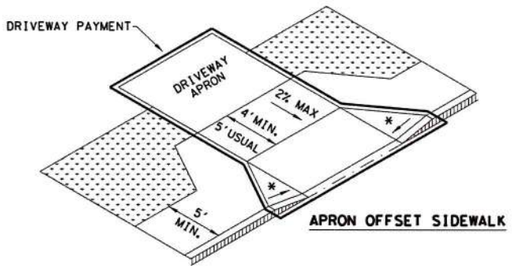
DATE:
FILE:

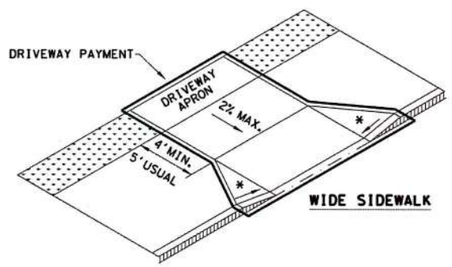
SIDEWALK TREATMENT AT DRIVEWAYS



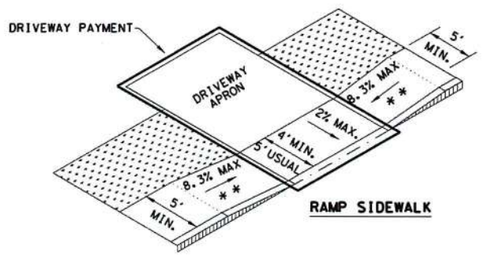
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

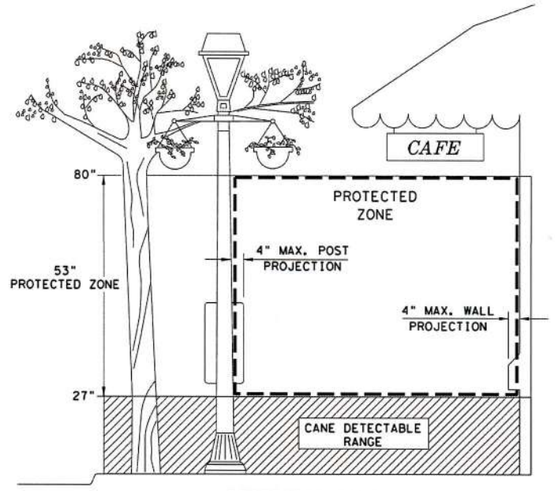


RAMP SIDEWALK

NOTES:

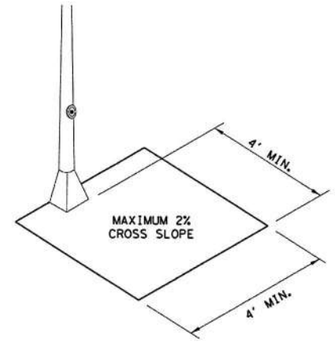
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

** IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

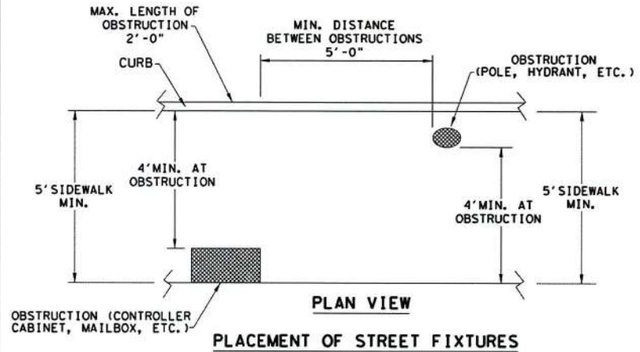


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



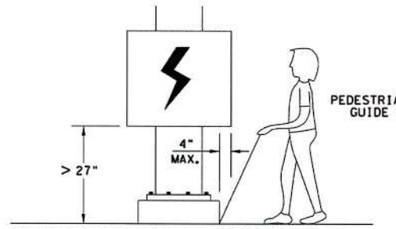
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



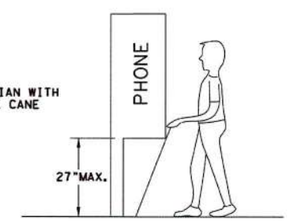
PLAN VIEW

PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.



PROTRUDING OBJECTS OF A HEIGHT ≤27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 08, 2005	DIST	COUNTY		SHEET NO.
REVISED 06, 2012				
REVISED 01, 2018				

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CITY OF Kingsville TEXAS

Drawn by: A. REYES
Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

PEDESTRIAN FACILITIES CURB RAMPS
PED-18 (SHEET 3 OF 4)

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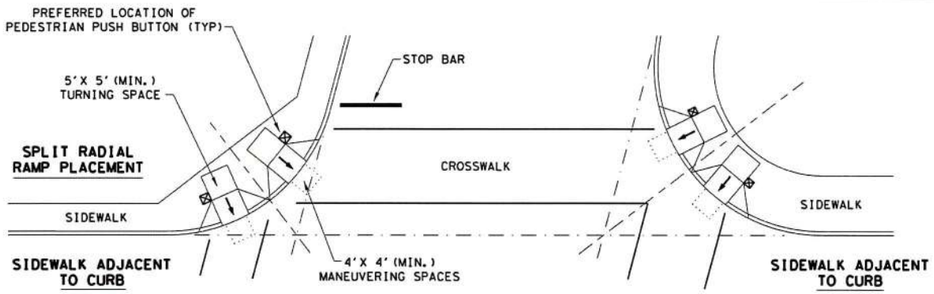
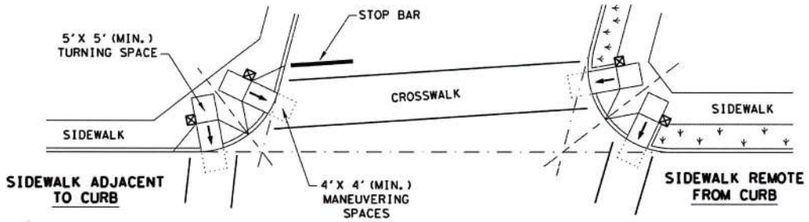
DATE:
FILE:

TYPICAL CROSSING LAYOUTS

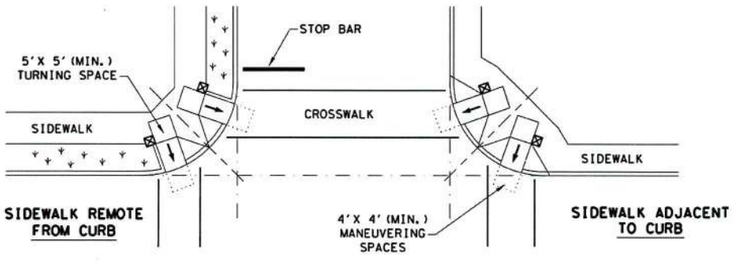
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



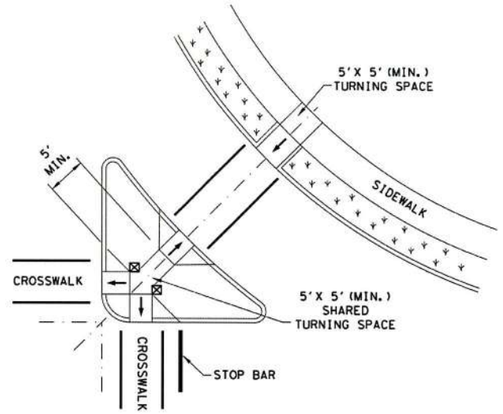
SKEWED INTERSECTION WITH "LARGE" RADIUS



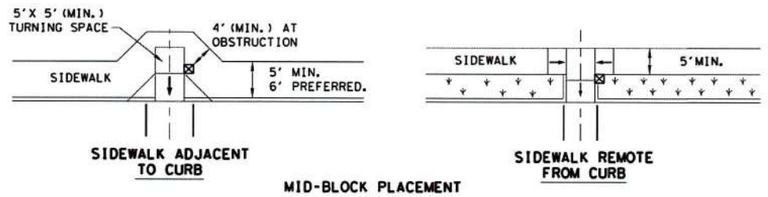
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ⊠

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

SHEET 4 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JC
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PEDESTRIAN FACILITIES CURB RAMPS

PED-18 (SHEET 4 OF 4)

Size (Y)	N	MH Dia (2)
3'	9"	18"
4'	16"	32"
5'	16"	32"
6'	16"	32"

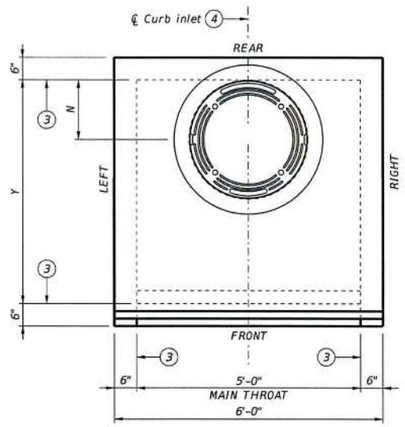
BAR TABLE	
BAR	SIZE
A1	#3
A2	#3
A3 (1)	#3
A4 (1)	#3
B1	#4
B2	#4
B3 (1)	#4
C (1)	#4
G	#4
L (1)	#5
Ra	#5
U1 (1)	#5
U2 (1)	#5

(1) Reinforcing bar used only with extension(s).

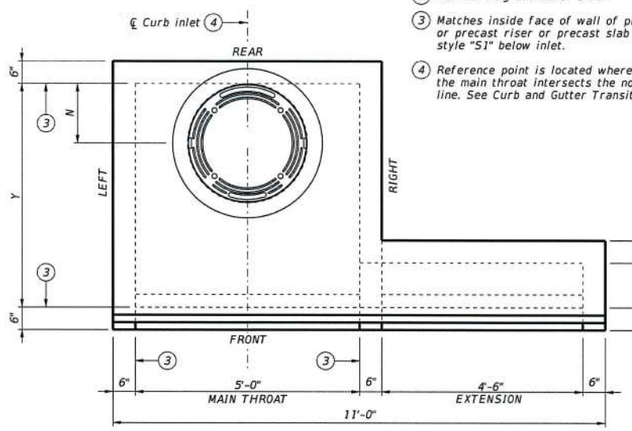
(2) Nominal ring and cover size.

(3) Matches inside face of wall of precast base or precast riser or precast slab lid (PSL) style "S1" below inlet.

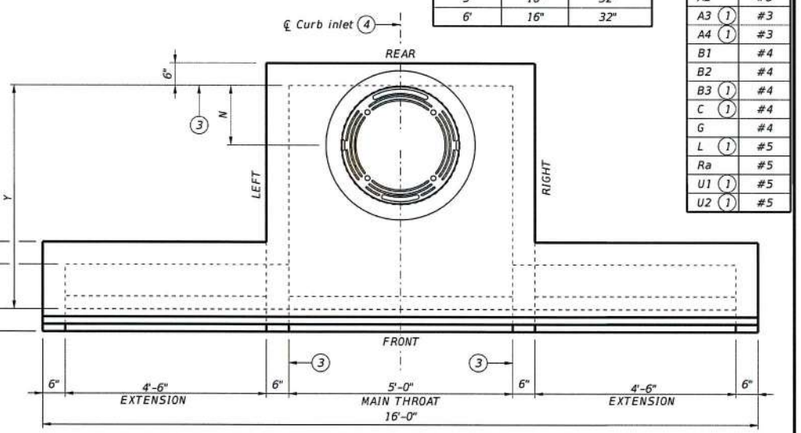
(4) Reference point is located where the ℄ of the main throat intersects the normal gutter line. See Curb and Gutter Transition Details



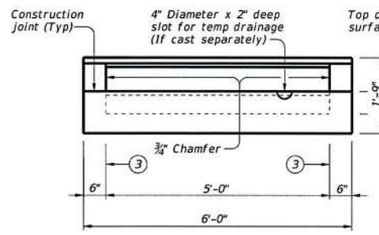
PLAN VIEW



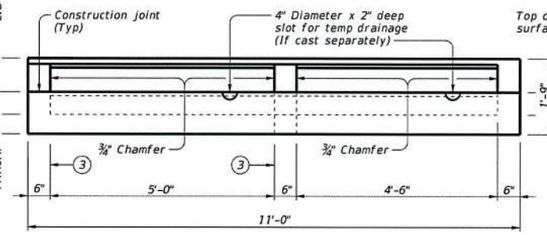
PLAN VIEW



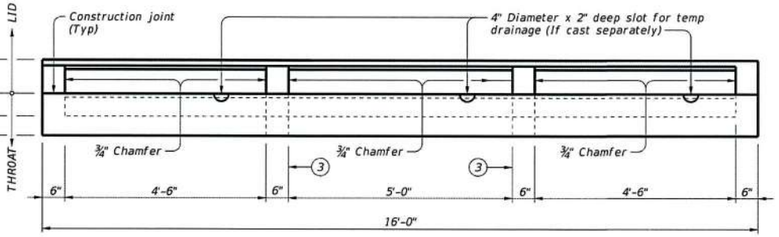
PLAN VIEW



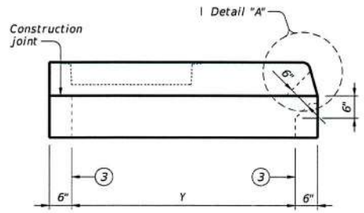
FRONT VIEW



FRONT VIEW

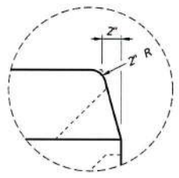


FRONT VIEW



LEFT SIDE VIEW

(Extensions not shown for clarity.)



DETAIL "A"

CONSTRUCTION NOTES:

Chamfer all vertical edges of inlet lid ¾" as shown in Front View,
Maintain 1 ½" clear cover to ends of all vertical reinforcing bars, unless otherwise noted.

MATERIAL NOTES:

Provide Class "S" concrete (f'c = 4,000 psi).
Provide Grade 60 reinforcing steel or equivalent area of WWR.
Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
The intent of this standard is to provide a cast-in-place lid to be used with precast base, precast riser or precast slab lid style "S1".
Inlet throat and lid are not intended for direct traffic. Do not place in roadway.
Lid and throat may be cast monolithically or separately.
See Precast Base (PB) standard for details and notes not shown.
See Precast Slab Lid (PSL) standard for details and notes not shown.
See Curb & Gutter Transitions Details (CGT-PCO) standard for transition examples.
Extensions may be right, left, both, or none. Provide extensions as specified elsewhere in the plans.

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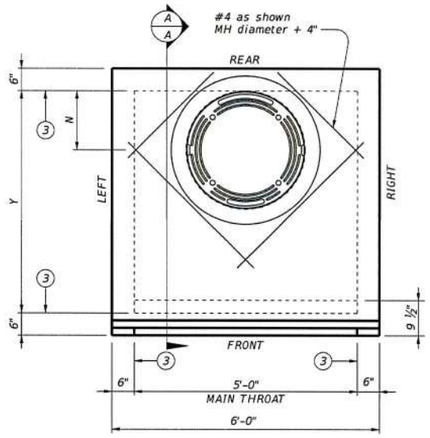
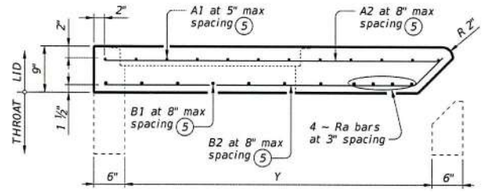
CURB INLET DETAIL- 1

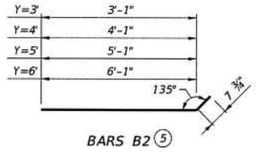


LID PLAN VIEW

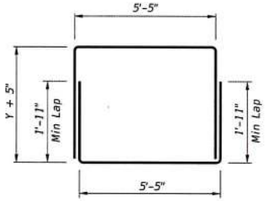
(Shown without extensions)



LID SECTION A-A

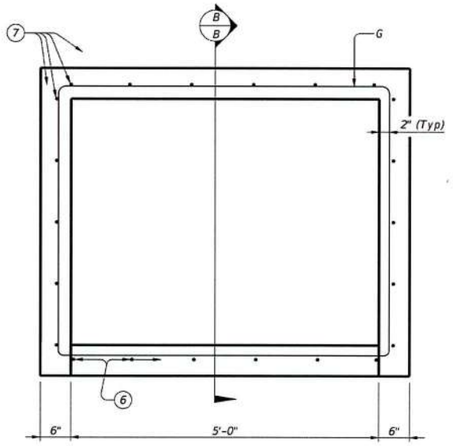


BARS B2 (5)



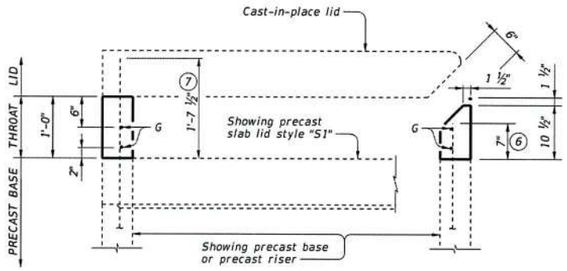
BARS G

Showing one complete bar.



THROAT PLAN VIEW

(Shown without extensions)



THROAT SECTION B-B

(Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)

(3) Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.

(5) Cut reinforcing bars as needed to provide 1 ½" clear to manhole.

(6) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".

(7) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 ½".

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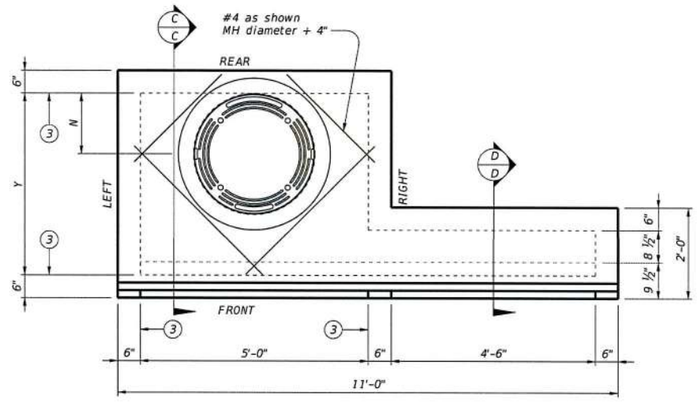
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

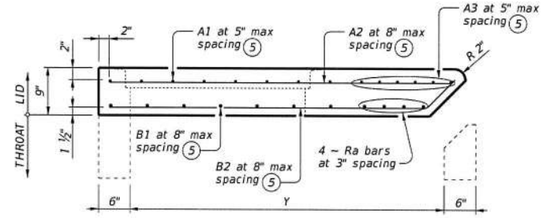
CURB INLET DETAIL- 2

SHEET
44

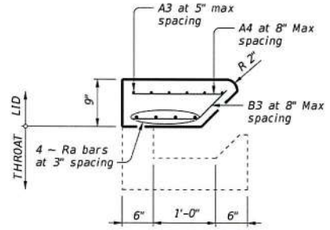


LID PLAN VIEW

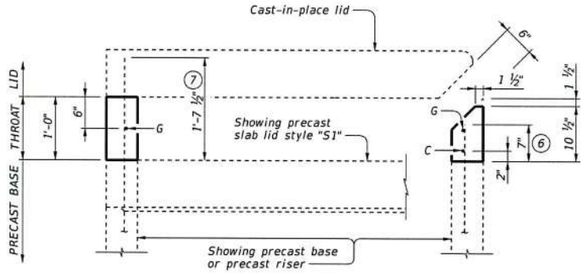
(Showing one extension.)



LID SECTION C-C

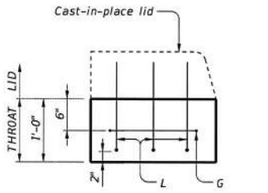


LID SECTION D-D

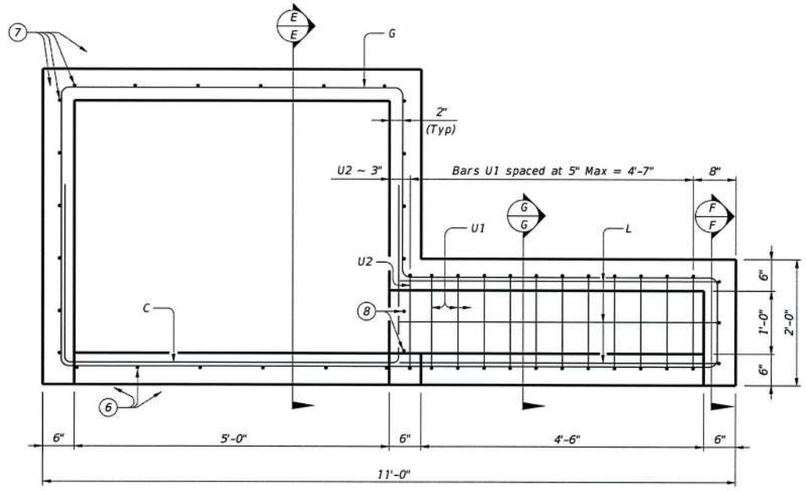


THROAT SECTION E-E

(Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)

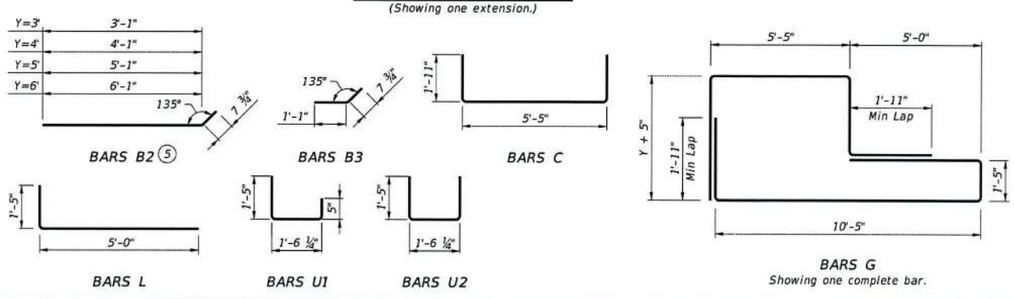


THROAT SECTION F-F



THROAT PLAN VIEW

(Showing one extension.)

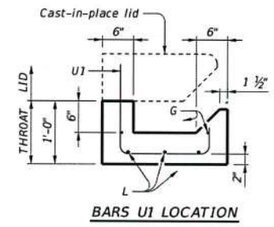


BARS B2 (5) BARS B3 BARS C

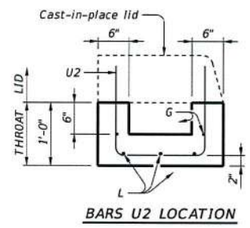
BARS L BARS U1 BARS U2

BARS G

Showing one complete bar.



BARS U1 LOCATION



BARS U2 LOCATION

THROAT SECTION G-G

(3) Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.

(5) Cut reinforcing bars as needed to provide 1 ½" clear to manhole.

(6) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".

(7) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 ½".

(8) Do not extend reinforcing bars from precast base.

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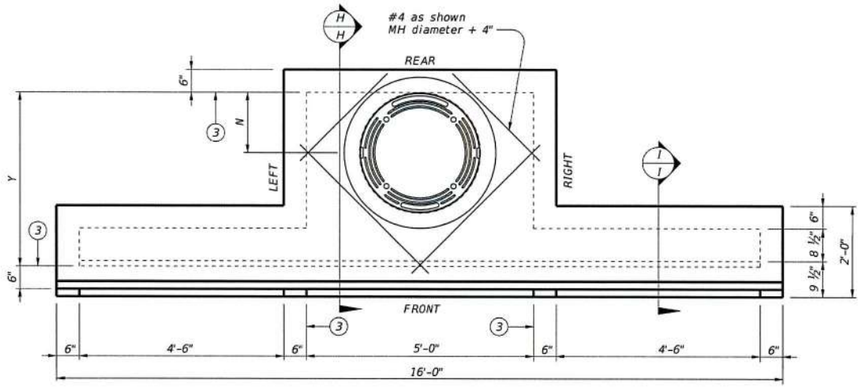
Drawn by: A. REYES
Date: 08/23/2023
Checked by: R. MORA
Job: 23-024 D-C
Scale: AS NOTED

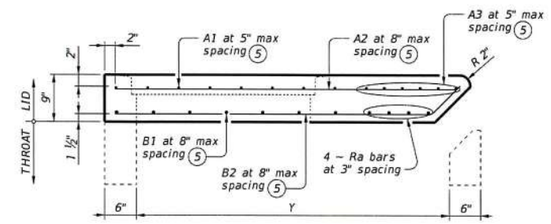
2023-2024 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS - PHASE 3

CURB INLET DETAIL- 3

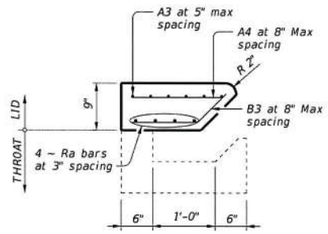


LID PLAN VIEW

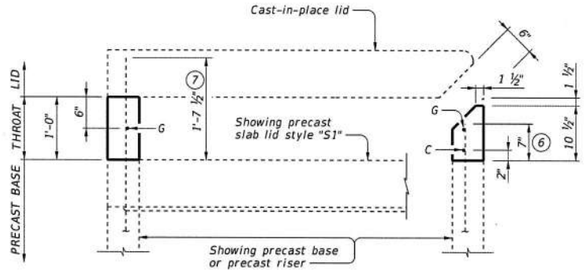
(Showing extension on each side.)



LID SECTION H-H

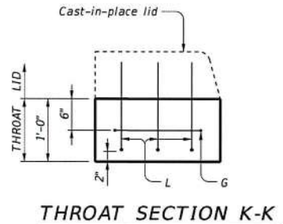


LID SECTION I-I

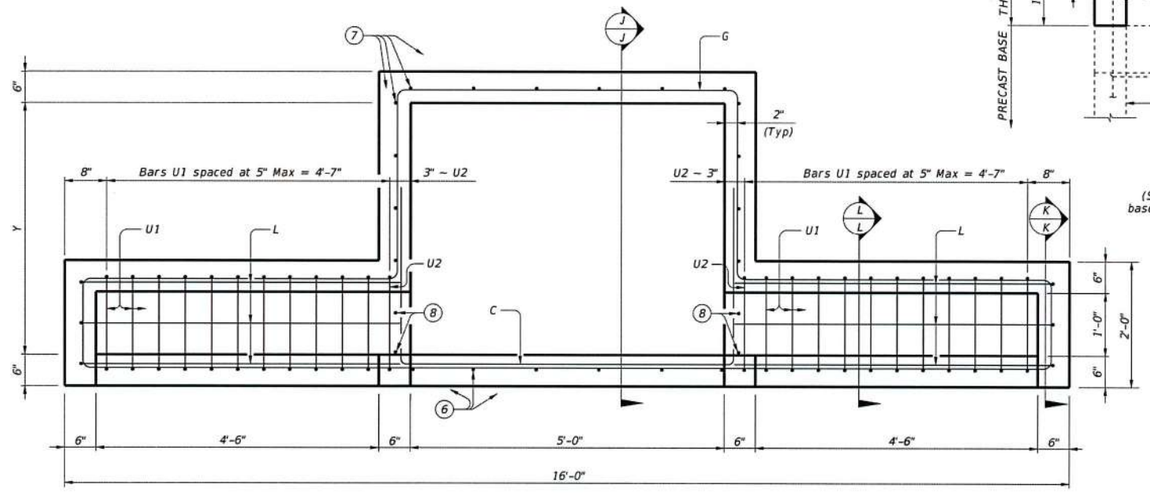


THROAT SECTION J-J

(Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)

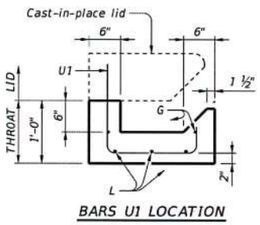


THROAT SECTION K-K

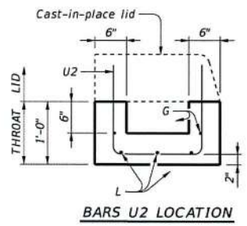


THROAT PLAN VIEW

(Showing extension on each side.)

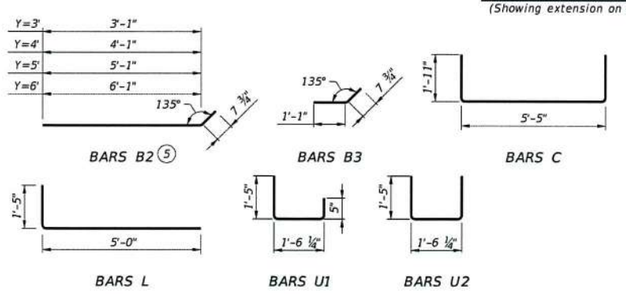


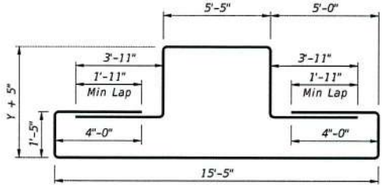
BARS U1 LOCATION



BARS U2 LOCATION

THROAT SECTION L-L





BARS G

Showing one complete bar.

(3) Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.

(5) Cut reinforcing bars as needed to provide 1 ½" clear to manhole.

(6) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".

(7) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 ½".

(8) Do not extend reinforcing bars from precast base.

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CURB INLET DETAIL- 4